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Silica and Its Planetary Forces of Potential

An Interview with Dennis Klocek by Hunter Francis

Dennis Klocek is an artist, scientist, teacher, researcher, gardener and alchemist. After graduating with a MFA in 1975 from Temple University's Tyler School of Art with a thesis on Goethe's color theory, he taught for seven years at a community college. In 1982, his love for the work of Rudolf Steiner took him to Rudolf Steiner College near Sacramento, California, where he has been the director of their Consciousness Studies Program (Goethean Studies) since 1992. Dennis is engaged in research, teaching and writing in many fields, including weather, gardening, color therapy, meditation and the human organism, embryology and sensory transformation. He is the author of several books and is founder of the Coros Institute. More information can be found on his website: dennisklocek.com

Dennis' most recent publication, Sacred Agriculture: The Alchemy of Biodynamics, *is a fascinating exploration of the essence of biodynamic agriculture, in particular the nature of inner development needed to utilize its methods effectively. An important theme developed in the book, one also indicated by Rudolf Steiner, concerns the relationship of human consciousness to the destiny of the Earth and how, in the case of agriculture, the evolution of consciousness is related to our work on the land and with nature in general.* Sacred Agriculture *is available through JPI books. Toward the end of the book, the chapter "Silica: The Genie in the Bottle" provides an illuminating look at the nature of ubiquitous silica – in its many forms and from the standpoints of its role as a substance, a process and a being. Recently, in keeping with the summer season when the horn silica preparation (BD #501) is commonly used, I had the opportunity to converse with Dennis in the Raphael Garden of Rudolf Steiner College on the special nature of silica. The following excerpts from our interview provide illuminating insights on silica and its fundamental role in agriculture.*

HF: *What is the relationship between the element silicon and silica?*

DK: Silicon is rarely found in nature. It typically appears in combination with something else, usually with oxygen to form silicon dioxide, or silica as we know it. As substance, silica constitutes ninety percent of the Earth's crust – not just as quartz, but also in compound forms know as silicates that have evolved into many different forms. It's ubiquitous. So, there is a difference between silica, silicon and the silica process. That's why it's difficult to talk about it. It's always becoming something else. It's

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From the Editor

Dear Friends of JPI,

For many of us here at JPI, summer has been a time of intense activity. With that disclaimer, I send our collective apology for the tardiness of this summer newsletter. I hope your season has been full also, and producing the fruits you desire.

In this issue, we have decided to focus on the element silicon, and its manifestation more commonly known as silica. It was my privilege and pleasure to interview Dennis Klocek, who provides great insight into that and other elements that play a key role in agriculture – and silica's role in a fundamental biodynamic preparation, BD #501 (horn silica). I think you will also enjoy the perspective of Rudolf Steiner Garden Director, Harald Hoven, on the making and use of this special preparation.

With a heartfelt welcome to our two new board members, Christopher Hammon and Joseph Brinkley, I leave you with a passage from Rudolf Steiner providing testament to the spiritual forces involved in the ebb and flow of the seasons, as well as best wishes for a bountiful autumn:

"In all the earth reveals, in stone and plant, in all creatures, spiritual beings live – not merely a general vague spirituality, but separate spirit beings, nature spirits. These nature spirits enclose themselves during the winter in the bowels of the Earth; they are breathed in, as it were, by the Earth and dwell there. When spring comes, the Earth breathes out her spirituality and then these nature spirits strive upwards. They aspire upwards with the forces of springing, sprouting life; they are active in the life which is felt in the radiant light and sun-filled air, streaming upwards within it. And as we approach St. John's Day and the time of mid-summer, then in the heights above us, if we look up to them, a picture is revealed to us, embodied in the forms of the clouds, embodied powerfully too in lightning and thunder, embodied in all the elements of the weather above us, of all that lived during winter as nature spirits deep in the dark bosom of the Earth. During winter, we must look down to the Earth and feel, or behold, how hidden beneath the covering of the snow, nature spirits are working, so that out of winter spring will come again, and summer on the productive Earth."[1]

Hunter Francis

1) Barton, Mathew, ed. *Michaelmas: An Introductory Reader.* Forest Row (UK): Sophia Books, 2007, 25–26.

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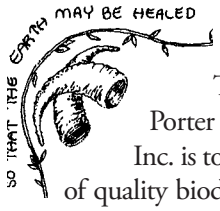

Mission

The mission of the Josephine Porter Institute for Applied Biodynamics, Inc. is to heal the earth through production of quality biodynamic preparations based on the spiritual scientific discoveries of Rudolf Steiner and to advance education and research in biodynamic agriculture.

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Silica and Its Planetary Forces of Potential

like phosphorus. You find it everywhere in nature, but nowhere in pure form. There's phosphorus in everything but it takes a lot of technology to purify it. Silicon is that way. It's always looking to bond, to oxidize and to form a silicate. And that action of the forming of the silicate is the result of the silica process.

HF: *I liked how early in your book you talked about exfoliation in rocks, likening it to the flowering process in plants.*

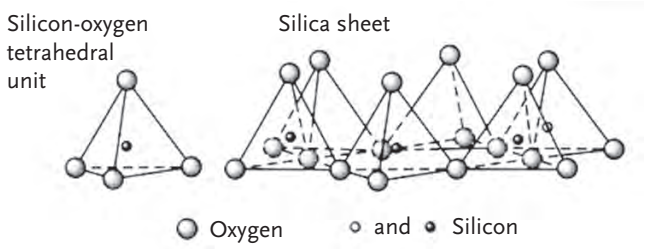
DK: Ah, the flowering process. Steiner has a concept: the world-mineral-plant, in original form, the world-mineral-plant-animal. This means that even in the mineral world, there are processes that are plantlike. In the world-mineral-plant, the polarity of silica and calcium is important. Calcium is the manifestation side of the thing and silica represents the potential form, hence the silica process.

HF: *In several lectures I've heard you give, you allude to a polarity between autonomy and connectedness. In psychology, that can relate to an archetypal vacillation between wanting to be independent on the one hand and in relationship on the other, but it also relates to natural processes. It's a kind of centripetal/centrifugal yin/yang and it has corollaries in chemistry. Can you talk about the relationship between silica and calcium in that context and how silica tends towards the periphery of things?*

DK: Now we're getting into alchemy. People take that language at face value, but it's always a kind of a process. It's as when Steiner talks about the planets – and the grouping of the inner planets together. People would ask, "Which inner planet are you talking about?" And he'd say, "It doesn't matter; they're all the same." Mercury, Venus, the Moon, the inner planets, are all bringing things in. And the outer planets like Jupiter are all gas giants on the periphery. That's the real issue: center and periphery. It's the same with silica and calcium. Silica represents the formative forces of the periphery, which are potential. And calcium represents the formative forces of the center, which is manifested. So, calcium is sort of a code word for anything that has condensed and fallen into a crystal. You could say, "Well, silica is crystal." But silica as a crystal has lost its potential and has become a thing. When it has become a thing, it has fallen under the spell of the calcium so to speak, even though it doesn't have calcium in it. It has undergone a calcium process, which the alchemist would call 'sal,' as in salt. Silica has a 'sulf,' which refers to a potential, a rarified combustion form. Sulfur and salt are two great polarities. Sulf is the unmanifest or potential and sal is the manifesting. So, when Steiner talks about silica in the air (something science doesn't recognize), he's talking about silica as a sulf – as a potential form-giving force. Even today, we're starting to recognize many different forms of silica, because it is the basis of all computer research – forms such as amorphous silica, gels, atmospheric silica and things like that. What seemed weird in Steiner's time is now the cutting edge of science. The irony is that the silicates are all being taken up by life forms and being embedded through the calcium process. So, in a way, all silica is moving towards lime, alchemically speaking.

HF: *Can you say more about the structure of silica-containing compounds, particularly silicates?*

DK: Silicon dioxide, or silica, has the form of a crystal lattice, which is tetrahedral – a kind of pyramid with a three-sided base. [See figure below.] The tetrahedra are organized so one tetrahedron is attached to others in a form in which a plane exists on the surface of each tetrahedron that creates what physicists know as energy holes in the molecular structure – energy holes in which it is possible to store things. This is the basis of energetic storage devices, hence of our information technology. It is also an important part of the cation exchange capacity (CEC) of soil, which relates to the spaces and charges around tiny soil particles that render soil particles capable of holding and exchanging plant-essential nutrients.



Biodynamic Preparations Legend

BD #500 – Horn Manure
BD #501 – Horn Silica

Compost Preparations:
BD #502 – Yarrow
BD #503 – Chamomile
BD #504 – Stinging Nettle
BD #505 – Oak Bark
BD #506 – Dandelion
BD #507 – Valerian

BD #508 – Horsetail (*Equisetum arvense*)

HF: *The unique lattice structure of silica helps soil particles to retain nutrients. They become part of the CEC of the soil that releases them so they can then be taken up by the plants. But the silica itself is not taken in by plants?*

DK: Not usually, although some may be taken up. Silica continues to morph into other things as part as an unending weathering process. They are especially important in the formation of clays. As far as silica-containing minerals like feldspar, you can say there is sodium feldspar and potassium feldspar, but it's the silica nature that guides things towards the formation of these felsic minerals. 'Felsic,' refers to feldspar and silica and are the types of minerals that predominate in the continental crusts, floating on top of the denser oceanic crusts. Formation is a sal [manifestation] process. The ferro-magnesium minerals common in ocean deposits are the corpses – like beds of limestone, barks of trees, bones – all that gets taken up in the manifestation process. Magnesium and iron tend towards manifestaion and the center. Feldspar and silicates are everywhere on the periphery. They are on the potential side. The corpse side in this context is that which has become. Iron- and calcium-rich things have a tendency to settle out and to fix.

HF: *So, silica guides the formation of things like feldspars, through a kind of formative process, but those have become things too…*

DK: That's one of ironies: one is always contained within the other. There is always sal [manifestation] in sulf [potential] and vice versa. The feldspars have become things, yet they still have within them the abilities to structure enzymes and things. Feldspars, potash and even seeds are rich in things like potassium, sodium and phosphorus. Those are very active in plant saps, or fluid exchange – even in animals. Your CEC is really about feldspar minerals, and the release and uptake of potassium and things like that. So those types of elements are available, sulf. Unlike calcium [sal], on the other hand, which needs to be facilitated by things in order to make it become available. Most of your crop failures are because of nutrient unavailability. In that case, the plant has no proper host in the soil. No bacteria or fungi or root sugars because of the locking up of potash and calcium in the soil. So, there needs to be a constant refurbishing of new things. Like with mineral dust. Youthful minerals that rejuvenate the soil, as well as plant materials. Silica is a youthful mineral, because it's just totally potential. It's a process where what is unmanifest comes into being.

HF: *What would be an agronomic example, if the calcium and potash are locked up, of how the sulf elements of potential would rejuvenate things?*

DK: Add acids, humic acids, clay and clay-humic complexes and things like that to make interface again. Soil feldspars, clays and soil CEC have huge interfaces for roots to penetrate. That's where potash and other minerals become available to roots and other organisms. The feldspars free everything up and the silicates are really the granddaddies of those types of processes because they are so involved in weathering processes whereby humic acids and temperature start to fracture and release things. They get broken down and floated in particles in the soil matrix. That's true of schists, shales and micas. The micas are silicates also. All this breakdown is what makes clay. That's what makes CEC, and that's what turns things around. That's when the potash becomes available. And calcium becomes available when it's in the presence of sulfur – rotting carcasses and humic acids, things like that. Particles in the clay-humus complex are tiny and therefore have enormous surface area. They are colloids.

HF: *How does this relate to BD #501?*

DK: It has to do with the layering. Now we go to silica as a cosmic reality in the world-mineral-plant. Silica and the silicates represent the formative planar force in Steiner's work. They're forces of the periphery. The forces of light are planar forces. Regular science languages refers to them as a wave plane. Light isn't pointy things, it's planes rotating. Just like electricity, which is also planes rotating. There is a magnetic pole with one wave going one way and another electric pole going the opposite way. In electromagnetics, they rotate around the flow of energy. It's a rotating plane of electricity. It's the same for light. That's just regular old science. Because of its planar function as a crystal, silica, as a cosmic reality, is one of the archetypes of light. Like planes of light intersecting at specific angles. And that's not a stretch, unless you don't believe in archetypes.

HF: *Planes seem to play a pivotal role…*

DK: Silica is a planar function. If you look at skin, it's a plane. Or the leaf of a plant. Even xylem and phloem, they're planar forces. Capillary action is possible because of the force of planes within. There is no way you could pump so much water to the top of a redwood tree without it. So, the forces of these fine planes constitute huge forces of attraction and repulsion that are within the planar structure of the xylem and the phloem or in the epidermis of a leaf. And those are the same forces that are in the root hairs or a particle of humus or in clay or in silica. They are all based on attraction and repulsion of forces when liquids come into contact with planar surfaces that are close together. They get attracted in and then within that plane of very close spaces, there is all kinds of activity between water (and the hydrogen), which is deeply yearning to do something. The hydrogen and the silicate are both extremely yearning to do something. They connect through planes.

HF: *Can one simply say the preparation 501 comprises strong silica forces, which you just described?*

DK: Yes, and those forces manifest in the processes in the cow also, the skin processes – secretions along membranes that eventually end up being digestive apparati. They eventually become the periphery that become skin, which become focused on the periphery and turn into a corpse. The corpse of the planar forces of digestion in the cow is a horn. It's a corpse of all of that activity. It is cast off, like our nails. We cast them off. It's also like bark on a tree. The periphery is the skin, that's the silica. The bones is the calcium. But you have to understand that in the silica pole there is a calcium gesture, and in the calcium pole there is a silica gesture. You don't find them separate. It's not one size fits all, they are constantly interactive, especially with water because water has its own inner planar structure. So, when you have a vortex and you drop some ink into it, you see lines. In the movement of water, the membranes that form are planar. Sap in the tree, water in our liver, and eventually the forming of skin out of living tissue that is the casting off of a plane that was a living membrane. First it was an energetic membrane, then a living membrane, then a dead membrane. That's called scar tissue. A horn is the casting off of a living membrane process, a silica process in the cow. And the silica process is also involved in the forming of all of the layers inside that create digestive apparati and organs. The archetype of silica is just membrane after membrane after membrane.

HF: *…as manifested beautifully in the horn.*

DK: A horn is the sal of a sulf process. That's true of the manure too. The end product of what comes out of the cow is a sal, even though it's a sulf process of excretion. It forms a bolus that becomes a manifested corpse of the process. Again, each of the processes has the other in it. The membranes are siliceous, but all the digestive secretions are calcic. In the BD #500 (horn manure), you take sal (the manure is a manifest thing) and you then take this corpse of the planar force (the horn – from the corpse of membranes) and you put the manure into something that resembles an intestine, but it's from the periphery, not the center. Intestines are in the center.

HF: *And in the BD #501?*

DK: In that case, the silica itself is an inwardly, hugely organized series of molecular tetrahedral membrane structures rotating. That's understood by conventional science. That's why silica polarizes light. You can shoot light through it and it rotates light. So, you have in the crystal a sal of this siliceous potential. And likewise in the horn, you have a sal of the siliceous potential of all the digestion that's been going on. You put the two of them together so they have as their formative principle the silica. The forms in and of themselves is something dead. You could put the horn over there and you put the silica crystal out in the sun somewhere else and you don't get anything. But when you put them together, then you're starting to get synergy. If they aren't put together, there's no synergy. So, what I have to do is take the horn, which is a corpse of the layering process, and I have to take the silicate and I have to crush it to move it back towards the periphery. The forces on the periphery are levity – anti gravity. I used to do an exercise where I would take a silica crystal and drop it on a table to show how it's under the influence of gravity. Then, I would grind it a little into small pieces, and again, gravity. Finer still, gravity. Then, after much grinding into a fine powder to the point where you couldn't hear the scratching of the crystals anymore, I would blow the powder and it would float around the room. What happened? Levity. I pushed it back to the periphery and then it was under the influence of levity. I've moved the corpse of my silica back to its home in the sky, even though it's still here.

HF: *So, synergistically, you put that in the horn… and then what?*

DK: Now, you put it into a protein form (keratin) whose form structure is remarkably similar to the molecular tetrahedral structure of the silicates.

HF: *And they'll interact?*

DK: It's synergy. Form and function; a synergy. Certain forms enhance things and certain forms don't. It sounds far-fetched, but the realm of form research is beginning. But it's difficult as yet to prove these things unless you're a very zealous grape grower who finds out about biodynamics and that the BD #501 is a spray that wards of fungus. So, you make bunches of 501 and you spray it all over the place. Then, you get a hot spell and you burn your vines. Then, the effect of the synergy becomes real.

HF: *You could feel the effect of different forms in rooms you stand in – as in a round room vs. square.*

DK: Or, good architecture vs. a box store.

HF: *So you have the process, the forms, the synergy, then, you end up with a product and you spray it and it enhances the forces of levity and light – which fungi don't like.*

DK: No, they don't like that. Fungi want to hide in the dark and manifest calcium.

HF: *What do you mean by the alchemy of agriculture?*

DK: Alchemy requires two things: First, the alchemist must understand the level of the thing that they are working with and adapt their process to that level. Everything you are working with is transforming, so you must find at what level you are working at in the transformation of the thing, and I need to make my process harmonize with that

level. Is it coagulating, or is it dissolving, fundamentally? If I'm coagulating when it should be dissolving, I'm not getting what I need. The second thing is that when you do that, you have to harmonize your consciousness with the becoming of the thing. Those are the two fundaments of alchemy. What that implies is that if I am making a medicine for you and I don't harmonize my consciousness with the forces that are operating in that medicine, you're not getting a good medicine. You're not getting what the good Lord has allowed me as a human to do with the creation, which is to transform it with my consciousness.

HF: *You point out that Steiner says we are involved in the evolution process. Our consciousness is important in the evolution of the Earth. We're very important in the process. Agriculture is a key interface, obviously, because it involves working with the land.*

DK: Yes. There are two parts to that. The first is that I am free to do whatever I wish to do, but I am also free to be remarkably stupid.

HF: *Thus, it's a matter of how you're working with the land. All agriculture is working with the land, but…*

DK: There is a famous poem by Goethe, *The Sorcerer's Apprentice*. The apprentice knows how to start the reaction, but doesn't know how to stop it, because the apprentice doesn't have the right intent, the moral intent.

HF: *Is that part of "harmonizing with the process you're working with"?*

DK: Yes. Your consciousness. That's where we get to the elemental world and the formal relationships in nature. I have to harmonize my consciousness with the forces that are extant in nature when I go and change them. I'm free to work within them and there are great mysteries that are yet to be discovered about that. But when I go on the path of synthesizing things, I step off of my debt to the natural world and I become the sorcerer's apprentice. That's why it's so important to have the inner life. Climate change – we can start it but we can't stop it. So my little soap box about alchemy is that people in agriculture based on Steiner's work need to understand the meditative life in relation to the natural world – like taking such things as silica into sleep as meditative motifs and then studying out of what happens to you when you do that. If you simply picture a silica crystal growing before you go to sleep every night for two or three weeks in a row, and then go Google something about it, you'll be amazed at what you find out about that crystal!

HF: *So, part of alchemy is understanding you're not just working with matter, but also where it exists in part of a process, which you must harmonize with.*

DK: Yes, everything is transforming – through processes, which are reflections of the archetypal realm. Alchemy is the GPS for where are you are at in the process. When you harmonize with the process, the beings that stand behind it will reveal things to you. And it's so ironic. Sometimes what you are looking for is right under your nose – if you are conscious. You have to listen. That's the problem with technology. Technology allows humans to amplify their will, but not their morality. We think, "We can do it, so let's do it." It's not that we shouldn't participate, but we have to learn to do so more consciously.

HF: *That's what you meant by silica being the "genie in the bottle"?*

DK: Yes, specifically because of its role in our technology. There are beings who have been inspiring people to make technological developments that go beyond their moral capacity to deal with the power that comes from the devices they design. In so far as silica has made these developments possible, as in memory devices with silica crystals, genies have been let out of the bottle.

HF: *You referred to silica as a sacrificial being. Can you say more about that?*

DK: Silica is a being that comes to earth to die. It has a biography, a destiny. As a substance, it has an evolution. Silica is starlight that came to earth to die. Within the light that bathes our planet, exist the metals that support life – spiritual beings that come from the stars to end up being what we walk on. In very rare conditions, a crystal forms and the crystal form of this being is a foundation for the elemental process of silicon to become silica. These substances came to earth to manifest so humans could have bodies and sense organs. It's at the beginning of everything and at the end. The act of sacrifice that created silica as a corpse needs to be resurrected and lifted back into light through human consciousness. The silica preparation is a part of that process.

HF: *Thank you, Dennis.*

On the JPI Bookshelf

New additions of interest include:

Sacred Agriculture: the Alchemy of Biodynamics – Dennis Klocek, $30.00

Genesis, Secrets of Creation – Rudolf Steiner, $17.95

Healing Plants, Herbal Remedies From Traditional to Anthroposophical Medicine – Markus Sommer, $30.00

Making and Using BD #501 (Horn Silica)

Hunter Francis

In August, I had the opportunity to speak with a long-time biodynamic practitioner, Harald Hoven, who serves as the Garden Director of the Raphael Garden at Rudolf Steiner College in Fair Oaks, California. Harald makes all of the preparations used in the Garden and for many years has helped host the Biodynamic Association of Northern California (BDANC) on site for the making of the horn silica preparation (BD #501). Below are his recommendations for the production and use of BD #501.

Metal cylinder for smashing quartz (left) and grinding glass (right) as used by Harald

Harald grinding on glass plate

Materials

Of course, the key ingredient for making BD #501 is silica, most usually in the form of quartz. Harald prefers to use local quartz, coming from California. He also prefers clear quartz crystals, though quartz coming from California may often have a rusty coloration, coming from iron. Normally, he is able to find the quartz he needs at gem shops, mineral shows, etc. Since the crystals will be ground, damaged pieces are acceptable. Occasionally, he will use different varieties of quartz or silica-containing compounds and this year did a batch of the preparation with a smoky quartz. It is worth noting that Dennis Klocek, interviewed in this issue, has been experimenting with amethyst as a source of silica for use in vineyards. Harald has also made the preparation from orthoclase, which contains silica but also other elements such as potassium and aluminum. Normally opaque, Harald believes orthoclase has a softer effect that does not enhance light as intensely as straight quartz, something which is not as needed in the intense California sunlight. Eventually, any of these materials will be put into a cow horn, as one would make BD #500 (horn manure); however, horns used for the silica preparation should be used solely for that purpose and not used for other preparations.

Tools needed for grinding the quartz consist of a mortar and pestle, sieves and two glass plates – one with some sort of handle, as described next.

Grinding

Smashing quartz crystals into small pieces requires a sturdy metal container and some sort of metal rod. Harald uses a metal cylinder attached to a metal base, pictured above right. Some farmers break up the crystals in the butt of a t-post hammer using a metal pole, though the latter can release metal filings. The crystals should be pounded repeatedly and when small enough, they should be sieved to separate out fine material the size of sugar granules. Mealy, granular-sized pieces can then be ground further with a mortar and pestle made of ceramic or stone. Larger pieces should be broken up further in the metal crusher. Once all of the material is finely ground, it is ready for grinding with glass. Glass plates used should be sturdy, over ¼ inch and the thicker the better. The bottom plate, upon which fine material is placed should provide room for movement,

about three feet by three feet or more. The top plate, to be placed on top of the material should be about six inches by six inches and needs to have a handle attached to it. This could be a wooden block or, as in Harald's case, a metal pipe attached to the plate with epoxy or super glue. Grabbing the handle, the top plate is then rotated over the crystals in a circular motion over and over, bringing loose material continually back into the center for more grinding. Eventually, a high pitched sound will result similar to nails on a chalkboard. Some find it annoying and may like ear protection, but Harald enjoys the sound as a reminder that elemental beings trapped in the lattice of the crystals are being freed from enchantment. As dust can be irritating to the respiratory system, some people choose to use a dust mask during the procedure. One should keep grinding until a very fine flour, like powdered sugar, is produced.

Filling and Burial

Once a powder has been produced, it should be mixed with pure water (rain or clean surface water is preferred) to produce a paste, which can be poured into the horn. About ¾ cup of the original crystal should be used per horn. (This volume can be determined by displacing the original crystals with water before grinding.) Enough water should be added to the silica flour to make a "thick paste" that is not runny. The paste should be immediately transferred into the horn. Fill the horn in an upright position and let it sit for 24 hours. After that time, water will have accumulated at the top and should be poured off without disturbing the paste below. Let the horn sit about a half a day more and the paste inside will become adequately solid for burial. A small plug of the soil from where the horn will be buried can be placed at the top of the horn (½ - 1 inch plug) to keep the paste in place. Burial should occur in a field or open space that receives abundant sunlight. The site should be at a distance from tree roots, as in a pasture. The vitality and fertility of the soils are of less importance than for the BD #500, though it is best if it is "workable" and not too heavy. The horns should be placed in a hole of about one foot in depth and are laid on their sides so water does not collect in them. Normally, Harald buries two horns, which is adequate for his three acre farm and to supply interested BDANC members. This is done in the spring when the BD #500 and compost preps are unearthed. Harald fills the horns on the Saturday after Easter and buries them the following Monday.

Harald with horn

Use and Storage

At Raphael Garden, the horns are taken out of the ground at the time of Michaelmas (September 29). Scrape the plug of soil out of the horn carefully. The preparation should be taken out the horn, sifted and placed in a glass jar and stored in sunlight, as on a window sill. Alternately, the prep can be left in the horn and stored similarly in sunlight until ready for use. Either way, it may be stored that way for years.

In preparing the solution to be sprayed, Harald uses about ¾ teaspoon of material per 10 gallons of water in a 20 gallon mixing vessel for an amount to be sprayed on three acres. Water should be pure and lukewarm in temperature. The mixture is stirred for an hour, creating vortices in alternate directions. Harald applies the spray with a backpack sprayer throughout the year, except during times of frost, about once per month in the summer. In hot, mid-summer months, he may use the orthoclase or smoky quartz preparation for their softening effect as described above. He always begins the stirring process before sunrise and applies the spray shortly after dawn. This is best done when crop fruits are beginning to form and not in earlier stages of growth. In fruit trees, this would be after flowering. In vineyards, the prep may be sprayed before flowering. Unless he is trying to target a specific crop or area of the garden, he will often spray the solution with the nozzle turned upward to create a mist or "atmosphere" of the preparation around the plants. To date, Harald has not had a problem with the burning of crops, but he is always careful to spray the prep early in the morning. However, he has heard of people using the

preparation in the afternoon to promote ripening in some cases. Grain farmers may do a double spraying (two sequential sprays) at one time. Beekeepers have been known to put a small amount of the prep in hives to promote light forces. Harald, an avid seed saver, will also spray the solution after harvesting on winter squash intended for seed, or on other crops intended for storage, such as onions.

The silica preparation is a powerful remedy for enhancing light and ripening forces on a farm. As Harald says silica, coming from deep in the earth, is effective in stimulating the metabolic pole of the farm (vegetation), making the 501 a "belly spray" in that regard. Use of the spray is an essential part of the biodynamic regimen for strengthening the agricultural individuality of a farm. It is just as important as the BD #500 and the two preparations should be used at varying times in the year to create a balance between the two poles they represent.

Farming for Health: 2014 Biodynamic Conference

This November 13–16, hundreds of farmers, gardeners, educators, activists and food lovers will gather for the Biodynamic Association's (BDA) 2014 Biodynamic Conference, "Farming for Health." The BDA is excited to be bringing the conference this year to Louisville, Kentucky, a vibrant, cultural city with a burgeoning local food movement whose central location makes it a day's drive from much of the South, East Coast, Midwest and even southern Canada.

With more than 70 leading biodynamic and organic educators, this will be a unique opportunity for experienced biodynamic practitioners, as well as for people who are new to biodynamics or who are interested in organic or sustainable farming and gardening. A number of advanced workshops will delve deeply into topics such as:

- Alchemical Principles of the Biodynamic Preparations, with Dennis Klocek
- Terrestrial and Cosmic Nutrition: Why Biodynamics Is a Great Help for Spiritualizing Our Thinking, with Gunther Hauk
- Geomancy and the Health of the Biodynamic Organism, with Karen Davis-Brown
- Sensitizing Minerals, Plants and Animals for Human Nutrition, with Philip Lyvers
- A beginner workshop track called "Biodynamic Basics" will provide newcomers with introductory overviews of key biodynamic concepts such as the history of biodynamics, the preparations, the four elements, soil building, composting and cosmic rhythms.

Keynote speakers will include Dr. Daphne Miller, the author of *Farmacology: What Innovative Family Farming Can Teach Us About Health and Healing*, who is also an integrative primary care physician, professor and strong ecological advocate, and Patrick Holden, the founding director of the Sustainable Food Trust, former director of the Soil Association, and patron of the U.K. Biodynamic Association. Participants will also hear from a panel of four speakers in the biodynamic movement in North America on the relationships between biodynamics and health.

For practical, on-the-ground experience, there will be several on-farm events before and after the main conference:

- Hands on with the Biodynamic Preparations, a pre-conference workshop with members of the Fellowship of Preparation Makers at Foxhollow Farm in Crestwood, Kentucky
- Can Conventional Hog Farming and Biodynamics Co-Exist?, a pre-conference workshop with Philip Lyvers at Lyvers Farm in Loretto, Kentucky
- Post-conference field days at Foxhollow Farm in Crestwood, Kentucky, and Long Hungry Creek Farm in Red Boiling Springs, Tennessee

Finally, there will be many chances for networking and community building, browsing exhibits, enjoying locally sourced biodynamic and organic foods, and celebrating through music, art and dancing. In particular, the local food and wine tasting during the festive conference opening on Thursday evening will be a can't-miss event. Register before September 15 for the 10% early bird discount. BDA members receive an additional 10% off (you can become a member when registering), and scholarships and volunteer discounts are also available. Visit the BDA website at www.biodynamics.com/conference for all the details.

Newsletter Available On-Line!

This year, we began offering an annual on-line only subscription for $20.00 or for $15 if you have an Associative Contract. A subscription for four printed issues remains at $30.00.

The set of printed back issues, up through Issue #83, is available for $260.00 plus shipping. A valuable resource for your library!

Contact the office to order yours at (540)745-7030.

JPI Hosts Spring Preparation Workshop

Pat Frazier

As most of our readers know, we moved the operation of JPI to our new location in Floyd, Virginia, in June of 2013. In the past year, we have been engaged in making our new space a functional and efficient facility, as well as a permanent home for the preparations. Our traditional fall workshop was postponed until we felt we could be more prepared to host guests. With the coming of spring, and the approaching one-year anniversary of our move, we felt ready to begin our education program again. We thank Terry Brett for his generous support during this transition year. With his help, we were able to convene classes in his home adjacent to our farm property, making the workshop a successful learning event for all who attended.

Twenty attendees from around the country attended the two-day event. Many of the participants were new to biodynamics (BD) and eager to learn as much as possible in the short time available. A few were more experienced and broadened their horizons with the hands-on experience of making and applying the preparations. Our attendees included a husband and wife team with extensive experience as farm managers as well as being permaculture and homesteading educators, a past attendee of the fall workshop held in Woolwine in 2012, a seasoned Tennessee BD farmer, and a seasoned BD practitioner from New England involved in Waldorf education through an environmental immersion camp. Many of the participants who attended were from Boone, NC and came at the suggestion of an energetic and lovely woman who has an ecologically conscious landscaping business there. She connected with JPI during our October gathering to assist in some of our preparation making activities and was so inspired that she brought about ten members of her local community to share what she had experienced and deepen her knowledge.

During the workshop, Pat Frazier, Abby Porter and JPI staff member Larry Mabe provided lectures and hands on guidance to the participants in making BD #501 (horn silica), BC (barrel compost) and BD #502 (yarrow) preparations. A BC pit was dug and prepared. BC was buried during the workshop and an afternoon spray was conducted as well. Attendees participated in a particularly lovely sunrise BD #501 spray on a slightly cloudy, chilly spring morning over young buckwheat fields, the grounds surrounding the JPI barn and along the river. Toward the end of the spray, a new swarm of bees was heard in the woods just above the area of the spray, a particularly good omen supporting our intention of awakening spring light on the farm.

Speaking of bees, our neighbor, Gunther Hauk graciously toured us through his Spikenard Honeybee Sanctuary to kick off the workshop. The sanctuary has enjoyed a groundswell of support in its five-plus-year history in Floyd, as awareness of the plight of the honeybee has spread. Gunther and his staff steward beautiful bee-friendly perennial gardens, vegetable

Crushing quartz crystal with a special tool made by Larry Mabe

Grinding the crushed quartz with a mortar and pestle and a little water to prevent airborne silica dust

Grinding the quartz finer between two sheets of glass, again with a little water

Quartz silica horns drying before they the ends are covered with cotton cloth and buried

production, and hay acreage that is partially planted in cover crops attractive to bees, all biodynamically-managed. Of course, there is a lively colony of many beehives of all different types, and inviting educational spaces for his many workshops on biodynamic beekeeping and biodynamic principles. After our tour, Gunther gave an inspiring lecture on the relationship of silica and the bee to the human being. We are grateful to be establishing such a strong biodynamic partnership on these two lovely farms bordering the Little River in Floyd County, Virginia.

Tour of Spikenard Honeybee Sanctuary with Gunther Hauk

Concluding the workshop was a visioning and observation exercise for future design work on the farm led by Pat Frazier and Mike and Barb Harwood, our permaculture teachers. Engaging our powers of observation in walking the land promotes understanding of movement and presentation of the four elements of air, light, water, and earth/mineral, across and within the land. Using these powers of observation allows the land steward to work with existing land patterns as a farm organism is born and grows stronger with appropriate design. As JPI moves into the future as a home for the preparations, we hope to be a model for best practices in not only agricultural management, but intelligent and sensitive design for a long lifetime of our educational mission.

With the improvements we have made on our barn and surrounding areas, we intend to continue to offer regular educational events at the farm on many aspects of making and using the biodynamic preparations. Visit our website www.jpibiodynamics.com to sign up for our e-news for upcoming educational events at the farm around the country and "like" us on Facebook (www.facebook.com/jpibiodynamics) for more frequent postings.

Stirring the manure with the basalt and egg shells for an hour when making barrel compost

Putting the stirred manure into the brick pit built during the workshop and adding the compost preparations

Stirring barrel compost, made the previous year, to spray on the JPI farmland

Stuffing the moistened yarrow into stag bladders

Sewing the opening closed

Stuffed bladders wrapped in cheese cloth to protect them while they are hung in the summer sun.

JPI Spring Workshop participants

JPI Fall Workshop November 7–9

Joseph Brinkley will lead the hands-on fall preparation workshop that will include an evening presentation on biodynamics applied to vineyards.

Joseph Brinkley (Joey) was introduced to biodynamics in 2002 while earning a BS in Horticulture at Virginia Tech. He apprenticed with Hugh Courtney at JPI and was on staff from 2006-2007 before moving to California where he has been making preparations and doing consulting work for vineyards transitioning to biodynamics. He is currently assistant vineyard manager at Bonterra Organic Vineyards and manages their biodynamic program and 350 of the 950 acres of their vineyard.

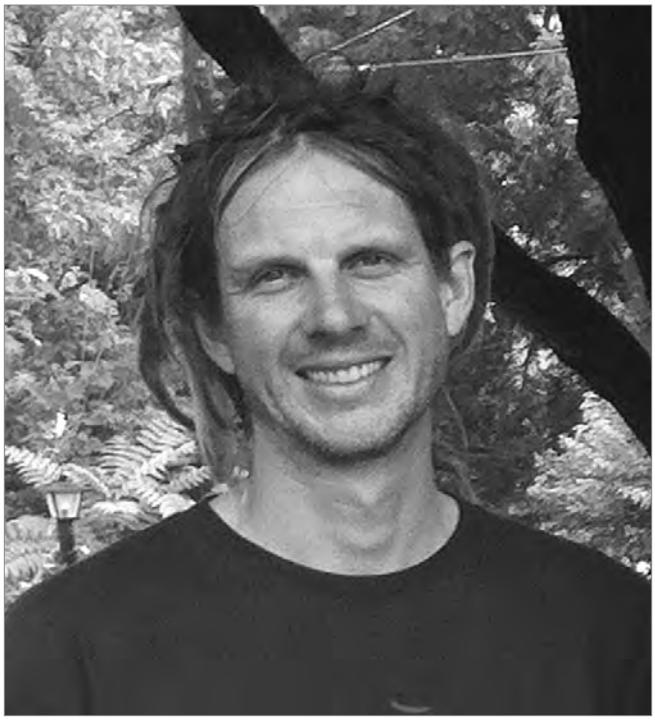
The fee of $175 includes three meals on Saturday and breakfast and lunch on Sunday. For more information and registration go to: www.jpibiodynamics.org or call (540)745-7030.

JPI Welcomes Two New Board Members

We are pleased to welcome Christopher Hammon and Joseph Brinkley to the Board of Directors of JPI this past spring. The addition of these two fine members adds needed expertise and dedication to fulfilling the mission of JPI. We couldn't be more blessed to have them.

Chris Hammon is a lawyer residing in Texas, with an interest in sustainable agriculture that has bloomed into a passion for biodynamics. Chris brings needed expert legal council to the board of JPI, with a fresh perspective to non-profit organizational goals and objectives. He has been instrumental in bringing biodynamic awareness to the Texas community. "I have been eating organically as long as I can remember, but once I started growing my own food, I realized something was missing. Biodynamics was that missing piece. I am excited to be a member of the Board of Directors of the Josephine Porter Institute and hope that my experience in my career as a lawyer here in Texas will bring a different insight and perspective so that JPI may continue to grow and teach others about Biodynamics."

Chris and his son, Dakoda



Joey

Joey Brinkley was introduced to biodynamics while earning his BS in Horticulture at Virginia Tech in 2002. Beau Johnson was conducting a research project utilizing JPI biodynamic compost. Beau introduced Joey to Hugh Courtney. His relationship to biodynamics and the preparation work continued to deepen under Hugh's guidance over a several year period. Joey and his wife, Natalie, lived and worked at JPI during 2006–2007 before relocating to California. In California, Joey has developed his consultation and preparation making skills to serve the burgeoning biodynamic wine community. He is currently Assistant Vineyard Manager at Bonterra Vineyard where he manages the biodynamic program and 350 of the 950 acres of their vineyard. Joey and his wife Natalie are active in the Fellowship of Preparation Makers, and the Biodynamic Association as supportive educators and active participants in visioning the future of preparation making on the North American Continent. They have recently begun their family, becoming parents to Isaiah now 8 months. When asked about his desire to be on the board of JPI, Joey replied, "Biodynamics and JPI have enriched my life. I just want to give back by serving JPI and biodynamics."

The JPI Board of Directors is interested in building a larger board with others from the biodynamic community. If you are interested in joining our board, please contact us at www.jpibiodynamics.com or by calling the office at 540-745-7030.

Gratitude for Dandelions and More...

Dandelions Blossoms

Many thanks to all of you who harvested, dried and contributed dandelion blossoms in the 2014 season. Your efforts allow JPI to produce the amount of BD #506 (dandelion) necessary to meet the growing demands of the farmers, gardeners and vineyards we serve.

Helen Belecher – Woolwine, VA
Blueberry Garden – Ashton, MD
Neil Brown – Lisbon, OH
Annie Cockram – Bassett, VA
Ann Colwell – Hubertus, WI
Earle Family Farm – Center Conway, NH
Mira El – Mt. Shasta, CA
Linda Fair – El Prado, NM
Genesis Farm – Blairstown, NJ
Mary Graf – Ypsilanti, MI
April Leithleiter – New York, NY
Barbara Martin – Newton, MA
Van McKay – Floyd, VA
Mary Metcalf – Panton, VT
Abby Porter – Berkeley Springs, WV
Shining Mountain Waldorf School, Boulder CO
Terry Williams – Woolwine, VA
David and Mary Yoder – Fairchild, WI

Would you like to harvest dandelion blossoms or other preparation materials for JPI next year? If so, please contact the JPI office for details on proper harvesting, drying and shipping, (540)745-7030.

Preparation Plants and Materials

This past year, we have been making plantings of the preparation plants at our new farm location in Floyd so we will again be able to harvest more of the preparation materials on site. Over 125 valerian plants, two patches of stinging nettle, some yarrow and some equisetum have been planted. We are fortunate that yarrow and dandelion grow abundantly around the farm. This fall and next year, we will continue to increase our plantings, and continue work on our demonstration garden with one of our barrel compost pits in the center. Thank you to the following individuals and farms for your contributions of valerian, yarrow, nettle and equisetum plants, nettle leaf, and soils for our preparation work.

Josie Porter Farm and James Silverthorne – Stroudsburg, PA (nettle leaf, nettle plants and soil)
Van McKay – Floyd, VA (nettle plants)
Midheaven Farms/Dewane Morgan – Park Rapids, MN (alfalfa soil)
Abby Porter – Berkeley Springs, WV (equisetum plants)
Spikenard Farm – Floyd, VA (valerian plants)
White Rose Farm/Sally Voris – Taneytown, MD (nettle leaf, valerian, yarrow and nettle plants)

Heartfelt gratitude to all of you for your time and dedication in helping JPI so we can continue providing preparations to all who need them for the healing of the Earth and Humanity.

Save the Date

October 25: Beekeeping – Autumn Rest – Anticipating Winter

This workshop with Keith Gelber will teach honeybee care during the cold, dark time of the year. Rudolf Steiner College, Fair Oaks, CA. For info, visit their website at www.steinercollege.edu/registration or call (916)864-4858.

November 7–9: JPI Fall Preparation Workshop

Three days of hands-on preparation making with Joseph Brinkley from Bonterra Vineyards, CA. The chamomile, dandelion, oak bark compost preparations will be covered as well as BD #500 (horn manure). Brinkley will also give a presentation on the use of biodynamics in the vineyard. For info, visit www.jpibiodynamics.org or call (540)745-7030.

November 13–16: North American Biodynamic Conference

A national gathering hosted by the Biodynamic Association will be held in Louisville, KY in 2014. For details, please visit www.biodynamics.com/conference

On-Going:

Monthly networking, sharing, BD workshops and study of the Agriculture Course with Chesapeake Biodynamic Network (CBDN) in College Park, MD. For dates and times contact Michael Judge at mjudge2000@gmail.com

Monthly classes, family days, biodynamic workshops and festival celebrations held at White Rose Farm in Taneytown, MD. For info, visit: www.whiterosefarm.com

Enzo Nastati Seminar rescheduled for January 2015

Enzo Nastati's five-day seminar on Spiritual Agriculture has been rescheduled for late January in Paonia, Colorado. For more information, contact Caren at: adivg@tds.net

"This noble substance – self-content, and wishing for nothing more – is silica. Silica has come to rest in itself. And people are mistaken if they think silica is to be found only in the form of a solid mineral. Silica is actually present everywhere in homeopathic amounts."

Rudolf Steiner – *Spiritual Foundations for the Renewal of Agriculture,* p. 59 (Gardner and Creeger, eds.)

SO THAT THE EARTH MAY BE HEALED

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