

Investigating the Space of the Invisible

**Conversation with Professor Arthur Zajonc
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Otto Scharmer**

COS: Arthur, what questions have been organizing your work? What was the context of your own life that first gave rise to these questions?

Arthur Zajonc: That goes back more than 30 years to my initial study of physics, which was primarily animated by a longing to come to a deep insight or understanding of the world around me. I was probably pretty naïve when I was 20 years old, but that was the animating hope.

COS: When you were 20 years old, you ventured into studying physics. Where was that?

Arthur Zajonc: At the University of Michigan. I had started in engineering and then quickly transferred into physics, to pure science.

COS: Where did your folks come from? Where did you grow up?

I. Childhood: Living in Two Worlds

Arthur Zajonc: My father came from a Polish family. He was the first in his community to go to college. His parents were illiterate. They were immigrants at the beginning of the 20th century. So one early childhood memory was my circle of Polish relatives cavorting and playing pinochle and what have you. You could almost describe it as a peasant culture translated into the US.

COS: Where was that?

Arthur Zajonc: In New York City, Staten Island. By contrast, my mother's side of the family was more aristocratic. She had grown up in Richmond, Virginia, and was a Daughter of the American Revolution. Her father had worked his way up to become president of a large British and American tobacco company. Visiting them, which we did quite often, was like moving into a whole other world, with servants and tapestries, Persian rugs, and gardens.

But as a child, I saw these as simply two worlds, two grandparents, and two communities, one the elegant South and the other, the immigrant population of the Northeast. In some ways, my mother and father brought these two dimensions of

American culture together—the old traditions of the plantations and elegant rituals of the South with the rough-and-tumble immigrant North.

I've been grateful for both of those worlds. They've given a lot to me and my family. My father was a practical person who really wanted me to be in some kind of a practical field – engineering, business, something like that. I started in engineering primarily because of his interests, but quickly transferred into the pure sciences, which had always been my interest.

When you're 18 or 20, you don't have a lot of clarity. In retrospect, you can interpret it in ways that provide the clarity you didn't have then. But I do remember really longing for a large view of the world, something comprehensive, deep, and luminous. I felt that physics would get me there somehow.

In '67, when I went to university, there was a technology and science boom. It was the Sputnik era. Science and technology were key.

II. Entering University in 1967

COS: 1967 was an interesting time, wasn't it?

Arthur Zajonc: Yes, there was the Vietnam War era and the Civil Rights Movement. The University of Michigan was an active campus where a lot took place. SDS was born there.

I participated at the margins of the counter-cultural revolution. I haven't been a political radical or anything of that sort. My interests have always been more scientific and philosophical. The things I found most interesting or troubling were the limitations that I was then discovering at the end of my undergraduate studies in physics, the limitations of this method. I was trying to satisfy my large longings through physics, but it was proving more and more inadequate. As I learned more about physics and became more technically competent, it seemed physics wasn't going to provide the answers I was looking for.

III. An Empty Vessel

COS: In retrospect, how would you articulate the question that back then drove your interest? For what question were you were looking for an answer?

Arthur Zajonc: It was the large question of meaning, of purpose. When I was a junior, I was extremely discouraged by what I was coming up against in my academic studies. I'd started off as an A student. The academic stuff wasn't so hard; it required some work, but it wasn't difficult.

But it just didn't seem to offer what I was looking for—a longing not just of the intellect, but also of the heart. I felt like I was going nowhere. Science was somehow an empty vessel.

By the end of my junior year, I was going to drop out and try to find some meaningful work, something that had direct application and provided for the betterment of folks, rather than pursue increasingly academic and obtuse fields of study.

COS: An empty vessel because you were just looking at the exterior?

Arthur Zajonc: I'd say empty vessel because I was only dealing with externals. In that period, I certainly wasn't so clear. Now, I would say it was a reductive mode of inquiry. There was really only one kind of answer. It was in terms of a very simple set of concepts and very simple set of materialistic primitives. The whole world was supposed to be articulated in these, and that was supposed to be satisfying.

Intellectually, I could see how that might be interesting, but it just didn't speak to the things, intuitively, that I cared about. Around that time, I made my very first trip to Europe. I was born in Boston and had lived the first part of my life on Staten Island. Then, when I was 12, we moved to the Midwest, near Chicago. I grew up in a very midwestern, suburban neighborhood of all new houses. I played basketball. But I never had any exposure to culture. I'd never heard classical music. I'd never seen a work of art. You're from Europe. It's must be hard to imagine.

COS: Never? Until when?

Arthur Zajonc: Till I was in college, age 19, roughly. Then I decided I would become educated or cultured. At the university there were chamber music concerts. I saw them advertised and didn't know what they were. But I started going to the performances; it was difficult for me to even stay awake, because the only thing I'd ever heard before was AM rock radio. I went to the little galleries and the little museum on campus.

IV. Journey of Discovery: "A Whole Universe Opened Up"

Then, between my sophomore and junior years, I went to Europe for the first time. It is saturated with history and culture, which the suburban Midwest lacks. We didn't even have a downtown in the town where I lived. There was no center of town, just sprawl.

So my trip was exhilarating in a way that's hard to exaggerate. A whole universe opened up.

COS: Where did you go?

Arthur Zajonc: I worked for two months, saved up money, and got a Europass. I went from one city to the next, Paris, Rome, Amsterdam, all the major cities. When I got out of the train, I would go to the information booth and ask, "What are the famous things here? Which museum is famous? What am I supposed to see?" I had no knowledge of any of this; I was just *atabula rasa*, a completely blank slate.

In Florence, they sent me to the Uffizi Gallery. I had never heard of any of the big

names, Botticelli, Michelangelo, Leonardo, or Raphael. These were unknown to me.

So I would stand in front of the paintings because they were important. I made my way around Europe, visiting these remarkable buildings, ruins, Rome, the Forum, and the great museums. I'd listen to concerts, hang out with young people, and sleep in pensions and the parks.

When I came back, I couldn't stop talking about my European experience. I know that I bored everybody to tears with it back home, because they just couldn't connect to any of it. But for me it was a watershed.

COS: So you were around 20 or 21?

Arthur Zajonc: Yes, and the connection between that world and the world of physics and technology was not obvious. When I was going to the University of Michigan, I had to take four non-science courses, out of 40. When I returned from Europe, I took an art history course, because I wanted to know what had I seen.

A very brilliant lecturer led me through all the museums that I'd visited in slides and told me all the stories and history associated with the artists and images. For the first time, I experienced the joy of history. I mean, as a science student, you never took history or literature courses. It was all math, science, and engineering. So that was exhilarating.

That period was when I turned partly away from the technical dimensions of my education and began to explore the humanities for the first time. That was turbulent because it upset the kind of natural trajectory of becoming a scientist or technical person. It was a cross-cutting experience that opened possibilities for the human spirit that I had never encountered before.

V. What Am I Here For? Which Way Do I Go?

In that period, I was experiencing a crisis of meaning. Here's this world of Europe, the world of culture. And here's the world of technocracy and scientism. Where do I belong? Where's meaning to be found? It seems dead over here in the science side of things. But this is what I'm good at, and some part of me loves it. At the same time, I want to throw it all away and rush into a new romance with this other culture. In the 60s and early 70s, everything's in upheaval and being challenged.

So I came close to dropping out. I actually got a D in a physics course. When I went to talk to that professor, he saw it as a larger, more existential question. I was able to handle the material; when I took the course again, I got an A. But it was really the question of why am I here? What am I supposed to do with my life? Which way do I go? How do I organize my inner and outer activities and worlds?

Through Professor Ernst Katz, I came into contact with Goethe, Steiner, and the archetypal questions living unconsciously within me that became gradually more conscious. Katz, a physicist, was of Dutch extraction and had these two cultures very

much within him. He introduced me to other people, including a German professor who was a great scholar of Goethe's scientific writings.

VI. The Eye of the Needle and Goethean Science

So, during that period, I went through the eye of the needle and ended up with a very rich set of new friends who were professors and a circle of students who worked with them. A small circle of academics, researchers, and quite brilliant people became very significant mentors for me. Without those two people—the German professor, Alan Cottrell, and the physics professor, Ernst Katz—I would have bailed out and left academics.

They held up for me the possibility that you could bring these orthogonal dimensions of life—the scientific, technical, and academic—together with the cultural, spiritual, and meaning dimensions of life, and find some kind of reconciliation.

COS: So the eye of the needle is the hidden connection between these two worlds?

Arthur Zajonc: Yes. It's one thing to say that human beings have two sides, the science-knowledge pole and the other, the meanings-values pole. These are – in Stephen Jay Gould's language –two non-overlapping magisteria: the magisterium of science, knowledge and reason on the one side and the magisterium of, say, religion, arts and meaning and so forth on the other side. They have nothing to do with one another; you live a full life by having some of both, like a balanced diet. You do a little bit of this and you do a little bit of that.

But these gentlemen at Michigan suggested that was not the most interesting or best way of connecting these dimensions of life, but there was a deeper way to bring them into relationship, by changing our understanding of knowledge itself. That was what Goethe represented. Goethe knew the romantic tradition and the great classics. He was fully part of that world of European culture. He helped define the world of European culture. He also knew enough science to know that the kind of science that was present – namely, the Newtonian science that was active in his day – wasn't really reconcilable with the arts. You couldn't really bring those two worlds together. He refused to go along with that and say that's the way things are and we'll just keep these two worlds separate.

He said there is some way to recraft science, broaden it, or understand it differently and understand knowledge differently so that it's large enough to extend into the world of aesthetics as well as the moral and spiritual dimensions of life. These two worlds would then become one world, and the human being, as opposed to having two parts, could be experienced as really one organic whole with different aspects, different emphases, but really all of one piece.

At 21, I was picking up the study of Goethe's science under the tutelage of the German professor, Alan Cottrell. I actively studied Goethe's color theory. My first published paper was on Goethe's color theory and scientific intuition, which was published in the *American Journal of Physics*. I gave talks to Alan Cottrell's German classes on color

theory and Goethe.

COS: What then was the basic proposition Goethe brought into play? How did he try to reconcile these two worlds?

Arthur Zajonc: Well, the way I talked about it then and the way I still think is that **Goethe was first a very thoughtful critic of the unconscious reification of hypotheses and models.** That is to say, the way we do science is largely one where, with experimental data and because of certain theoretical and historical predispositions, we create models of the way in which the world actually is. So we have an atomic theory that is supposed to account for the light spectrum or whatever. And we have economic models that are supposed to explain certain kinds of economic processes that go on between or within countries.

You can ask, what's the standing of these models? What's the ontological status of these models? Do they have standing in and of themselves? Do the models depict reality or not? And, of course, in Goethe's period, most scientists thought they depicted reality. People thought that models showed us the hidden way the world was. The world was matter and motion.

Goethe, by contrast, first of all critiqued those assumptions, that basic attitude. And he took a much more phenomenological stance. That is to say, he thought that the data themselves were the reality. The models were useful, but they were basically a kind of scaffolding, as he described it.

But, Goethe thought that what one was working with and attempting to come to was not a perfect model, but an insight. The moment of discovery, where one perceives the hidden coherence in nature, is the longed-for objective in science, as opposed to a model that somehow represents that insight in terms of a mathematical or mechanical system.

The phenomenological engagement then becomes a kind of focus. So the first factor is, you might say, a critical function that Goethe brought. This was about 1800. You see this happening in the philosophy of science effectively around 1900, because Goethe was about 100 years ahead of the so-called golden era of the philosophy of science—1900—when the sciences underwent exactly this kind of critique in the conventional, academic disciplines. So he anticipated that.

VII. Three Stages of Goethean Science

He also anticipated the phenomenologists, like Husserl and others. In Goethe's scientific approach, one sets aside models and systematically investigates the phenomena themselves through three stages— **what he called the first stage of empirical phenomena, the second stage of scientific phenomena and the third stage of pure, archetypal phenomena.** Throughout these three stages, one moves from working with first observations, and empirical phenomena to a systematic exploration of changing the conditions of appearance, so that you can distinguish the essential from the unessential factors. That's the scientific domain, the scientific phenomena. Then you come, after having made that whole journey, to a point when you stand before the

archetypal phenomena itself—where only the essential conditions of appearance are present in the most simple and eloquent instance of the law, one you see. That is, you're not writing the law down mathematically but actually perceiving it.

COS: What example would illustrate these stages?

Arthur Zajonc: The world of color is filled with casual experiences of color. You open your eyes. It's a fall day, the fields are filled with beautiful colors of nature, and the sky is grey and blue with clouds. The sun is starting to set; it's late afternoon.

So you notice the world of color. You are in the world of the empirical phenomena. You begin to organize those colors into categories. Some colors are associated with surfaces, like the color of the table, the books, or the leaves. Other colors are not, like the blue of the sky. There's no surface for that blue patch of sky up there. So we see a definite color, but it's not anywhere in particular. It's not located at 100 meters in front of us, or 1 mile in front of us. It's a phenomenon, but it's not localized.

So that's a color experience, but it's of a different character. Its nature is different. Goethe, therefore, made a distinction between what he called chemical colors on surfaces and physical colors like the blue of the sky. In the latter case, what he called physical colors were physical only in the sense that a physical process was generating them, but not locating them on a surface, which were chemical colors.

The third set would be colors that are physiological or psychological in origin; when you close your eye and press on it, you see colors; dream colors is another example. Such colors don't depend on an outside stimulus.

So the first thing that starts to happen is that one moves away from just the naïve experiences to classifications of experience. One begins to organize one's experiences based on their types and based on the conditions of appearance, as Goethe constantly remarked. And those conditions of appearance can be varied by the experimenter.

So you begin to realize which conditions are important and which other ones are not. That helps you to separate out a certain class of color experiences that share a certain set of essential conditions of appearance. And then there's another class that have a slightly different set of conditions for appearance, or maybe very different conditions.

Now you've got a set of domains. Let's say in one of those domains—for example, the domain that includes the blue of the sky—you can ask, is there a way of understanding, in terms of actual perception, the simplest features that constitute the blue sky experience, or the red sunset experience, something like that? What are the elements that must be present in their simplest number? There might be complexities that come in, but the simplest in order to produce, say, the blue experience of a physical color, like the color of the sky.

For Goethe, the three conditions were light, darkness, and the turbid medium. You have the light of the sun, which enters into the turbid medium of the atmosphere. One looks through that turbid medium, illuminated by light, into darkness, namely, the depths of space. Take the light away and you have just the depths of space behind, the

night sky. Or take away the turbid atmosphere as on the moon and again the blue sky disappears. Bring in the combination of light and atmosphere, look through that turbid medium now illuminated by light, and you see the blueness of the day sky.

So, an essential condition of appearance is the luminous quality of the sun, a second is the turbid medium of the atmosphere, and a third the dark depths of space into which one looks. However look directly at the sun and you don't see blue but the reds of the sunset.

This triad of light, darkness, and the turbid medium becomes the elementary factors that, in one set of relationships, give the blue of the sky and, in another, give the red of the sunset.

COS: In school, I remember we did an experiment in which you had a source of light, you placed that behind the turbid medium, and it comes out yellow or reddish.

Arthur Zajonc: Toward red, right.

COS: And back to yellow.

Arthur Zajonc: And as you increase the turbidity of the medium, the following happens. You can take a fish tank filled with water, shine a light through it, and put a little milk or some kind of turbid element into the water. As you gradually increase the amount of milk, the transmitted light goes from yellow through orange and, just before extinction, gets quite red. The sun moves through that same color sequence because as it sets it's moving through more and more of the atmosphere and the light path is longer and longer through the atmosphere.

COS: I don't remember how to create the blue . . .

Arthur Zajonc: Well, you take that same turbid medium and, as opposed to looking toward the light through the turbid medium, you look instead from the side into the fish tank perpendicular to the direction of the light. First the water is clear, and then as you put a little bit of that milk in it, the milky water gradually takes on a bit of a blue color, especially if you turn off the room lights. Put a piece of black paper or something dark behind the tank, and you look through the light-filled, turbid medium that is quite luminous because it's scattering a lot of light out. You look through that luminous milky water into the dark behind and see a blue tinge. It's not as dramatic as the blue sky, but it definitely has a blue caste.

It's the same thing you'll see in a smoky pool hall where there's a kind of blue haze. There are shaded lights shining on the pool table and a turbid medium—the smoke passing through the air. You're looking through that light into the dark perimeter of the pool hall, which is typically not well lit, and you see a kind of blue haze.

That is the same thing. Any time you have this relationship of light filling a medium, such as water with a bit of milk in it or a hazy, smoke-filled room, and you look through that light into the dark behind, you'll get the blue tint. If it's of sufficient depth, then you get the blue of the sky and the blue of the ocean.

Such experiences became for Goethe an archetypal phenomenon, because it is something that still is a phenomenon while providing the occasion for insight into the essential conditions of appearance. That is to say, you see the blue as both phenomenon and as idea. At the same time that you see the blue of the sky, you see the relationship. You can either see the blue of the sky knowing it's an archetypal phenomenon or you can see it simply as a blue sky. What distinguishes a blue sky being seen as an archetype is that, at the same time you're seeing it, you also bring the cognitive dimension of light-darkness-turbidity. And you see that triad co-present with the phenomenon of the blueness of the sky.

COS: You see the enabling condition.

Arthur Zajonc: Yes. You see them instantiated in the phenomenon. Goethe said that, of course, you don't really see the archetypal phenomenon with your eyes, because it's a pure ideal. But, on the other hand, you do see it, because the blue of the sky and the enabling conditions, that triad, are co-present and have to be present there for the blue.

VIII. Real Knowledge is Seeing

So in some ways, it's the crossing point between the phenomenal domain and the conceptual domains. You're at that threshold. And then, that moment of seeing is the moment of discovery, of insight, of *aperçu*, as Goethe called it. Everything hangs on this *aperçu*, the possibility of apperception, of perceiving. **Real knowledge is, for Goethe, a kind of seeing. It's not just opening your eyes and seeing what's around you in the naïve sense. But it's basically moving oneself inwardly to the point where one can stand before the blue of the sky, seeing it not only as simple blue but also as the co-presence or instantiation of these three factors.**

So, one lives in this liminal space between perception and theory, but theory, in its original sense of meaning "to behold"—the Greek root, meaning to see or behold.

COS: To behold.

Arthur Zajonc: Theory does not mean to compute or to model or to calculate. It actually means to behold. We still have that in our colloquial expression of, "Oh, I see," when we mean "I understand." You didn't see it first. Now you get it, now you see it.

And theory is basically the Greek way of saying, "Now, I see." To do theory means to come to the place where one sees more deeply, where one beholds. So it has, in that sense, a direct encounter associated with it, as opposed to one mediated through what we would normally call theory, namely models that stand between us and experience. It's quite the obverse. One actually heightens experience to the point of true, intimate beholding.

IX. Two Types of Science: Distancing from or Participating in the Phenomenon

This view works wonderfully, I think, across the grain. The whole idea of science is, of course, based on objectification—to become objective in your knowing, which typically means distancing. **Conventional science objectifies by taking an experience and replacing it by a set of more “fundamental” objects such as atoms, molecules, interactions, and so forth. So, as opposed to the blue of the sky, physics says it’s Mie scattering and the blue results from small, polarizable molecules interacting with electromagnetic fields, setting up secondary waves. This leads to a differential scattering cross-section with a dependence on the fourth power of the frequency. In this way you have an objectified account.** And it’s now been shorn from the dangers of my subjective experience. Namely, I see blue. And I like blue a lot or whatever other subjective association it might be.

Goethe took a very different approach. He was aware of the dangers of my interpretation and personalization or becoming subjective in a problematic way. So he sought to mitigate those dangers in a variety of ways. But, as I see it, his resolution of the problem was contrary to the above goal of objectification. Rather than becoming distant from phenomena by taking models as the intermediary, Goethe sought to refine and cultivate the investigator’s capacities for perception.

Science says to step back and gain a distance, because you’re inevitably going to make a mess of that which you are investigating. Goethe said, no, become more graceful, become more delicate in your observing. He called it a delicate empiricism. He said that there exists a delicate empiricism in which the observer becomes united with the observed, thereby becoming true theory. He said this ability belongs to a very highly cultivated age in the future.

So this delicate empiricism allows one to come close to the phenomenon under investigation, as opposed to having to move further away. One actually unites with the object under observation. So, rather than disconnecting from nature, one is participating it. Through that participation, something happens. Here’s one of the other elements from Goethe that is key for me, what I call *Bildung*, which has two meanings in German: on the one hand it means education, but really it means formation.

So by attending to an object or attending to phenomena, one moves into and participates in that phenomenon and, as a consequence, brings an activity into one’s self, which is normally outside. I see the blue; I bring the blue into my self. There’s a blue experience. That blue experience actually cultivates something in me. The closer I attend, the more shades of blue I will be able to discern. The conditions of appearance will become more apparent. So, through the process of attention, there’s also a process in me of transformation.

Goethe said that, “every object well-contemplated creates an organ within us.” So, contemplate the object well; that creates a capacity within. That capacity is then required for the last step of perceiving the archetypal phenomenon. If you don’t have the organ, you won’t be able to perceive it; you’ll just see the blue sky.

So there’s a kind of hermeneutic circle in which I attend to the outside with the capacities I presently have. That attention then cultivates capacities within that are built on the rudimentary—you might say elementary—forms of capacities and organs I

currently have. It cultivates them and develops them into a new, more vigorous and attentive form of cognition. I bring these to bear on the phenomenon before me, and it goes again through another cycle.

Goethe's notion of science is transformative. You do not come with a pre-existing set of capacities that include, say, rational, deductive capacities, as well as eyes and ears and so on—the physical senses. Rather there's a kind of organic, dynamic sense of the human being and the human being's potential. That potential is cultivated and actuated through an active engagement with the world.

I go back to the story I was telling before. I'm standing in front of a painting I've never seen before. I don't know who painted this. What am I doing? I'm simply trying to give it my attention. Why bother? Why not just read about it somewhere? Well, to learn to see it. The only way you can learn to see the painting is to be in front of it. It helps to read about it, but the main event is just putting yourself in the way of the chamber music. You may fall asleep at first. Then, gradually, you begin to see. Oh, yeah, Mozart. I know who Mozart is. That sounds familiar, and I like this piece of music over that piece of music. You learn to discern the different elements that comprise the music you are hearing and the various instruments used to produce it.

So you gradually become more literate, more perceptive. You develop capacities that allow you to savor and appreciate what surrounds you in a more refined way. That's true for scientists, as well as for artists.

I think Goethe's form of science is, in some ways, connected to the contemplative traditions. You are to attend. That attention provides for transformation. It's not necessarily a mantra you're attending to. It's an object in nature. It's a work of art. And that constant attention is a kind of schooling. In that sense, the human being's potentials are actualized. In that sense, I think it is a contemplative form of science, a contemplative form of knowing, as opposed to a simply deductive sequence of thoughts that one works through. Goethe and I both appreciate the deductive and analytical forms of knowing, that goes without saying. But they become one-sided and tyrannical if they're not enlarged by this fuller epistemology.

Of course, Goethe was primarily animated not by some kind of hope for a new scientific discovery—although he did make a couple and was pleased when he did—but by aesthetic, moral, and spiritual hopes for his form of knowing. The way he got started on color theory was by painting with a group of expatriate Germans in the Italian hill countries. He painted with them and he asked questions concerning the aesthetic use of colors. When he went back to Weimar after his Italian journey, he wanted to find out the true nature of color. And the only thing he found were Newton's corpuscular theories, which were then very prominent, and a bit of the new wave theories of light. He said that this was going to be of no help for the aesthetic use of color.

COS: He was an action researcher.

Arthur Zajonc: Yes. He was about to give up the whole project and then he thought, "Well, I can just do this myself. I'll just jump in." So he borrowed a set of prisms and other optical apparatus from a privy counselor in nearby Jena, Hofrat Buettner, and he

did a set of experiments with those. He began to see what he felt were some fundamental errors made in the conventional treatment of color and then developed a whole optics laboratory and sets of experiments that he extended over many years. His main color writings appeared in three volumes in 1810. His scientific or what he called the didactic volume leads the reader through many experiments and observations, but he also wrote a polemical part in which he criticized Newton, and the final volume was the first proper history of color ever written.

Goethe's scholarship was enormous in this area. He did a very close study of Newton's optics experiments and wrote many critical statements about them. He organized his own didactic part into several hundred paragraphs, each an observation, experiment or inference leading to the archetypal phenomenon, as I just described. Goethe's theory of color is a model of his scientific method.

COS: So, looking again on the blue sky and the three stages, the empirical, the scientific, and the archetypal, I think I have a sense of the first one.

Arthur Zajonc: The first was simply the casual observation. The second I think of as the sequence of variations. And the variations in the case of the blue sky may be out of your control. Maybe the blue sky went away. What caused it to go away? There are clouds. Well, there's something about clouds that doesn't give blueness. They can be white or grey, but they can't be blue. Why is that?

Too much humidity, too much moisture in the air, is an obscuring agent. So an essential condition for appearance is the absence of that level of humidity, moisture, what have you. If you want to translate it into a conventional physics' standpoint, the relevant factor is the size and density of the scatterers. It's essential that the small scattering objects from which the light is scattered—the turbid medium—not be too big. If the diameter of the scatters (which might be tiny droplets of water) is larger than the wavelength of visible light then the law responsible for the blue sky no longer works; one enters a different regime and the blue sky become grey.

Interestingly, although Goethe's observations are completely phenomenological and without any reference to wavelength or things of that sort, you can often find conventional, reductive analogs. You can say, in hard-nosed scientific terms, what are the essential conditions of appearance? Well, you wouldn't leave it quite so vague as it's "too cloudy" or there's "too much moisture in the air" or what have you. You'd say "particulate size."

So you'll say, okay, it requires a broad spectrum of visible light. Light's filling a particular kind of turbid medium, not too turbid, not too filled with moisture or particulate matter. But it can't be absent; if it's absent, then you're on the moon. You don't get any blue sky on the moon. You've got plenty of light, you've got plenty of darkness, but you don't have any blue sky, because there's no turbid medium.

The range of experimental variations or observations provided by nature is Goethe's broad second range of scientific phenomena. After working with these, at some point it becomes clear that only three elements are needed. Then you're converging on the natural, on the archetypal phenomenon. It's still a phenomenon. It's interesting how in

each of those stages, Goethe stayed with the phenomenon and didn't shift to an abstract theory. In each case, you're elevating the phenomenon itself.

Years ago, I read the philosopher of science Norwood Russell Hanson. He wrote something that stuck with me, namely that you can't explain phenomena from the same level at which the phenomena themselves are. You need a higher level, which then is the framework and means you use to give an account. In conventional science the model plays this higher role. But what about Goethe?

You could say that Goethe always worked with phenomena. How in the world did he manage to give an account? He managed it through his sequence of three levels to phenomena. Although remaining with phenomena, Goethe meets Hanson's requirement of rising to a higher level, the archetypal phenomenon. If he had been just hanging out with nature, really grooving on it, having a good time, observing lots of details, there's no theoretical element to it. You're not seeing anything. You're not seeing beyond the specifics. In order to see coherence, you have to move to another level, an intermediate level of variation and identification of the essential conditions of appearance. Then you rise to the top: the archetypal level.

X. I'm Not Interested in Causality

Another important thing for Goethe is that he said, "I'm not interested in causality." We normally explain things through causal networks. The reason such-and-such takes place is because . . . So the reason for the blue sky is an electromagnetic wave that strikes the polarizable small particle. That particle oscillates and has its own accelerated charges. Those accelerated charges produce secondary waves and so on. So you give a causal account.

Goethe had very little interest in any of that. He said dramatically, "Man in thinking errs particularly when inquiring after cause and effect; the two together constitute the indissoluble phenomenon." In a sense, cause and effect is an illusion. It's something we decide on, something we construct. You can actually do an interesting analysis. Hanson, the same philosopher, had done this on cause and effect and the murkiness of the whole question becomes evident. But, cause and effect were simply not an interest of Goethe's.

If he was not interested in cause and effect, well, then what kind of explanation could he offer? What he was more interested in was what I think of as an organic account. It's much closer to the way Aristotle explained things. If you just think, when these three factors are co-present, with them at the same time is blue. They don't cause blue. We tend to think this caused that, right? But, no, it's just an organic whole. Blue goes with these three.

COS: So Goethe was interested or maybe describing the different type of causality where cause and effect are not distant in space and time, but more co-present, or certain conditions that give rise to the phenomenon?

Arthur Zajonc: Yes.

COS: Although he probably didn't like the notion of causality at all.

Arthur Zajonc: Yes. For example, you'd say, I drop a ball. Why does it drop? We would say it drops because of gravity. That is to say, the cause of it is a gravitational force that pulls it down. Well, Goethe really didn't like that picture. That it drops is a fact. That it drops because there's a force acting on it is a hypothesis that you do not see, but that you somehow infer on the basis of a whole set of theoretical notions, in the modern sense of theoretical. Not seen, but inferred.

Then what is this thing you call "gravity"? It's very mysterious. Even today, with quantum physics, it's very mysterious. What is gravity? So you project from your own sense of what you mean, intuitively, by human force acting on an object. You imagine there must be something similar happening between the Earth and the falling object. But, of course, the object is also pulling on the Earth. We don't see much how the Earth is falling up to the object, because it's a larger object.

So Goethe basically said, "I'm going to stay with the phenomenal domain. I'm going to stick close to the lived experience as we have it." In which case, yes, there's light. That's an essential condition of appearance. Yes, there's darkness. And when light, darkness, and the turbid medium are in a particular arrangement, there is blue. When they're in a different arrangement, there is also, with that arrangement, red.

XI. The Observer

COS: It's really light, darkness, the turbid, and the observer, right?

Arthur Zajonc: Yes, and the observer. **Observer is key, that's true. In fact, he started his color theory with the observer. In many instances, we may quibble with him concerning his notions on color, this triad. But he did study vision and color illusions, what he called physiological and psychological colors. And he was the first one to do so, in part because he valued the observer far more than did the conventional science of his day. Indeed a number of the early scientists of color vision dedicated their books to Goethe as the person who inspired them. Up until that time, visual illusions were thought to be nothing more than demonstrations of the unreliability of vision. Whereas Goethe remarked that, "optical illusion is optical truth." That's another little quip of his. He held that there's no such thing as visual illusion.**

What I think he really pointed to in these statements is that the eye sees what it sees, period. You may have a theory that the length of this line segment is the same as that length, but they may well look different depending on context. But when you see something, that's what you see. So there can't be an illusion in that sense. What visual paradox does is open up a deeper understanding of what vision is. It's not a one-for-one registration of the external world on the retina that's processed in a one-to-one way. It's much richer.

An illusion means that you already have a notion of what vision really is, ideally, as

opposed to taking it for what it actually is. But vision is what it actually is and nothing other than that. But by idealizing it and then instantiating the ideal in place of the thing – namely, true vision, just as you and I have it – you created an artifice. Goethe was very subtle on these things. It's an important point because as a consequence Goethe then says, "Okay, let's pay attention to what vision actually is, not to an imagined ideal or fabricated notion of what it is."

Then visual illusions give you the best handle on what vision actually is. So researchers who work with the physiology and psychology of vision—all that research—study visual illusions as one of the primary tools. How is that we can account for visual illusions? If you can account for them, then you really know how vision works.

Or color deficits. Goethe said that if you want to understand color vision, study the color blind. It was a whole principle of scientific research for him. Look for pathologies. Don't merely go with the perfect, ideal form. Go with the imperfect, because you learn the most.

So Goethe's whole focus, so contrary to the conventions of his time, completely opened up an area that had been dismissed as unreliable and not worth attention. But by giving full attention and a certain devotion to the human observer, the human eye, Goethe opened that domain. So, definitely, you have these three conditions and then you have the human being throughout.

XII. Goethe and Sheldrake

COS: When Rupert Sheldrake talked about his own journey—when he began studying biology—he described how shocked he was to discover that doing science basically means killing things in order to study them. That's when he stumbled into Goethe and that gave him a whole different notion. As you said, the whole attitude is not to distance yourself, by killing or not killing, but by basically refining the quality of your attention or by attending to it.

He also mentioned, in describing his theory or his notion of morphic fields or morphogenetic fields, that while they are similar to the Goethean approach of doing science, the main difference would be that, through the mechanism of morphic resonance, his morphic fields are evolving, so that the field evolves rather than staying stable all the time.

Arthur Zajonc: Well, that's kind of interesting here. **Goethe was pretty faithful to his own phenomenological orientation. So when he studied plants, about which I know less, or animals and physiology, he did so with the same kind of extraordinary attention to the details that he did in color. There are hundreds and hundreds of examples and sketches and all manner of careful observations Goethe made in the life sciences.**

His conclusions are again drawn in a very similar, three-fold way. He tries to find the essential transformations that, say, move from one bone to the next in sequence. How does the plant leaf metamorphose as it spirals around the stem? And how does a

metamorphosed leaf transform into the calyx, the petal, the blossom, and even the pistil and stamen? The leaf becomes the Proteus of the plant and takes on all forms. He invented the word “morphology”; he’s the inventor of that whole concept, the metamorphic way of looking at the plant. There’s a single, generative principle, and the leaf is the archetypal phenomenon. You don’t actually speculate about a morphogenetic field or introduce something you didn’t see. It’s like the blue of the sky as the archetypal phenomenon.

Now we could step back and talk about electromagnetic fields. We could talk about the nature of matter and its own field structures and the quantum field that may be spawning wave and particle pairs. And in some way, our whole discussion would be grounded in the experimental facts of modern science or something like that.

But Goethe’s phenomenological approach to botany is still very honest. So I think Rupert Sheldrake is definitely correct in pointing to troubling role of killing that takes place in most of the life sciences. Also there’s a certain kind of intellectual slaying, a killing that occurs when we distance ourselves from the physical world. We replace it with something else, namely, an intellectual construct. Goethe wants to maintain intimacy. I think he would say, “Well, listen, the morphogenetic fields are just another intellectual construct. It’s a particularly interesting and dynamic one, and there’s a certain kind of holism associated with it. But basically, it’s a way of importing a set of new concepts into biology.”

Goethe stayed closer to the phenomena in ways that go beyond what Rupert Sheldrake wanted. Think back to Goethe’s aesthetic interests for the use of color. What he wanted to know was which red to use in painting. He really had a faith in art, as if somehow, at the deepest level, it had lawfulness, and somehow, it had a kind of truth in it. As he was going around Rome, he realized that great art obeyed the same great laws of nature he experienced while studying plants and color.

Well, what about things like moral actions? Goethe really wanted to find a way to develop a form of knowing that could ultimately be extended to include all of human life—the aesthetic dimensions of human life, the moral and ethical quandaries that we find ourselves in, a way of knowing which could handle those things as well.

We might have scaffoldings, as he called them, or working hypothesis, models, and so forth, that help us think through certain possibilities. He said a working hypothesis is better than no hypothesis, if it actually gets you somewhere. But then you fall in love with your hypothesis. It then becomes what the English philosopher Owen Barfield called an idol. You forget that the hypothesis is only meant to point you toward something beyond. Scaffolding is really meant to help you build the building. But then you take the scaffolding down, because your real concern is with something greater than what the scaffolding is, namely, from his standpoint, the aperçu, the actual direct encounter with the *das Wesen*, the being that’s livingly before one. How difficult is it to hold onto that living being before you? In other words, you’re really interested in the plant. You know, the morphogenetic field might be a useful concept that would allow you to make certain predictions, and certain kinds of understandings might be assisted in that regard. But you’ll want to move away from such concepts at some point, so that you actually experience what the morphogenetic field is pointing to, say, the possibility

for holistic metamorphosis and development of a particular kind.

XIII. Goethe and the Third Base for Valid Cognition in Buddhism

If Goethe was so keen on knowing as seeing, what are the limits, or are there limits, to human seeing? You could ask, for example, is it possible to see in some sense, maybe a different sense, to experience the morphogenetic field?

I had a conversation with the Dalai Lama on this general point. He responded that in Buddhism, there are three bases for valid cognition.

The lowest level is authority: the Buddha said so, the Dalai Lama said so, Claus Otto said so, whatever.

Second is valid inference. I have a set of facts about plants or whatever. I infer the existence of a morphogenetic field. If my evidence is really ample, my argument is tight, and my reasoning is tight, I will make a valid inference about the existence of the morphogenetic field, which I should be able to test through other experiments. I may never reach the third form of valid cognition.

The third form of valid cognition is direct perception, which doesn't mean just opening your eyes and seeing something. Direct perception is, in its own way, a very rigorous form of cognition. You have to be able to distinguish between illusions and the genuine artifact. But in Buddhism, the highest form of knowing occurs through a direct perceptual engagement. Perception is associated not only with the senses but also a direct perception through the mental sense. There are the five physical senses and also a mental or a mind sense. So you could say there's an inner perception as well as an outer, physical perceptions.

Is it possible to move from one to the other? Is it possible to move from authority to valid inference and from valid inference to direct perception? Let's say that Rupert Sheldrake proposed morphogenetic fields, which he has. Right now, I think of them as potentially valid inferences that are pretty speculative in most people's thinking, but let's entertain them as potentially valid inferences.

If they were a valid inference, you could ask, is it possible to convert them to a direct perception? Could you see them in some way or another? I asked that of the Dalai Lama when we were talking about these three bases. In physics, you have this all the time. There are many things that you infer, like quarks. You never see an isolated quark. I asked him, is it possible always, under all circumstances, to move from valid inference to direct perception? After laughing a little bit, he said that you may have to work at it for a long time, meditate for many years, even many lifetimes. But yes, the Buddhists maintain that it is possible to convert from one to the next and ultimately come, in all instances, to direct perception if it's a valid cognition.

I agree with that. We may have this intermediate step of valid inference, but if it's, in principle . . .

COS: . . . a scaffolding?

Arthur Zajonc: Yes. And it may be completely legit. As long as you understand it for what it is and don't take it and reify it into an idol. Or take the idol for something it is not. But it is an intermediary. I will get to the point where I have the direct experience. And Goethe really committed himself to that form of knowing as direct experience. So he was very reluctant to give much time and energy to the scaffolding.

Again, why is that important? It's important if one thinks in terms of participation, because the scaffolding tends to separate. If you have a lack of participation, that has moral consequences. So, again, if you think in terms of medical care or the modern era of warfare, the distancing that takes place between the human being and the person we're caring for, teaching, or killing in war, all those distances that we set up have direct consequences. We make different kinds of judgments based on the fact that we have no real connection to the world around us.

So it's not true to say that we don't really need direct perception; we get all the information we need through valid inference. Such knowing is a rather abstract and distanced form of knowing that creates all kinds of problems for us, both intellectual and moral.

If you're directly participating and you're fully inside of that which you are knowing, there's a kind of animation of the self. There are possibilities for transformation of the self. And inasmuch as that which you are imitating or that in which you have now participated has itself many layers, this is the other side of it. The blue of the sky is not just a physical process. It actually creates a feeling in you. It's an aesthetic feeling, you could say. Now, when I speak of Mie scattering, it's a different feeling. It may be an intellectual or mathematical aesthetic, I may have an intellectual association that is quite exhilarating, but it is different from the experience of the blue sky or sunset.

How can you make an aesthetic judgment on the basis of the physical theory of Mie scattering? You can't. But if you can come to the direct perception of the blue of the sky through Goethe's way of viewing it, you've moved toward and into it.

So, direct perception in this sense that Goethe and the Buddhists speak about has enrichment or richness—a kind of multi-dimensionality—that the abstract version does not. One gains practical leverage by simplifying and abstracting and allowing valid inference to do its work. But one often forgets all the things we had to exclude in order to get to the simple model, whereas the direct perception often has a kind of richness and fullness that, to me, is expansive. And that fullness leads one to the other dimensions—the aesthetic, moral, and spiritual connections.

So if you're interested in the full dimensionality of life—the aesthetic, moral, and spiritual—in addition to the intellectual or cognitive, if you have only scaffolding, you're going to miss a lot. Even in morphogenetic fields, it may be very exciting, but there's nothing to feel. There's nothing to put your hands on. You may get intellectual exhilaration. What does it feel like to be inside of it?

XIV. Goethe, Steiner, and Contemplative Sciences

Let's say it's a valid inference, and I cultivate the capacities within me to inwardly move into the morphogenetic field, to feel it within me. That would be a thrill. Well, that takes us to Rudolf Steiner, **because if the morphogenetic field of Rupert Sheldrake is anything like what I think it is, it's connected to the life forces that Steiner speaks about—whose forms are constantly transforming, dynamic, and supersensible, that is not connected to the physical senses, but to the mind senses.** But according to Steiner one does have the capacities actually to shift our awareness to that domain of, let's say, reality. If this new domain becomes one in which we have authentic experience, then we can proceed very much as before following the line of Goethe. But now it's in the method of Goethe not applied to the sense experiences, which he was primarily concerned with, but also in the domain of spiritual experiences, which Steiner was more concerned with.

So Goethe was in some ways laying out a methodology that I think has many similarities to the ways in which Buddhists or other the contemplative traditions treat knowledge. The contemplative traditions, their methodology, and epistemology are adequate on the one side to the physical world around us, but leave open the possibility of inquiry into the spiritual dimensions of life, which are normally excluded from conventional science and conventional philosophy.

Goethe's approach to science, by contrast, kept the doors open. He gave a reasonably good account of the way science actually is done. But then he also opened the door for a way a contemplative science might be done. He didn't really go too far himself in that direction but he did provide a foundation; that's the reason Steiner was so excited about finding Goethe's scientific writing as a young scholar. Steiner saw in Goethe an adequate starting point for a more sophisticated treatment of the philosophy of knowledge that Goethe was not so interested in. Steiner went on to develop Goethe's line of thinking in a meditative and contemplative direction. He sought a methodology and epistemology that could sustain a full, supersensible domain of experience that Steiner, along with many other contemplatives, have had for many centuries.

Going back to the starting point just to recap, the crisis that I experienced when I was 20 or 21 was the crisis of getting the scaffolding only. I was looking for the being within, but the scaffolding seems to be obscuring it. I go to Paris and stand in front of the Mona Lisa and other works of art, and I'm getting a hit. I'm having a new set of experiences, which are of the nature of direct perception, and I'm saying, how do I square these two realms of experience? I'm studying physics and analytic reduction on the one side, and I am opening up to art on the other side. I will not be satisfied with doing one and then going off and doing the other. These two domains of life must somehow come together.

I was fortunate in having a couple of mentors who said there is a way to do it. They hadn't figured it all out themselves. But, over the past 30 years, I think that I have discovered some of the pieces. It means being both appreciative and critical of conventional science, and understanding what it does and what it does not do. It also means being affirmative of human capacities for nuanced development, engagement, and participation. Being open to the possibility that this new epistemology and methodology are not only valid for the external world in which we find ourselves

normally, but also for an inner contemplative world that is also open to us. And that, therefore, we have the possibility not only of external knowledge, but also of an internal or contemplative knowledge.

XV. The Epistemological Reversal

COS: What I heard you describe at the heart of the Goethean epistemology is that you really deal with a different way of approaching data. The phenomenon as you treat it is different from the conventional approach in which you have a set of hypotheses and then you run the data against that, confirming or disconfirming your hypothesis. By contrast, the Goethean investigation occurs in three stages. You immerse yourself in all the details of the phenomenon and into the context that gives rise to it. While immersing yourself and studying all these details of the phenomenon, all of a sudden, the phenomenon creates a holding place or a supreme . . .

Arthur Zajonc: . . . coherence?

COS: A coherence through which the living field of the phenomenon becomes present. So the frame is no longer constituted by a hypothesis, but by the data itself, which then opens the space for the living field to become present. Is that a fair way to describe it? It's an epistemological reversal. Right?

Arthur Zajonc: Yeah, it's a kind of reversal. You have to be a little careful there. There's another triad. **In the philosophy of science one speaks of the hypothetico-deductive method. In it one frames a hypothesis. From that hypothesis, you can make a deduction or prediction, and then you either confirm or disconfirm that deduction. That's one understanding of the way science proceeds.**

Another understanding is the opposite. How do you get the hypothetical? Well, you do that inductively. That's the Baconian approach. You take a wide range of empirical results and then you look for a general law. Bacon has a whole series of strategies by which the researcher was to move inductively to general causes and general principles. But the problem with that, which many philosophers have pointed out, is you can never induce your way to any general principle. It's just not possible. It requires a leap. Charles Peirce goes back and picks up a term that I believe Aristotle first used and called the leap an abduction. You have then induction, deduction, and abduction. You might say that Goethe was really the abductionist among them. He, on the one hand, liked much of what he saw in Bacon, but saw it in some ways as impoverished or as lacking imagination. There's no real role in Bacon for the creative capacity to see, the deeper seeing that you were talking about. Through imaginative seeing, what Goethe once termed *anschauendes Urteils kraft* (perceptive power of judgment), you actually have the possibility of rising to the aperçu—not by an inductive step but by a leap. For Goethe, that's the important moment. That's the “aha” experience of Archimedes. For Goethe, that moment of insight is the key.

XVI. Quantum Physics

Arthur Zajonc: Having moved into the field of quantum physics with my post doc research, I started wondering about the relationship between Goethean science and quantum physics. So I visited Walter Heitler in Zurich at the ETH, he was one of the great physicists active at the turn of the 20th century, who invented the theory of covalent bonding. I knew he had written a couple of articles on Goethe's science and had been interviewed about his interest in Goethe.

I spent most of a day with him, talking about his and my interests and Goethe. Toward the end of our conversation, I said, "You're a famous quantum physicist. I'm a kind of wannabe quantum physicist. Isn't there some way we could apply Goethe's ideas to quantum physics?" He said, "Why would you want to do that? That just doesn't make any sense to me."

That's where he left it. I was much more interested and committed to finding a way to bring Goethe's approach into the present. So I lived with that question for a long time. I think there is a way of doing it, but it's a slightly different way. My book, *A Quantum Challenge*, is an attempt to do that¹. **In quantum physics you don't end with archetypal phenomena, because the phenomena of quantum mechanics are often imperceptible to the senses. They occur in a way and at a level that's inaccessible to sight and hearing. But one can work on the basis of valid inference beginning with electronic outputs that in turn go back to detectors of various types that are sensitive to quantum events.**

But then instead of archetypal phenomena, you have what one might consider to be archetypal experiments where all the non-essential conditions of appearance are set aside, where the simplest and most dramatic demonstration of a particular quantum effect appears. At this point you can try to think your way into the entire situation, into each piece of the apparatus, and what is occurring, and then to hold that. The strange thing about quantum mechanics is that you find again and again that the thoughts you bring are inadequate to the effects you're encountering. There's no consistent classical thought with which you can somehow circumscribe these phenomena.

It's like a koan, such as "one hand clapping." It doesn't make any sense. So you can say it and you can try to think it, but at some point, you hit the wall. And you have the same kind of encounter with quantum effects. So as an experimenter you've created a kind of archetypal moment, you're holding it, you're giving it your full attention, the way Goethe suggests you give it attention. But the thought that comes to it or all the thoughts that you bring to it, you recognize ultimately as inadequate.

What's the lesson from that? Niels Bohr would say it will always be so. You will never form a concept adequate to the phenomenon because your concepts are all built on classical percepts. What I say is, if you hold this new phenomenon in front of you long enough, through this process of *Building* and personal transformation, you should be able to gradually come to thoughts that are new, that are adequate to this new phenomenon.

I am optimistic about the capacity of the human being to evolve not only so that you're able to do experiments in the lab, but in the way that humans think, even if it means thinking in a way that is nonsense from the viewpoint of the classical world. If you

inwardly move enough, habituate yourself enough, there'll be a sufficient transformative force in our own psyche that we'll be able to accommodate even the logic of the quantum.

Part of the reason why this is important to me in the realm of quantum mechanics is that I think it's a kind of mirror of what the contemplative encounters on the other side of the threshold. If you take Goethe's science and project it into the modern scientific world, you enter what I sometimes call the sub-sensible. If Goethe's world is a world of phenomena that are open to the physical senses, the micro world of modern physics is closed to those physical senses and you have a world that's below the sensory. It's too small to sense directly.

So you've discovered things like wave-particle duality. That's part of the paradoxical nature of the sub-sensible. There's something similar on the super-sensible side that one reaches through contemplation. It too has its paradoxes. I also think that human beings have the capacity to encompass in their imaginations and thoughts the full coincidence of opposites (as Nicolas of Cusa called them), of the super-sensible. So, yes, we're schooled mostly in the world of the senses and our concepts are mostly derived from the sense world, but they aren't limited to that. But if one is to go further, it does mean throwing yourself into a phenomenological engagement with both the sub-sensible—through archetypal experiments, extending your mind into them as fully as you can—and also creating nuanced capacities for experiencing through the contemplative method, which leads to the rich, supersensible realities that also surround us. In order to really cognize the supersensible and to know something in those domains requires a new kind of thinking. Not only a new kind of seeing and perceiving that results in new experiences, but the experiences then are also approached conceptually, with new tools. When we encountered quantum effects we needed to develop a new quantum mechanical theory, a new conceptual structure. We couldn't use classical mechanics. We needed new mathematical concepts to handle that which was being discovered. Likewise for the new experiences brought about through a phenomenological meditative life. New concepts and thinking is required.

COS: That's where the Buddhist sense of the sixth consciousness that you mentioned comes into play?

Arthur Zajonc: Right.

XVII. The Capacity for Collective Presencing

COS: What is the language you mentioned that Steiner uses for this?

Arthur Zajonc: The language he uses—the language of three faculties—he calls imagination, inspiration, and intuition. They have their own technical meaning. Imagination is essentially a domain of meditative experience that we come to appreciate as not founded or derived from bodily experience. So all of our normal sense perceptions and even our memory pictures and so forth—memories, conventional memories—are grounded in the body. But we can ask, is it possible, through deep meditative practice, to come to domains of experience where those elements gradually

recede? There may be echoes of them, but we recognize that echo is a nonessential feature. Other qualitative experiences start to emerge, which we recognize increasingly are not grounded in our biography or in our current bodily experience.

That first level, which I think of as a pure domain of experience – unintelligible to begin with, we have no idea what it means, it's just happening to us – is the domain of imagination. It's associated with a diminution of body-based experience and a heightening of mind-based experience, freed from body-based experience. It becomes its own domain of experience, and one can, through meditation, become familiar with that domain.

Now, in order to bring any clarity or insight into that domain requires a new faculty, beyond what Steiner calls imagination, and that's the level of what he calls inspiration. When I was talking about the new thinking that would be necessary for quantum mechanics or for the supersensible, it comes in at this level. The cognition of spirit at the level of inspiration allows us to interpret what it is we're seeing. We begin to find those concepts that are adequate to what it is we're seeing.

Plato's discussion of the cave is perhaps helpful in this regard. He recounts a tale in which an individual is trapped in a cave, looking only at conventional things that everybody else is looking at. Then, through certain circumstances, he manages to break his fetters and wander out of the cave. En route he sees certain things about how the shadows are projected and so forth, and understands how conventional consciousness arises, but then he keeps moving. He goes to the source of light outside of the cave. But he's dazzled by the light. To begin with no cognition takes place. There's a long period of accommodation before the rudiments of experience begin. You can think of it as analogous to a child coming into the sensate world. The first experience is not interpreted; the child asks "What is this?" Initially it's just all a buzzing, blooming confusion, as William James said. It's simply an amazing set of colors and forms and movements. But the world doesn't have meaning. The child doesn't know mother from father, tree from animal. It's all confusing.

So as one enters into Plato's domain of light—the domain of imagination—the first thing one has to practice is a kind of Goethean phenomenology. One starts with the first level, empirical phenomenon. Simply take it in the experience. Don't rush to interpret, because you're going to be interpreting, just as Bohr said, with classical concepts. And this is the wrong basis for interpretation. Such concepts are inappropriate to the new domain of experience. You have to be patient. So you simply enter into the new domain, and you allow it to develop and to amplify.

COS: Take in and suspend judgment.

Arthur Zajonc: Yes. Hold off, for as long as it takes. And, gradually, as this terrain becomes more and more familiar, when it begins to separate out, you start seeing what belongs together. You may not know what they are, but you recognize that they belong together, that they always seem to occur together. And you begin to articulate a landscape for yourself. You begin to recognize certain patterns and groupings. It begins to organize itself in a certain way.

And gradually, through that process, the very rudiments of a certain kind of cognition start to enter. The onset of cognition basically the recognition that “this is not that.” Simply distinguishing. Certain meditative practices can help you with that. What was before a set of inarticulate experiences begins to become a language at the level of inspiration.

Intuition is the final stage and, in the achievement of direct perception, the highest level from Steiner’s standpoint. It’s the place where the observer and the observed merge. Not the capitulation of consciousness, but a kind of further heightening of conscious awareness to the point where I can both be myself and be the other, together at the same time. It’s what I think most traditions call non-dual consciousness.

Thus, in imagination, one still has a kind of representation. There’s experience and it’s experienced as the other. Gradually one’s spiritual consciousness of the Other begins to discover meaning; one can begin to make judgments. One can say one has knowledge in this domain. But it’s still, in a certain sense, knowledge at a distance. And then in the stage of intuition, one gives away that form of awareness. You have to give away that kind of knowing to actually co-presence with the Other and know from the inside.

COS: So first, you have representation of knowledge . . .

Arthur Zajonc: First you have representation, but no knowledge. You just have experience. It’s like stepping out of the cave into the light, and you enter a new domain of experience—but what it means remains a mystery.

At the second stage, you add meaning to the experience. You bring new thinking. A kind of thinking that is adequate to this domain of experience. The old thinking is inadequate not only in the concepts that you have but even in the kind of thinking that you have, which tends to be schematic, rather dead and manipulative. It’s patterned on inanimate objects and relatively conventional things around us.

The domain of imaginative cognition is characterized by movement, constant metamorphosis, and transformation. Nothing stays still, so you can’t pin it down and say, “Oh, that’s an X,” and it just stays that way. That’s a piece of chalk. What happens if it’s like Proteus; it becomes a bat and flies away, then comes back and sits down next to you like a friend and shifts into the stool. It’s a world of nonsense from the classic conceptual standpoint.

But is there a kind of thinking that can live in transformation? A thinking that is not about object consciousness, but about movement and about relationships? In one way of thinking we say: “Here’s one object, here’s a second object, here’s a third object.” But, forget the objects, so to speak and ask instead, what is their relationship? It can be a mathematical relationship or it could be a relationship of affection or disaffection. It could have a certain inner quality or a different inner quality. So it’s not about the objects, but what weaves between them. And then that can also change. How do you live in such transformations of relationships with your thinking? It means your thinking itself has to be in transformation constantly and we need to learn to live cognitively in relationships instead of objects.

That is the kind of thinking that must be brought into the domain of pure experience associated with imagination if one is to attain knowledge. The first level has no knowledge. The second level together with the first gives knowledge, you could say, adds knowledge to pure experience. And then that third level sets representation aside entirely; meaning arises through the co-presencing of myself and the Other. This means finding a way of being a self and, at the same time, being completely selfless. Because if I hold onto “who I am,” then I can’t know the Other, because I’m inert in that sense. I’m too fixed. I can only become the waving of that tree by in some ways completely losing myself. It’s the practice of the Buddhist No-self, or the Paulian saying, “not I but Christ in me.” We each of us have something that Steiner calls the highest self, within me, the true Self, which is like no-self that I can currently imagine.

So I think the Buddhists are largely right to practice coming to the no-self. Then quietly, they’ll whisper in your ear, but there is still the Buddha nature which you and I and all things possess. The Western Christian tradition would term it the Christ-in-you, or the highest of what that is, which lives in all things, which allows me to be both myself and the Other simultaneously. Not just to obliterate. Not just to be a true non-self, then, poof, you’re gone. But you don’t go.

You can lose absolutely everything and still cognize. That’s the deepest mystery of all, I think.

XIX. Varela Meets Goethe and Steiner

COS: So it strikes me that the way you described Steiner’s approach is that he is grounded in the Goethean method, but he adds two distinctions, which differentiate the different types of cognition and knowing that emerged from this, when he applied this method and worked with it.

Arthur Zajonc: Right. I see him as grounded in Goethe. You know, the Goethean phenomenology is a perfect set-up for the new domain of experience that I categorized as imagination. And then one moves from that domain of empirical experience up to a level of insight where one gains understanding. This is where one makes the transition to what Steiner called inspirative cognition or inspiration.

COS: It also strikes me that the three levels you describe are very much in resonance with Varela’s work on phenomenology and his whole work during the second half of the 90s. When I met him first in 1996, he said that a blind spot in cognition science is experience. So the problem is not that we don’t know enough about the brain. The problem is that we don’t know about experience. Then when I visited him again in 2000, I said, “Well, that resonated with a lot of folks from the management field who read that statement because often in management and organizational studies, the issue of experience is a real issue.” So then I asked him whether he had any further reflection on that.

He said that was the main issue he had been working on for the past four years. That he had, with his colleague, identified three methods that approached that issue—psychological introspection, phenomenology, and the Buddhist contemplative

tradition.

What they had been doing [described in the interview, now published in *On Becoming Aware*] is that they boiled down these three methods to three “gestures of awareness” and the process of becoming aware. That is, if you proceed on this journey, you are crossing three thresholds, suspension, suspending judgment, holding back and taking in.

Arthur Zajonc: Very nice. Right.

COS: The second is redirection, which he defines as redirecting the attention from the object to the source. Number three is letting go. Letting go and letting come, which is letting go the old, the small self, and letting come your higher self or Buddha self or Christ or Atma.

Arthur Zajonc: Quite beautiful. That’s quite wonderful.

COS: So it strikes me that the three key gestures of awareness— as he described it—evolve exactly along the different stages of cognition and knowing that you described, developed based on the Goethean method.

Arthur Zajonc: Yeah. You can say that. There is a kind of a language that I’ve used in trying to nuance some of these things. For example, I am teaching a course now with an art historian. We’re trying to develop what we call contemplative knowing within students. One way of talking about it is in three stages that we call attention, openness, and sustaining contradiction. The first stage of attention is the ability to give oneself singly to a particular object of attention or concentration. So, rather than scattering our attentions, we learn to control and give our free attention to an object.

One of the dangers that occurs is that one becomes myopic, narrowly focused. So one needs, after mastering some element of concentration, to create a kind of openness to variety and to diversity. So you’re seeing one thing, but you’re also then turning your attention to another thing . . .

COS: Using the soft eye.

Arthur Zajonc: Using a soft, nonfocal awareness. You open out. One can ask, what kind of an awareness is it that can not only sustain just being open to seeing various vantage points, but actually heighten and suspend contradictory elements within consciousness. Great art and most of the important things in our lives live in that kind of dynamic.

What I have said applies to many of the things that you were talking about—the ability to suspend, to sustain a contradiction that feels like it should be resolved. We need to learn to live in what looks like, from one standpoint, a kind of confusion or a paradoxical situation before it can lead to a higher form of resolution. It’s not that one pole of the paradox becomes true and the other becomes false, but you begin to realize that this tension is part of the dynamic of, say, raising a child or loving someone. Living in such relationships, both poles have to be active. Both have to be fully present. And

when they are, then something grows, something happens. When it's just one pole dominating the other, it's dead. It doesn't work. A marriage relationship or a group relationship has to have that complexity. Anything alive has to have that complexity. To bring a quality of consciousness that is equally capable of holding that complexity is a great challenge, because usually we attend to a maximum of one thing. Or no thing, because we're too distracted.

But, to be open to the variety of life and then to be even able to enhance and sustain and hold it is an act of artistic genius, whether it's in the social sphere or in the artistic, in community or painting.

The idea of redirection is difficult because often we have wrong expectations. To redirect, to step into a space and—as opposed to going with the conventional set of expectations, going with what we know to be the case already, going with a habit and so forth—to stop and truly redirect to what's right now, right there is enormously difficult. To realize, as something is emerging, that's what's important, this shifts everything. And if you're attentive and can suspend judgment and hold on to that redirected attention, you're nurturing a part of your own consciousness that is otherwise neglected. Because you're on the treadmill of expectations and fulfillments. You're always looking to see the same thing. To suspend and redirect is very important.

The way I think of the letting go—and this is actual meditative practice—is that when one has taken an object (be it a stone, flower or the blue of the sky) of concentration and meditated it, something emerges in one's awareness, a quality that is quite specific to the object of attention. There's then a stage where, having intensified one's attention on the object for as far as it can go, you release, let go. You actually empty your consciousness of that experience. And then you hold a completely empty form of consciousness. No expectation, openness to redirection and the unknown.

So you start with conventional consciousness, you pull away from that, and you redirect your attention toward the meditative object. You intensify your attention on that the meditative object. Then one releases and waits for the unexpected. You hold the meditative object as long as you can. And then you consciously put everything to the side and hold the space in which that whole inner practice unfolded.

What you're attending to is a kind of echo or after image, which is one way Steiner describes. Let's say you're making something, a simple artistic sketch. You have the sketch in front of you. There's the sketch; you study it, move it inwardly, feel its gestures. Now imagine setting the sketch to the side and holding onto the activity that made the sketch. The artist actually did something to make the sketch. You also had thought, inner reactions, and so forth. In this meditative exercise, there was a whole set of activities associated with the experience, activities that were selflessly behind the scenes at work. You could say they were spiritual activities happening in you and through you and with your assistance.

COS: The whole field.

Arthur Zajonc: Yeah. They surround and permeate. They're the creative forces that, if

they were visible right away, you wouldn't actually have had the experience of the sketch itself. You would have been focused on the activity. But in some ways, the activities are selfless, they have become objectified in the sketch. The fact that I'm speaking is a kind of a miracle, right? If I was conscious of the activities that go into allowing me to speak, I couldn't possibly say anything.

But you can stop talking and allow the activity to presence itself, and in this way to sense what the miracle was, what the miracle of the presence of all that which had to live in me in order to have these words come. So there's a reversal of awareness that the letting go allows. It's another level of reversal. You first go through one set of thresholds. But it doesn't stop with that. You have another threshold. I think each threshold experience has a similar architecture. In other words, you start with the sense object. You have to give that away; that's a letting go. Then you bring something else into attention, namely the imaginative experience. You give your attention to it, to the felt qualities and movement. You allow your attention to flourish on in this domain of experience, and you try to redirect yourself away from your habits of consciousness, suspending judgment so you don't automatically bring in old thoughts.

But then you could fall in love with this experience. And in order to make it to the next step, the next threshold, you have to let the imaginations go. Then what shows up is the activity that's behind everything you have been experiencing. But living inside that activity, then, can become a problem, can become too single-minded and a kind of preoccupation. One can be captured by this realm of experience like any other.

Spiritual traditions East and West say similar sorts of things. Each speaks of a series of levels of consciousness, each with its distinct quality. At each level one can reified the kind of experience one has. Each one can fall into the trap of saying, "Oh, now I'm where it is all happening. This is reality; all else was illusion. This is it." And then you're captured there.

COS: Freeze.

Arthur Zajonc: Yes, freeze. There you are, boom! Done. Just as you are if you're content with the self-evident reality that happens to be around you today. So, at each level, a mobility of consciousness has to be built in, where you realize that this is another layer, another aspect of the world. But it's also open to release, and then a new level can emerge.

XXI. Most Men Are Not Good at Social Groups

COS: It strikes me that maybe, in a certain way, some core features of the Goethean method might be most applicable today and are also most important to be cultivated in the social realm and maybe not in the realm of natural sciences.

Arthur Zajonc: Right. Well, I can imagine that. I've been in a lot of different kinds of groups over the years. I've done a lot of teaching. I've moderated groups over periods of time and also been in groups that had responsibility, such as boards, study groups, or

groups undertaking a particular project or research. Most of them have a direction that's given by the community. We decide we're going to do something together, whether it's to read a book and study it or build a Waldorf school or start a community farm. The group has a task. So it's a community, and each person has a part to play. But its objective is in some ways outside itself.

At the Collective Wisdom Initiative of Fetzer, there are groups that don't have any purpose outside themselves. They are just personal inquiry groups that come together for the personal benefit of the people who show up. There's no agenda. There's no project that you accomplish. There's no study that you're doing. You bring who you are and enter into a joint exploration.

COS: Like a dialogue group.

Arthur Zajonc: Yeah. Bernhard Lievegoed had an idea of that there are three types of groups—study groups, social groups, and action groups. He said each has its own laws; they're different animals.

COS: So what are the laws of the social groups?

Arthur Zajonc: I can't remember. I read this 25 or 30 years ago.

COS: Maybe he knew more about the action group than he knew about the social one.

Arthur Zajonc: I think most men, frankly, are not good at social groups. That's what threw me in some of them, you could say. I always felt . . .

COS: . . . alien?

Arthur Zajonc: I did. I felt, am I learning anything? Are we doing anything? What's the outcome? What's up? I was a good citizen, and I always went. In the end, I always felt something happened. Some of it was crazy, some of it was dumb, some of it was sad, but in the end, if you just hung in there, showed up, tried to be nonjudgmental—trying hard to be nonjudgmental by being positive, even when things were totally out of hand—gradually things would cook down. All the stuff flows over the edges that shouldn't be there. Gradually, it boils down, and something actually pretty nice starts to show up. You have to give it a lot of time.

But I think that the social process of sitting over tea and talking about family with your community of friends is much more natural for women; it's a process. It's a way of working through the social realities of life that they do together collectively, and the outcomes are simply different ways of seeing things, appreciating the struggles, and being able to hold the difficulties. Now that you've held them in the group, you can go and hold them more easily back home. Whereas guys tend to hold things in a solitary way. How many times do I sit down with a friend and ever share anything personal? A guy friend? Never. Almost never.

COS: Except when we're talking about soccer [laughter].

Arthur Zajonc: Maybe there are certain things. I don't know. I guess you brag about your children or something like that. There are certain problems of daily life. But it's a very different dynamic.

COS: So I guess that for guys, the opening happens in the context of groups where you create something together.

Arthur Zajonc: I think solidarity comes in a different way for men, by and large. Not to generalize, but I think it probably goes back to the warrior class. Think back to the Iliad and the Odyssey or the Middle Ages. Here are people thrown together, sleeping on the same floor in a room. They swear their filial loyalties to Agamemnon or their liege lord. They eat together, fight together, die together. They fight back-to-back. I think the code of conduct shifts from words to the silent question, "Will you stand and cover my back?" "Will you defend my life and can I depend on you?" By contrast, that is cheap. One can declare, "I love you, I care for you, I'll really help you out" ... and then, whisk, I'm off doing something else. I got distracted, excuse me.

In some ways, I'd rather say nothing and know that those six people are here. I think that's the guy style. Don't say anything. Just look at me, then stand with me. You'll risk everything. That's not very social in a certain way. But in another way, it really is social. It's a "who stands at the foot of the cross" kind of thing. Who's willing to actually stand by Christ? Everybody leaves, but what does it mean to stand there through the whole of His passion? That's the hard one.

COS: How many stayed?

Arthur Zajonc: None, really.

COS: Almost everybody left.

Arthur Zajonc: Right. Peter felt bad about it.

COS: His mother?

Arthur Zajonc: His mother, right. And John. But, Peter says, "I'll stand by you." And Jesus says, "You'll deny me three times before the cock crows." Which he does. And he's the one who you could say had the greatest courage and solidarity. But Christ knows it's beyond their capacity to love that much.

XXII. The New Group Is a Group of Co-perception of the Other

I do think there's a lot to be learned and discovered from groups. It's an evolving form. Steiner talks about the royal art of the ancient, the old Masonic art of building cathedrals. He says that the new royal art will no longer be to build in materials, but rather it will be social architecture. That will be the mystery art.

I think that is true. We don't need to build buildings. The relationships and themes that will endure will be human relationships. But they have to be built like a Knights

Templar temple or Gothic cathedral in the sense that they have strength, dependency, interweaving, and the sense of solidarity that's not mechanical but totally alive.

COS: And beautiful.

Arthur Zajonc: Yes. Grace, filled with light, all of those things. Big, stained glass windows. And how do we get to that? I think many of the explorations—of love, vulnerability, and all the openness and redirection—will be elements. In the old days, groups of trust were often secret societies, blood brothers, and each had its trials and probations that had to be passed in order to get in. These proved that you could be trusted. That's not necessary or appropriate anymore, such brotherhoods and trials are a thing of the past. We'll take more risk and more chances in a certain kind of way, but somehow the level of earnestness represented by all those trials and probations shouldn't get lost. Somehow, the earnestness should find a new form of being there.

The dangers, as I see them, are two. One is that we so long for communities that we inappropriately reanimate old forms. So we hang out with people just like us. Same gender, same beliefs, same religions and ethnicities and so on.

COS: Same everything.

Arthur Zajonc: Same everything, so it's the familiar culture. Therefore one danger is the fundamentalist danger. The other danger is a kind of sentimental future, New Age getting together, where we pretend to be beyond all those differences. But, it's too easy. There's no earnestness. There's no commitment. There's no responsibility. None of the tough stuff is really there. We know about the seriousness of relationships from being a father and a husband and trying to meet your obligations in conventional life. Well, it's going to be more so, more demanding in this new social architecture, not less so.

Today we live the paradox of knowing the mystery of solitude or in German *Einsamkeit*, and yet we seek genuine loving relationships. I see in you your complete difference from me, I see your complete uniqueness. Then, paraphrasing Rilke, we can say, "I'll stand guard over your uniqueness, which is to say your solitude. I won't stand back-to-back with you as a warrior to fight for your physical safety, but I'll fight for your difference, your uniqueness. For your being different from me and all others." That's the way the contemporary world has to be. It requires you to be who you are, and I will stand guard over your uniqueness, your solitude, as Rilke calls it.

The other thing I love about what he says is the following: "The greatest gift I can offer to you is the gift of allowing you to stand guard over my solitude." Rather than standing guard over my own solitude, defending myself, my individuality, and my big ego, I give all that away. That's the needed vulnerability. I trust you so much that I give to you my uniqueness. You won't treat me like everybody else. Instead you will have such clarity about me that you will stand guard over me in order to allow me to become all I can be, without being selfish. I can't do this on my own behalf. It's too egotistical. But by somebody else saying, Otto, I'm here. You can do that. It's got your name on it. It's who you are. Then I'm a partner.

So I think that the new group is a group of co-perception—perception of the Other, not

perception of the self.

XXIII. A Scientist - Dalai Lama Dialogue at MIT

COS: I did want to bring up one final example that has been quite an experience for me—the event you put on with the Dalai Lama and all the others of your circle. It was quite amazing. There were maybe 1,100 in the audience?

Arthur Zajonc: Yeah, 1,100.

COS: We sat there for a couple of hours, and something took place. When I returned on that first evening, all of a sudden I realized that my whole sense of self and my own personal field were really impacted. It was almost as if I had meditated for a week or so in nature. You are really operating from an enhanced and much more open field around you, a sort of clearing, of *Lichtung*. That's when I first realized the impact, apart from all the intellectual stimulus, which was of course more tangible.

And you have been right at the center of this Dalai Lama circle. Could you comment on what that experience was like for you?

Arthur Zajonc: Well, first of all, your experience wasn't unique at all. I was struck by how many people like you came up afterward, people of accomplishment with experience in conferences and meetings. I could see they experienced the field that you are talking about, and it had nothing to do specifically with the content, although the content was quite interesting and they found it stimulating. There was something about the geometry of relationships, the way the whole gathering was held, the nature of the dialogue and exchange, which created an aura into which they moved. It wasn't just us on stage in the aura. The whole assembly moved into it. It was sustained for the full two days. The next week, I met with three or four people from the Amherst area and later with a larger group, and it was still echoing in those who attended. It took a couple of weeks for it to actually settle out. But, the aura is residual. For a couple of weeks, this was just simply a part of people's field.

That was an unusual phenomenon. I have been to other gatherings that had a similar effect. One was a three day vigil and memorial for a young person's death. For days afterwards, where the vigil and other events took place, the experience was like a waterscape, because the space was all alive and you felt it in the landscape itself.

So there are crossings and mergings that take place. Thresholds are crossed in those situations and this should I think be noticed, be honored. You could ask why it happens. What caused it? It would be very un-Goethean to look for the mechanical cause, to ask what the essential conditions of appearance were.

COS: And what did happen?

Arthur Zajonc: It's a very difficult thing to pin down. I've worked now with the Dalai Lama on several occasions and moderated or led conversations at four of them, if you count the MIT event. My general experience has been that in working with him,

with the Buddhist scholars, and a good group of scientists, something of this nature happens to some degree.

Part of the formula is that, first of all, the Dalai Lama has his own presence. It's unusual in a certain way, because he's a very normal kind of guy. He doesn't come across immediately as having a larger field than a normal person.

COS: True.

Arthur Zajonc: But his field is a kind of indirection. It's not projection. It's actually an indirection, a kind of self-negation. Just being who he is, being very understated and very modern in that sense. His presence works much more from the periphery. The participants, if they're chosen reasonably well –and they are not necessarily Buddhists (in fact, most of the scientists who show up have no Buddhist connections) – bring the part of them that is their largest and most humane dimension with them. They don't factor it out and leave it at the door as often happens in the academy. They bring it into the conversation with him. They bring heartfelt questions and problems, even if they're framed in very small, scientific terminologies. Something of that deeper set of commitments and longings are there with them. It's a bit like when I was 19 or 20 and going through my existential crisis. I refused to factor out the cultural and existential questions. I wanted to bring them with me into my life of science. I believe they all want to do that, but they haven't been able to.

Now they're with him, they have traveled to India perhaps, because they want to bring their commitments and longings as well as their science to him and so they bring it to the whole gathering. So his modest presence does provide a singular opportunity for people to bring all of who they are into the space.

Second, they discover that when the Buddhists speak, they speak with such brilliance and such intelligence that their hopes aren't dashed. A lot of times in similar settings, you bring your hopes and you get religious dogma. You want to come as a scientist with all your intelligence and all your inarticulate longings and be met on the other side. You long to be met by intelligence concerning the existential questions that you really aren't able to deal with too well. But what you get are pieties. Simple statements about what you should do and shouldn't do with your life. Then you think, "Oh, who needs this? Let's get back to where I was. At least I was doing an honest day's work as a scientist. I'm not going to go and jump off a cliff or buy into something. Let the others do that."

But you discover with the Buddhist scholars and the Dalai Lama that you don't get pieties. The response you get is the fruit of thousands of years, literally 2,000 years, of contemplative practice and intellectual effort, with lots of sophistication. All the big issues are present in their treatment of mind or ethics, together with a nuanced discussion of consciousness. So a kind of joy starts to creep in that sometimes becomes almost intoxicating in the small group discussions. You'll start to experience the way the Buddhists are handling the question, the way the Dalai Lama is chiming in, the way the scientists are performing right at the top of their level. They're asking all the hardest questions of themselves and everyone is willing to be vulnerable. The Buddhists are not taking advantage of the scientist's vulnerability. They're speaking

right into it with their most precious thoughts and their own questions. You think, “This is research. This is research at the highest possible human level. This is what we’re designed to do, not just think clever thoughts, but deep thoughts, large thoughts, and compassionate thoughts, to act compassionately, and be good to one another. And have fun while we’re doing it.”

I recall one such moment vividly. It was after two days of meetings in 2002, at the end of an afternoon session in Dharmasala. The Dalai Lama got up, thanked everybody, and left the room. I looked around. Everybody was standing, of course. They all looked at me and went, “Wow.” The whole afternoon had lifted off. Everybody in the room felt so alive. You really felt that this is what we came to be and do, and it echoed for the whole evening.

Sometimes the sessions are a little more mundane. There’s good quality material, things happen, but they expand to a certain point and then contract. But when you get two or three times like that in a meeting, you’re really pleased. By the end, you feel that somehow or other a great wealth has been achieved where each person has brought his or her very best and contributed it, with great integrity, openness, and no dogma. Everybody is there to discover. We could all be wrong. We’ll dare to say certain things normally not said. We’re not pushing anything on the other. We offer our best with great open-mindedness, great hope, and affection.

As a moderator, what I’ve discovered is that, in order to create during a relatively short time a certain capacity for exchange and trust, I have to be willing, in the right measure and with the right words, to encourage people to dare to go further. They have to be willing, without prying or pushing beyond what’s appropriate, to come back to the issue and to go further with it in the room. I ask people to go a little deeper, to be a little more open than they just were. You know in your mind, as a good moderator, who each of these people are. So you know the hidden cards they’re not playing, the hidden things they long to say. But it’s like standing guard over them. You honor their reticence, but you encourage them to go further. You have to open the door and say, “It’s okay to say what I know you want to say, and it’s okay for you to respond.” I may know how the dialogue will go ahead of time, as the moderator. I could write it down for you. But I can’t insert myself. What I can do is say to you, “Wouldn’t you like to take what you said before a little further? I think that we could go further here and open up the question.” And then I turn to the Dalai Lama, who may be reluctant, and say, “I know he’s not going as far as he wants to go or could go. But, Your Holiness, we’ve just heard this and this. Couldn’t the Buddhists say a little something more about this?” Then you can see him trying to decide whether he dares to do it or whether it’ll be an affront or whether it’ll be skillful means. Then, if you’ve judged correctly, he comes in. The others come back. And then you just feel that you’ve moved up another notch or two, and the whole room starts to become more dense and more alive. The field starts to become more energized.

So the moderator has to be constantly listening for opportunities to serve that other purpose, which is not my goal but the goal of the community. When it works and when you can then crystallize or summarize what has happened for people so that it all stays clear and lucid in front of them, then you are of service.

In terms of the group, the collective, and how to serve the collective, that's where I've had most of my experience. I've tried to play a positive role in the social groups I've been in. But I have not been a convener or an architect of those groups. The kinds of groups that I have been part of had an intellectual or a thematic agenda, like the Dalai Lama or the Mind & Life conferences, or there has been a project agenda, where I and others want to create a new institution or take on an important task.

XXIV. Other Centered Leadership

In such cases I think the same kinds of laws apply, namely that you have to recognize the Other. I think, frankly, that the old form of "I have a big idea; I'm going to go out and make that idea happen; it's basically my ego in the world," and it is totally uninteresting.

Very good friends of mine ask me what I want to do. They say, "You should have something you want to make happen in the world." For a long time, I was very embarrassed, because I felt I should have something, you know? Then at a certain point, I said, "Listen, I don't have anything. There's nothing I want to make happen." So how is it I am so busy making things happen? Mostly I'm in a situation where I say, "My god, this is ridiculous. This is tragic; this can't be this way. There has to be a different way." Or you're talking with others and they agree with your perception. Three or four of you are together and say, "Well, let's make it different." It's not like you come with the goal. It's a perception of a reality. And who's going to do this? You look at yourself and say, "Well, I'm the person here. This is not really what I had in mind. But nobody else is doing this." There's a reluctance, and usually somebody else says to you, "This is really something you should help out with." Then you enroll.

I think there's a kind of rightness about this ethic—of people seeing other people. Leadership, for me, is just this. For some reason you are given the task of identifying capacities in others. In other words, when I've been put in leadership positions, it was not about me doing anything. It was about me looking around and saying, for example, "Oh, Joan. This is really for her. And this is really for him." And then not just making it happen over their dead bodies, but recognizing, out of the circle of acquaintances that you have, that these are the right people therefore the task. Or, let's say you have a kind of person in mind, but there is no such person in your circle. You recognize you need a certain kind of person and you know that person is out there somewhere. If you hold the image long enough, they will show up.

So you create the picture; you hold it, and over the course of a year or two, that person steps into your life, and you recognize him or her. You feel them out a little bit, the acquaintanceship builds up, and then you spring on them what you have in mind. If you've been a good judge, they light up. Because they know that much in their life has been a preparation for this conversation.

The picture I have is something like this: The problems of the world are not put there as insoluble, overwhelming problems. The world is not there to defeat us. I'm not a pessimist in that way. All of the means are there to handle any situation we need to, no

matter how dire. The good gods have pre-positioned all the resources we need already, like military strategists the resources are already in place, and these resources are in people.

The leader is a person who has the possibility through destiny to know the people, to recognize their capacities, and to bring them to bear on the problem. That requires, I think, a certain selflessness, because it's not me who's solving the problem.

But the problem is that often we don't really get to know each other. So the leader is a person who has the possibility through destiny to know the people, to recognize their capacities, and to bring them to bear on the problem. That requires, I think, a certain selflessness, because it's not me who's solving the problem. It's not me who's making it go away. As soon as I recognize the person, I give them whatever resources are needed, whatever I have at my disposal is offered for as long as is necessary. I give them encouragement, counsel, active support, and then I go into the background. It's their success. It has nothing to do with me.

The great thing is the letting-go part. You're on to the next thing. You redirect yourself. Then you have to hold the next picture or task. You don't know who will be connected to it. You're just holding the picture. The person shows up, but it's not who you thought it was likely to be. You have to be open to that. You try it out. You give them support, and then you're off to the next thing.

At least, that's one form of leadership. I'm not sure if it's the only form, because some people get hold of something and do it their whole lives. But that hasn't been my style. In groups, I work with multiple individuals and many initiatives at once. Usually none of them has much to do with me, with my grand plan; I don't have a grand plan. It's more a perception of needs in the world and of the individuals who can be put together with those needs.

I've been part of many Dalai Lama events. I'm on the board of directors and the scientific board of the Mind and Life Institute. Part of the genius of the events has been steadfastness over 18 years of history and faithfulness. It was near collapse two years ago. When Cisco [Francisco Varela] died, Adam Engle (the president) didn't see how to go forward. Through talking with many of his close friends, the right ideas and the courage came into the group, and he went on without Francisco, finding a slightly different way of proceeding. I think Cisco would be pleased. But it's taken on a different form. I think that ripeness was there. We've done it so many times and knew our roles so well. We had built up a trust.

The remarkable thing is the level of commitment his illness put into it. When we were Dharamsala in 2002, Cisco had already died, and His Holiness spoke about his loss.

Then he spoke about the work that we were doing and how it really wasn't about any of us. It wasn't that he didn't care for each individual, honor them, and love them in his own way. Still it wasn't a personal thing. The Dalai Lama wasn't meeting scientists merely out of personal curiosity. He was interested in many of the scientific discoveries we discussed, but before long, it was clear this was something that had larger significance, both for the Buddhist community and, I think he believes also, for the

West. He doesn't want to say that, but I'll certainly say it.

So his level of commitment has increased over the years to the point where it is one of the three main focuses of what he's doing. He's working for an autonomous province in Tibet. He's teaching his monks. And he's meeting with science groups. He said to us that he will continue until he can't do it anymore, and then it should go on after him. It will go on differently after he dies, or after he's incapacitated, but he feels our explorations should go on.

So an earnestness and quality of commitment have grown into the whole movement and this has been a real blessing. The core group is pretty committed and quite diverse. They're not all Buddhists but we are committed to seeing the dialogue take place.

XXV. *This is it!*

But, to me, the conferences, Goethe, and Steiner all share a common theme. It is the relationship between knowledge and love. The thing I was missing when I was 19 and 20 was the other axis, the love axis. From it all culture arises. What are those great monuments? They're not monuments to knowing, but rather to communities of aspiration and, ultimately, of love and creation. When we're in those fabulous dialogues in the Mind & Life meetings, we're learning a lot from each other. But what's animating the meeting is ultimately the compassion and love that we extend to each other in those meetings.

Knowledge and love aren't supposed to go together in a conventional world. They're supposed to be two parts of the world that are kept separate. The geometry of our gatherings belies this view and confounds it. It says, "No, we're going to do both of these right here on this stage. And you're going to be invited in, and we're all going to experience it together." Then it starts to unfold. You're just caught up in the lucidity, the clarity, the light, and the love. If the discussion is only clear and intellectually brilliant, you'd appreciate it and you'd applaud. But when you feel what's happening back and forth, you realize something more is happening here. It's not sentimental, but at the same time, it's filled with sentiment, in the highest sense of the word.

So it's a mystery. You can't program it. In that sense, it's not a causal mechanism. It's a way of being with each other. It's a way of opening the heart to another, being vulnerable and being open. Many of the people in our meetings have been colleagues or friends for 10 years or 15 years. Alan Wallace and I used to sit just like this in these chairs. For nearly four years, we sat and talked like this, every week. I knew at one point during those conversations that I would be with him and the Dalai Lama together. I never said anything about it. I just knew that somehow that was going to happen.

COS: When was that?

Arthur Zajonc: About 12 years ago.

COS: So you met with him every week?

Arthur Zajonc: Yeah, you could say he was my student. I mean, I was also his student. We're almost the same age. He'd done the equivalent of a full Ph.D., advanced studies in Tibetan Buddhism while a monk in India and Switzerland. I'd done my study and research over here. When we met we held our own Mind & Life dialogue for three and a half years.

And then we get to do it together with others. You know, there were times in some of my meetings when I thought that this is what spiritual science really is. I'm now in the midst of a spiritual, scientific research community. Every question can be asked. Every tool can be used, contemplative tools, external scientific tools, the latest things from all sides. It's all directed toward human betterment and compassionate action, reducing suffering and making this world a truly great place. And we're doing it with joy and celebrating each other's capacity. This is how we should be at every university. Our universities are so remarkable. We put so much of our resources into creating the place where students can come for four to eight, nine, ten years of study and research, and it's all for them. All those resources. Forget the disciplinary turf warfare! Do it this way, the way we did at MIT or in Dharamsala. It doesn't mean you have to agree with one another; just rejoice in the dialogue itself, and sometime it all comes together. Sometimes it happens.

XXVI. Developing the Selfless Self

COS: I wonder whether you have any advice about how to develop the capacity of the selfless self that creates the space for others to flourish and tap into their true purpose.

Arthur Zajonc: Well, I had an experience this last weekend. I was in a meeting with a group at a science museum, eight or ten of us. They wanted to get some input from me about developing an interdisciplinary program that they had in mind. I'm bringing this up because we started at the other end, quite far away from the quality of consciousness we have spoken about and the field energy as you term it. It was a totally conventional kickoff.

The people were bright and fast thinkers. It was very much a kind of popcorn meeting. You know, pop, this idea! Pop, that idea! We could do this! We could do that! Boom, boom, boom. And there was no presence. In fact there was a negative presence.

What could I do? I could pop ideas, but we'll get nowhere. Part of it is not getting caught up in the popcorn and in just being smarter than the next person. It's the wrong tempo. You can't bring the quality of awareness and consciousness that's required. There are times to be fast and do popcorn. But there are other times where you have to stop, center, ask the essential question, and then ask the second essential question. Get everybody together on the first one. Get everybody together on the second one. Create a kind of open space of common perception. Okay, we all agree that this is at the core. You agree, and so-and-so adds a little something. Now there's the presence. What

about the next step? These are the defining parameters. What's the content you want? Not 26 things that you threw out. What's the core concern? What's the core? Okay, that's the core element.

Now you start to feel something starting to move in the space. You can just feel the shift in the energy. It all moves down from people associating to a sense of breathing. Everyone's breathing.

Then the marvelous starts to unfold. Someone makes a contribution. I make a contribution. I bring in an example. There's a way it's heard. Then, there's time to hear each other, to listen. A little pause. The danger is that the popcorn will get started again. You have to put the popcorn back in the bag.

There is an awareness you need, which is not just content-oriented or about the ideas coming forward, but about the quality of the ideas, the quality of the meeting itself, and the energy in the room. Whether it's going to serve or not serve. Then you find the skillful means to insert yourself.

In this kind of situation, you have to get the floor. If you've got eight or ten people who are all trying to get their popcorn going first and their next kernel in, it's very hard to get even your hand in. But you've got to somehow capture the floor and have enough inward presence of your own that you can project, move that into the space, ask the essential question, and not get distracted with any of the nonessential things. Ask the essential question. Hold on; get in the second question. Open it out and maybe involve one or two people who have been quiet. Bring in the right energy. Then the whole thing shifts and you can feel it. The session takes on a very different quality. I think we ended up with a very good meeting with some good ideas.

I've developed a couple of little practices. I'll be in a board meeting where the energy is tough and maybe I'm up against some hot issue. I don't know how to deal with it. There's a tendency to deal with it superficially and from a pattern of what I've done in the past. I find myself in those times letting go. It's a practice of saying, "Okay, we've had full, bloodied attention on this thing. We've really turned over a lot of stuff." Then I kind of sit back and expand in non-focal awareness. Empty out.

Sometimes I even pretend there's an invisible person next to me. When I was with the Waldorf school, sometimes I would imagine invisible children at the table. I was actually working for these children who were not yet born or were not yet there. They were my reason for being there.

It isn't just visible people at the table; the future is also at the table. I'll say to myself, "Okay, I want to hear what you who are invisible have to say. I want to listen into that space." Not to the visible, not to the space of the present, but the space of the future, the space of the invisible. If you're simply open and quiet with such a picture, things start to come in, first, a little bit inarticulately, but you get a presentiment that something's emerging. Then something new will come. If you speak concretely out of that space, and if you're with a good group of people, they hear it as if it's spoken from a different space. That's my experience. They shift their attention; they redirect.

They can tell when you're speaking out of your conventional consciousness. And they can tell, by the feel of it, when something unusual has happened. They're picking up what it is in your voice.

COS: The field.

Arthur Zajonc: The field switched. Right, and then they go, "Oh-h-h." And you can feel them all move their field into yours.

Then there's a wonderful creative moment when everyone recognizes this is a special moment. Let's hold onto this. Let's let this play out. Bring it gently down to Earth and make it practical, because it starts out a little bit large and diffuse. But it's like an infant. We've got to bring it down slowly. Then there's the excitement of seeing something new in the room and implementing it. You're practical people; you want to make it happen somehow.

So those moments give a lot of positive energy to a group. There's a feeling of originality, can-do, and collaboration. Nobody takes ownership, because the idea could have come from somebody else across the table. But emptying out, emptiness, and working with the invisible have become part of what I do when I'm working with groups.

Thank you for coming. I don't know what you're to make out of all of this, but it's been fun talking with you.

COS: Thank you so much for this conversation.

ENDNOTES.

1. Zajonc, Arthur and Greenstein, George. 1977. *The Quantum Challenge: Modern Research and the Foundation of Quantum Mechanics*. Sudbury, MA: Jones and Bartlett