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Craig Holdrege

Interviewed by Leigh Glenn

In the octagonal room that serves as classroom and work space at The Nature Institute, surrounded by the fields of the biodynamic Hawthorne Valley Farm in Harlemville, New York, Craig Holdrege practices a kind of magic. Not a magic steeped in what is not real, what is conjured only from the minds of humans, but rather sharing the visible “sleights of hand” that dynamic relations in nature are constantly undergoing and presenting to anyone who takes the time and develops a certain humility to observe. He shares aspects of leaf development for particular plants that he has pressed to save, having returned again and again to the same plants to watch them arise, grow, flower, dissipate. He wants students to guess at the sequence – what comes next? Anyone who has not taken a class with him is surprised by the huge changes that can occur from one foliage leaf to the next on up the stem.

*For Holdrege, who has a Ph.D. in sustainability education, observation is a practice; he has evolved with through time. It requires patience and a quieting of that part of the mind that wants for certainty, that would like to name something, tie up loose ends, move on. That kind of approach to the living world turned him off at a young age, though the “turn off” may have been a certain kind of seed being planted and one that has flowered in his work as a teacher; as the author of *Genetics & the Manipulation of Life: The Forgotten Factor of Context; Thinking Like a Plant; The Giraffe’s Long Neck: From Evolutionary Fable to Whole Organism; The Flexible Giant: Seeing the Elephant Whole; Do Frogs Come from Tadpoles? Rethinking Origins in Development and Evolution; and as cofounder, director and senior researcher at The Nature Institute. As a teacher, he excels at fostering a sense of wonder at the unknowns right under his students’ feet, whether they’re observing a herd of dairy cows feed or ruminate or the seemingly miraculous tenacity of roadside chicory and how, every day, new inflorescences emerge and change, based on light and moisture. Holdrege spoke with Acres U.S.A. about the importance of developing observation as a practice and the need for context in a world that continues to devalue livingness by focusing too much on the parts of things.**

Acres U.S.A.: How did you become interested in biology?

Craig Holdrege: Biology as a subject I got interested in quite late. Already in middle school, I kind of got turned off to science – the way it was taught. It was only when I was doing a junior year abroad, in England, that I met a couple of people that I would say integrated a more philosophical view of life with really first-hand observation. Instead of lab work and everything being driven by theories, it was more experiential and open-ended. That was what got me interested in biology. As an undergrad I majored in philosophy and by the last semesters I had all my credits for the major. From then on I took almost all biology courses and also enrolled in an extra semester. Then I went back to Europe and did a Goethean phenomenological science year in Switzerland.

Acres U.S.A.: One thing that didn't make sense to me when I first heard about the use of genetic manipulation in agriculture, about 1997, was the de-contextualization of both the "mined" organism – that from which a gene was to be taken from – and the recipient organism – that into which the gene would be inserted. I could not articulate what was so unsettling about that, but you did in *Genetics & the Manipulation of Life: The Forgotten Factor of Context*. How early in your studies of living things did it become apparent that everything has a context?

Holdrege: It was actually during the time in Switzerland. In addition to courses, we had to do something comparable to a master's thesis and a research project. My mentor had been working on this topic already, working with *Senecio vulgaris*, groundsel, which is a common weed. I observed how it grew differently under different conditions – building on the work of my mentor. It grows quickly. I was able to plant three generations of the types – different morphological types – and compared them under different conditions. The immense plasticity of the plant became apparent to me. I realized that I can't speak about the plant separate from its context. That came home to me in everything I looked at.

I worked on developing a phenomenological idea of what heredity is. I was concerning myself on the one hand with the normal genetic view – "This gene does that." Then I was seeing that you can't really speak about a "that." Depending on conditions, everything is different. The flowering is different. The details change. You can recognize it as the same species, but the "something" we say stays the same – that something is not a fixed trait; it's a tendency. This whole matter of context became so concrete for me and important for the rest of my work.

Acres U.S.A.: How has this recognizing of context influenced your work?

Holdrege: It does so every day and has never stopped. It informed the way I taught biology as a teacher in the years that followed. At The Nature Institute, we call our newsletter In Context. Context influences everything I do. It's not a static or abstract idea, but a sense of how life plays itself out dynamically in a web of relations, and those are always new and different and interesting. Living becomes very alive through that. You could say it's a central theme of all my work.

Acres U.S.A.: In human history, can you pinpoint a time when this shredding of context – maybe it could be called a de-phenomenalizing – began to take hold?

Holdrege: From the Western historical perspective, it's the time of the modern age – 1500s, 1600s, 1700s. In that time, you have people like Galileo and Newton, and more philosophical types like Francis Bacon or Descartes and others, formulating a worldview that is very analytical. The best knowledge is mathematical knowledge, phenomena should be mathematized or they are not real. Physics becomes the model science.

In biology you can find an amazing amount of things by analyzing. But if you do the analyzing and begin thinking the products of your analysis are most fundamental and begin building things from the bottom up – molecules to cells to tissue to organs

to organisms – then you're confusing your approach to how you gained the knowledge with the actual phenomena themselves. Every organism is always a whole. It's never building itself up out of parts. When we think about the universe today as being built up out of parts, we're thinking in an inorganic – not an organic – way.

Of course, this is not how humanity has always seen reality. Science in that particular sense didn't exist in earlier times. The Greeks didn't think like that. I don't know about Chinese science, so I can't speak about it. But clearly indigenous people have a different relationship to the world. I would not call it science in the conventional sense; it's a different way of knowing with a lot of wisdom and connectivity. There is always the sense that the world is full of beings and everything is interpenetrating. The modern view assumes separation between things. It's really a Western, European view – it came from Europe and spread out over the whole world. Natural science today, what goes under that name, is using the Western modality. Acupuncture, for example, is a different approach.

Acres U.S.A.: In your work, you are not necessarily saying that "object thinking" has no benefit – just that it is not a place for us to land? That, in fact, there is no place for us to land with any sure-footedness because everything is continually unfolding?

Holdrege: I can look at it two different ways. It depends on exactly how you formulate object thinking. In *Thinking Like a Plant* I wrote that if we believe that the world is constituted out of separate parts, we're making a mistake. That skews everything. And it doesn't mean we can't analyze things into parts, and by analysis find out something about the nature of things. But it's a difficult process to see how what we've done in analyzing is actually a member of a greater whole out of which we've analyzed. The "soft" and I'd say positive side of object-oriented thinking is its striving for clarity, its attention to detail, and the commitment to finding out facts. But it is difficult when the analysis

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goes so far – when we have millions of data points – to know the significance of the data, to know its meaning. That is a challenge.

The task involves going from an experience into detail, but then trying not to lose the connectedness and see the meaning, the relations, the connectedness, instead of pulling things out of context, and then treating the deconstructed components as things in themselves – “DNA does this.” Of course DNA has specific characteristics, but its meaning is only to be found in the way it interacts with every else.

Acres U.S.A.: Have you been able to take some comfort from this of everything being continually in dynamic relations with everything else?

Holdrege: We often find comfort in the idea of certainty and wanting a “This is the way it is, this is the way it should be.” I actually find it quite exhilarating to live in what’s a little more tenuous. It feels more real to me, more real when the world is in a kind of flux. Every stable organic form is continually being produced, broken down and reconstituted. Nothing is static even if looks like a static, unchanging organism. I’m more in touch with what’s alive in the world rather than having a habitual kind of sense – more comfortable in a negative sense – that everything is stable and I know exactly how things are. A sense of clarity also comes from knowing what I don’t know. I still agree with Socrates: the wise person is the one who knows that he or she doesn’t know. You’re aware of your ignorance. If not, you’re arrogant or naive.

Acres U.S.A.: You are a proponent of a Goethean approach – after Johann Wolfgang von Goethe, who lived from 1749 to 1832 – to the phenomena we encounter everywhere. What distinguishes Goethe’s approach from that of others and what can we learn from him?

Holdrege: It’s not so much a historical thing. Goethe lived a particular way of doing science and articulated it very well. I lived in Europe for a long time and have been familiar with his approach since that year in Switzerland. Goethe’s science has been a major influence on me. He saw science as a kind of living, growing endeavor where it’s not about imposing a particular view of things onto the phenomena. We have the challenge of, “Can we make ourselves so adaptable that can we tune into what the world is showing, so it can show itself more fully?”

We often learn in school about the scientific method as if it were a codified endeavor. But the practice of science can be much more adventurous. Goethe articulated science as something very alive and not static. He doesn’t get caught up in all the terminology and definitions. He is trying to bring some aliveness into his work on organic nature – the aliveness of organisms and their relation to the world. That’s a quality that really stands out. Biology can have a deadening effect. You get so into the analysis, so much data, that you don’t know what to do with it. And you often get caught up in a general theory that purports to explain things. You lose the immediacy of experience and what can be gained from experience.

In agriculture, there is the experiential knowledge someone has of cows, of plants or the weather, or the quality of compost. There’s a wealth of experience, and during the history of agriculture a certain practical wisdom developed. But there is a danger when agriculture becomes more and more infused with technology – as through machines, all sorts of tests and products made by third parties, and following recipes without insight. All that can create distance between the farmer and the land, and can lead to less experiential knowing. This Goethean approach can stimulate paying more attention to one’s experience of how things are grow-

ing, how they’re relating in context. You’re more present as a person in what you are doing. It has importance in all walks of life, and yet it will be different for each individual.

Acres U.S.A.: And to bring this around to your own experience: Can you recall what it was like to see a skunk cabbage before you undertook prolonged observations? How did that work alter your relationship, not only with the plant as well as its context – and I mean the particular context of the alder swamp there nearby – but also with yourself?

Holdrege: What I do know is that the plant struck me as being somehow different, special and interesting. You can go through the world and there’s nothing in nature that is not of inherent interest. But not everything speaks to everybody. We carry something in us, we’re open to certain aspects, more open to certain things than others.

I observe plants a lot, have taught about plants and like plants. Anywhere I go, I am open to plant life. In early spring, everything is still grey and cold. Then you have this very strange looking plant coming out of the soil. There is a moment of strangeness. Looking more carefully, you see how different it is. It’s like a riddle – something I didn’t know, and something I was drawn to and therefore connected with.

That’s the reason I study something: I meet it and it feels significant, and I want to get to know it better. How the relationship plays out depends on my abilities, my persistence, and how careful I am. I read in the literature – what everybody else knows about skunk cabbage, especially what have people observed that I haven’t observed. A picture builds up of a unique creatures. This is my pathway, not the pathway. By looking at individual organisms, I gain greater appreciation for every kind of organism, even if I’m not entering into dialogue with them in the same way. I know implicitly, there’s a lot there; I just haven’t concerned myself with it. Yet.

Acres U.S.A.: How about Goethe via Rudolf Steiner? Can you talk a bit about Steiner's relationship to Goethe and how Goethe influenced Steiner and what that dual legacy means for us today?

Holdrege: Steiner was the first person who edited Goethe's scientific writings in the last decade of the 19th century. For Steiner, Goethe's approach to nature showed a fruitful way of thinking and a way of conceiving of a participatory relationship with the world. The world is not something we can get out of to look at objectively, but something we get into and participate with in knowledge. That was fundamental for Steiner to form his own epistemology, his own idea of how we know the world. He never ceases to talk about Goethe's approach as foundational for his work and for anthroposophy. Anthroposophy in Steiner's view is a further development of a Goethean approach – a spiritual or intuitive understanding of the world.

Acres U.S.A.: Is there a better way to come to know reality?

Holdrege: For me? No. That's clear. This is where people are different. Broadly speaking, such an approach is needed in our times. So many unhealthy tendencies have to do with not being aware of how we weave into the world in our process of knowing. And also because we don't work on fine-tuning our own instrument, what Goethe would call developing "organs of perception." It's about fine-tuning and developing our thinking capacities to be more mobile, to give oneself over to the process, the developmental process of a human being, toward a consciousness that's more integrated into the world.

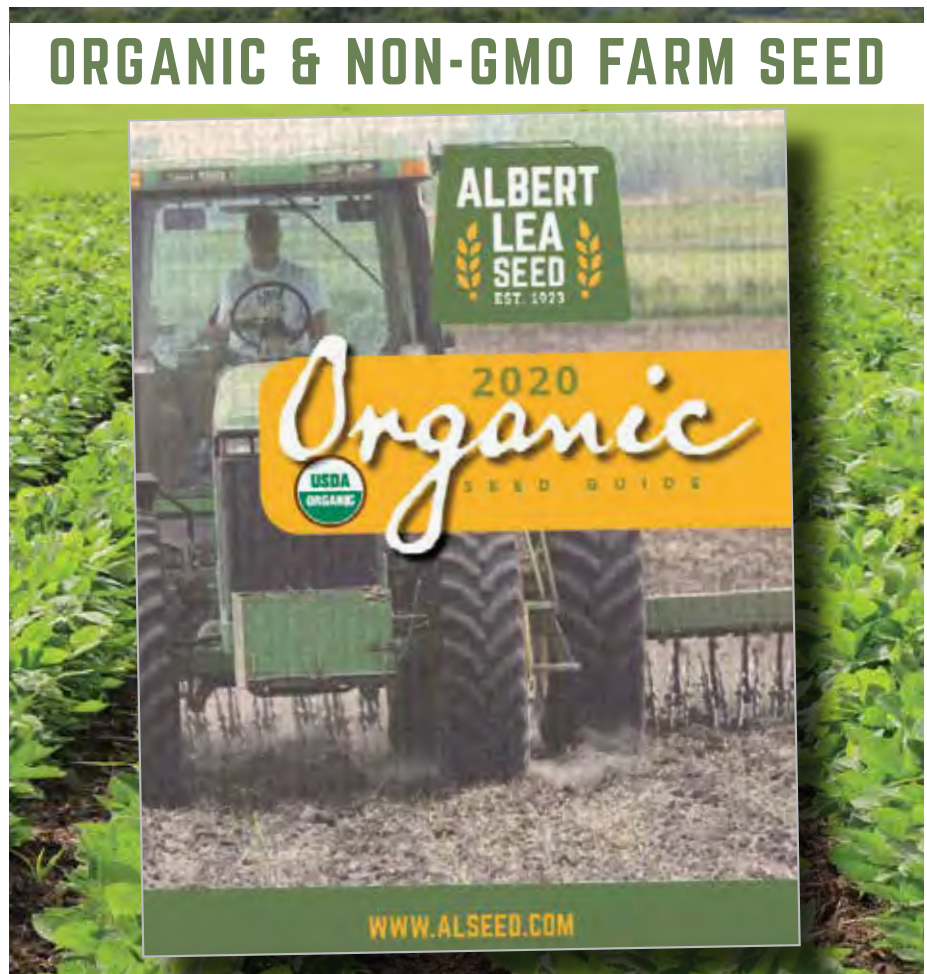
From that point of view, I haven't found anything that is better. It's not like nobody else is saying something similar. Many have said something similar. In holistic science, you see a lot of people striving in the same direction. But I do think, if you look more

closely to some approaches that are called holistic, you'll find that they're still very materialistic – still seeing things in terms of parts and "systems" constructed from parts. Goethe and Steiner wanted to move beyond habits of thought really ingrained in our culture that we don't notice.

Acres U.S.A.: Some of that is our tendency toward nominalism. Just

because you name something doesn't mean you know it.

Holdrege: You know something about it, but how do I keep a dialogue going? The phenomenon can always show me more. What do I have to do to allow that to happen, so I am receptive, so the world shows more of itself? It's an ongoing process of growth. And in growing, you also have to let things go – it



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can't be static. You've got to allow your knowing to move and reshape itself.

Acres U.S.A.: It sounds like you're talking about love.

Holdrege: Yes, in a way. I don't use that term in this context much, since I always wonder: am I capable of love? But yes, you're staying with something, you're faithful to it, you want to stay in relation, you want the other to blossom and you're growing, too.

Acres U.S.A.: In *Thinking Like a Plant*, you share the process of observation of milkweed – the dynamics among emergence and dissipation, the relation between the plant and its environment, the myriad organisms that inter-depend on milkweed. How can, say, a farmer bring this same level of appreciation and observational temperament to his or her work – whether a crop under cultivation or a herd or a flock? This feels like it would be challenging because the farmer's livelihood is bound up with those specific plants or animals. At the same time, however, their health, wellbeing and longevity is bound up in the context of the farm and its surroundings. Is there space for farmers to develop the kinds of skills one cultivates when studying with you and other teachers and researchers at The Nature Institute?

Holdrege: That's a real big question. You have a lot of younger people going into farming who did not grow up on farms. Probably the future of agriculture will depend on that. The number of farmers has shrunk to such a degree and a lot of these young people want something more than – it's hard to say this correctly without being misunderstood – “just” the farming. People go into it because they want to do something good for the earth and for society.

It's imperative to have some form of farm education that could be laying the groundwork for the practice of observation and staying with something. An observant attitude can then

inform your walking out into your field before you get on your tractor. Farming is incredibly hard work. In my view, few people work harder than farmers. But it's not so much in the receptive mode. It's more, “I've got to get this in the ground, it's going to rain.”

You have two aspects. One is farmer education with apprentices and observation in the day-to-day work. Are there moments when you notice something, openings that can flow into the everyday work, even if just for five minutes here or there, or even 10 seconds? If this can be practiced before a person has full responsibility for a farm, then more moments of attending-based insights can arise. The other aspect involves organizations, farming conferences and stimulating ongoing farmer education and sharing. Which vegetables do the best on my farm? How is your grazing operation going? Just sharing in a community is so important. But beyond that: Can I cultivate my perception and improve my ability to think in integrated ways? More practice in this direction would be great. It's easy to forget about in the challenges of the day to day.

We've had a course for 10 years now for a week in February, mainly attended by farmers and farming apprentices. It's one week, but it's better than nothing. We really focus on observation and this dialogic approach. We're not focusing on farming techniques, but on how we can get a better sense of the nature of plants and the nature of animalness; and how they hang together. Last winter we had a course entitled “The Living Earth.” We explored what we could mean by the livingness of the earth? It's a reflective experience. If farmers could have the opportunity for such reflective times during the year it would give strength for the rest of their work. I don't believe that for younger people entering farming today, the “go, go, go” of 16-hour days and no vacation is sustainable.

Acres U.S.A.: In the Encountering Nature and the Nature of Things year-

long intensive, you all used a wonderful phrase, which seems to connote a certain closeness, yet distance – maybe the appropriate frame of mind and heart needed to see the world phenomenologically: “ ... at work being itself, but differently ... ” Can you speak to the significance of this and what shifting thinking toward this can mean for a farm as an individuality, as an organism?

Holdrege: It's a big thing. It's a question of where does one get an inkling of this reality and how can you expand it out to the whole farm? Look at organisms. They are activity. They are being-at-work. Every organism is an activity and is continually interweaving with others. Being itself differently speaks to the dynamism and openness of an organism to interact with changing circumstances. They're adaptable in that sense.

In that mode, from a farm organism perspective, you can ask: How can I begin to see how things weave together, mutually support one another? There is no one recipe, no one model. People can tell you how they do it and then you can say: “Let me see how this works in my situation. Let me adapt it.”

You've got to take the whole context into account and that's not an easy thing. You've got to get beyond recipes – I have to do this or that. There are suggestions from people I can take up and then begin to see how that might weave into the actual life of my place. If there's not mutual support going on, then it's probably too simple a system, like a monoculture, and you have to bring in pesticides and herbicides. If you're in that mode, then you're not in the mode of weaving with plants, animals, soil and sun, customers and other people.

It's a really complex business. No question about it. But people have been farming for a long time. There are good practices and models out there that can be adapted to different situations. This is the main thing. A farm is a specific place on earth at

the specific time with specific people and specific circumstances. Farming is helping to create something that hasn't existed before. It's a new ecosystem – a big project.

Our educational system has missed the mark by emphasizing learning decontextualized facts and by confusing “having information” with knowledge. You do what you're told to do rather than exploring and being stimulated by what you find. We're not educating children to be active, to explore and be interactive. It's hard to be a good educator today, given all the forms and restrictions.

Acres U.S.A.: What would it mean for our own tenure on this planet if we could live with appreciation the “dynamic relations” that you present in *Thinking Like a Plant?* How might things change?

Holdrege: On the one hand what might change is education. As an

educator, which I have been for my adult life, that's a core concern of mine. You're working with children's core capacities that they can develop further. If we're focusing on testing, we make children tense and unhealthy. We're not sowing the seeds for people who can live in the dynamism, who are interested in wanting to work with other people in this spirit: “Well, let's try this out now, observe, modify, learn and grow, and remain in a process.” This being in a learning process, in a learning culture, contrasts with a culture of knowing and fearing and attacking – that's the one side.

The other side is giving attention to the concreteness of the world and its wonders. Today we're made to give so much intention and attention to the devices that people have created that they think are good for us (and serve them). Attending to the wisdom that's in the world, learning from that and trying to make our own life come

more alive and let that radiate into culture – that's where we should be putting our focus. There is no recipe. But at least we wouldn't be stuck all the time. We could thrive living in flux, which can bring new movement and growth. In this attitude of mind, things come toward you and give a certain sense that the situation can get better, even though the problems are huge.

By being open, you are also receptive. I can put it this way: you're open to the inspirations that come to you from the world, from the wisdom in the world. If you're not interacting with that wisdom, open to it, then the inspiration is not going to come. So much technology today is not coming out of the wisdom of the world, but out of the limited minds of certain very intelligent people. And then all sorts of things happen that are counter to where we need to go – as if I knew exactly where that is. The direction is clear, but it's not a specific goal.

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By Paul Schneider Jr., AG-USA

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