



We are also faced with a great inner transformation in nature. The natural gifts, naturally inherited knowledge, traditional medicines, and so on that have been passed down from ancient times are all losing their value. We need to acquire new knowledge in order to be able to enter into all the relationships of these things.

Humanity has only two choices: either to start once again, in every field of endeavor, to learn from the whole of nature, from the relationships within the whole cosmos, or to allow both nature and human life to degenerate and die off. There is no other choice. Today, no less than in ancient times, we are in need of knowledge that can really enter into the inner workings of nature.

—R. Steiner, *Spiritual Foundations for the Renewal of Agriculture*, lec. 2, p. 40.

SO THAT THE EARTH MAY BE HEALED

The Josephine Porter Institute
for
Applied Bio-Dynamics, Inc.
P.O. Box 133, Woolwine, VA 24185-0133



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Applied BIODYNAMICS®

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Issue No. 22



The human heart can go to the lengths of God.
Dark and cold we may be, but this
Is no winter now. The frozen misery
Of Centuries breaks, cracks, begins to move;
The thunder is the thunder of the floes,
The thaw, the flood, the upstart Spring.
Thank God our time is now when wrong
Comes up to face us everywhere,
Never to leave us till we take
The longest stride of soul men ever took.
Affairs are now soul size.
The enterprise
Is exploration into God.
Where are you making for? It takes
So many thousand years to wake,
But will you wake for pity's sake?

(from the play, *A Sleep of Prisoners*,
by Christopher Fry)



ADDRESS CORRECTION REQUESTED

FROM THE EDITOR

This issue features a lengthy article on the yarrow preparation by Manfred Klett, an author whose work is much too little known in America. In addition, we also have our regular column on "Observations and Experiments," a report on the three-day seminar held here at JPI last Fall, and a review of a new gardening book. (If you would like to review a book that we have for sale at JPI, we will provide you with a free review copy.) Any beekeepers in the audience should turn immediately to Evrett Lunquist's report of his experience with horsetail tea and bees on page 9. If anyone follows Evrett's example, please report your results to us at JPI.

As we go to press, the U.S. Dept. of Agriculture has released its National Organic Program Proposed Rule, i.e., its proposed regulations of the organic industry. These contradict most of the recommendations of its own National Organic Standards Board and if implemented would spell the end to small-scale organic agriculture. Please express your opinion on this matter during the public comment period (ends Apr. 30, 1998). For your convenience, a simple information and response sheet has been included with this newsletter. Send your congressperson a copy of your response too.

NEW PUBLICATION SCHEDULE

After this issue, *Applied Biodynamics* will cease to be a quarterly publication and will instead be published three times a year—in the Spring, Fall and Winter. Subscription rates will accordingly be reduced from \$35 to \$30 per year. We hope that this change will allow us to concentrate more on the content of the newsletter and less on the mechanics of producing and distributing it.

Malcolm Ian Gardner

CORRECTION

In the last issue it was stated that Lloyd Nelson, a work-study student who worked here last summer, was completing his *Associates Art* degree from Blue Ridge Community College in Flat Rock, North Carolina. The actual degree he completed was an *Associates Degree in Horticultural Technology*. We regret the mistake (but at the same time we note that he is also a talented artist).

MISSION

The Josephine Porter Institute for Applied Bio-Dynamics Inc. (JPI), was founded to produce quality biodynamic agricultural preparations based on the spiritual-scientific research of Rudolf Steiner.

It serves as a living memorial to Josephine Porter, a pioneer for this work in America.

The mission of JPI also includes education and research in biodynamic agriculture.

JPI undertakes these tasks so that the Earth may be healed.

TELEPHONE CONSULTATION HOURS AND FEES

Because of the increasing impact on staff time here at JPI, we are now instituting specific hours for telephone consultation and also charging an hourly fee of \$30 (billed after the first five minutes of telephone time). We will normally be available for consultation at the following times (Eastern Time Zone):

Monday — Friday: 9:00am - 10:30am
Tuesday & Thursday: 7:00pm - 9:00pm

Other times possible by prior arrangement.

SPECIAL OFFER FROM THE J.P.I. BOOKSTORE

We have acquired a limited supply of paperback copies of the out-of-print classic *Secrets of the Soil*, by Peter Tompkins & Christopher Bird. We are offering this on a first-come-first-served basis for \$20.00 (20% off the list price of \$25.00), plus \$3.50 postage and handling.

THANK YOU!

Lincoln Geiger, *Wilton, New Hampshire* (valerian)
Helen Oshima, *Las Vegas, New Mexico* (dandelions)
Barbara & Kerry Sullivan & friends, *Kimberton, Pennsylvania* (dandelions)

Biodynamic Preparations Legend

BD #500 — Horn Manure	
BD #501 — Horn Silica	
BD #502 — Yarrow	
BD #503 — Chamomile	
BD #504 — Stinging Nettle	
BD #505 — Oak Bark	
BD #506 — Dandelion	
BD #507 — Valerian	
BD #508 — Horsetail (<i>Equisetum arvense</i>)	

} Compost Preparations

APPLIED BIODYNAMICS®

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Artwork in this issue by Erin Coffin.

This is what the animal can teach the plant. The animal's soul being keeps the plant's life process in motion.

Looking at the three processes of preparation-making, we can say that the potassium is lifted through three stages of estrangement from its physical properties: from the border of the sub-natural—via the life process of the yarrow—to finally being endowed with forces of inwardness. If we try to follow this thought we might discover what Rudolf Steiner actually means when he discusses the work of the first group of compost preparations, the yarrow, chamomile and stinging nettle preparations. He mentions that they are related to one another in generating nitrogen of a yet unknown, completely new quality in the soil. Together they are able to transform the representatives of real earthly substances—calcium, potassium, and related elements—step by step into something similar to nitrogen, and finally into real nitrogen. What is nitrogen? Rudolf Steiner points to it being the carrier of the astral forces. In whatever context nitrogen occurs in nature it is related to some astral event, to forces of inwardness. That nitrogen is an essential element of protein only goes to show that astral forces are already involved in building up this fundamental living substance. Normally nitrogen appears above the earth, being the main constituent of the atmosphere (79%). This nitrogen is a dead physical substance, it has completed its evolution. It derives from the past, being the carrier of the Old Moon wisdom.³ All the revelations of nature and the wisdom in it are due to the existence of nitrogen. One could say that it is a physical representative of what comes to us from the past. But with our yarrow, chamomile and stinging nettle preparations we are producing a new kind of nitrogen, out of substances marking the border to the sub-natural world. We lift them out of their physical, dead state to become permanently enlivened and thus transformed into a new substance, which we may call nitrogen because it is a carrier of a kind of inwardness, a new astrality that works from the future into the present. A new nitrogen is formed which does not relate to the past but to the future. I would say that the goal of all the preparation work is to enliven physical substances to become receptive to forces working from the future into the present. This opens the gate to a new evolution—or shall we say involution?—into the future. The only being on earth who is able to have an active relationship to the future is the human being. All other beings represent an evolutionary end. They can no longer evolve out of themselves. I don't want to enter the debate at this point about the present materialistic concept of evolution and its reflection in the theory and technique of genetic engineering. The soul body of the animal is more or less body bound. It lives out its past. The plant derives from the past, but appears in the present as a true image of the present earthly cosmic relationship. The mineral kingdom has already fallen out of evolution in the past. From this point of view it is up to us, up to our free will, what kind of future development we will give to the earth. But when we guide a substance from the mineral kingdom through the plant kingdom into the astral realm, we enable it to become a carrier of future forces. Calcium, potassium and similar elements acquire an inwardness which, according to my understanding, is what Rudolf Steiner means when he indicates that they are

transformed into this new substance of nitrogen. So biodynamic farming actually means that we take over the responsibility for the earth, and not just work in such a way that we continue what is there. That is what happens in ecological farming. But we need to endow what is there with future forces, so the earth itself can participate in the future development of mankind.

These aspects relate very much to what we eat. If we just eat what is there, the finished process in seed and fruit formation no longer provides adequate human nutrition. Our task is to change the inner quality of protein, this archetypal creation of nature, together with our own development into the future. In order to do so we need to have such preparations, the culmination of manuring, by which a new kind of nitrogen participates in protein formation. Therefore quite a new quality of food will come about. This is of great significance, but it is secondary. As a precondition it is more important that we endow nature with evolutionary processes as such.

I am very glad that we have the opportunity to talk about these far reaching aspects here, seeking for a spiritual understanding of what we are aiming at with the preparations, although it is not an easy approach. I believe that to make such an attempt is justifiable due to the close proximity of the end of the century. It is almost 70 years since the Agriculture Course was held. If we at the same time work with the preparations practically, then we have another sphere of experience. Being involved with our will, we create within ourselves the "soil" wherein can germinate the images that we are trying to develop here by thinking. I think it is through this inner relationship that a deeper understanding will increasingly come about. What we urgently need is such an understanding. It is the only source of renewal for the biodynamic work and the biodynamic movement.

NOTES:

1. *Agriculture: A Course of Eight Lectures* by Rudolf Steiner, translated by George Adams (Bio-dynamic Agricultural Association, London 1977), Lecture Five.
2. Steiner, R., *Anthroposophical Leading Thoughts 1924-1925*. Rudolf Steiner Press, London 1985. [See especially the essay entitled, "What is the Earth in Reality within the Macrocosm?"]
3. [Editor's note: In anthroposophical terminology, "Old Moon" refers to the previous incarnation of the planet Earth. See also note 2, esp. the essay entitled "Man in His Macroscopic Nature."]

Illustrations from: Jochen Bockemühl and Kathleen Clark, "A Contribution toward the Understanding of Yarrow," *Bio-Dynamics*, #124, Fall 1977.

YARROW *CONTINUED FROM PAGE 7*

A complete inversion is performed. An outside process, which cannot proceed out of itself, becomes an inner process, the beginning of something quite new.

But what about the bladder? It is an organ of concentration, its substances are derived from the inner, ensouled life of the animal. It is impregnated with the experiences which the animal had in its soul. They are drawn out of the blood stream by the kidneys and are released and concentrated in the bladder. It is an organ of excretion, very much aligned to the kidneys. The renal/bladder system is related to the most alert of the sense organs, to the eye. This fact can easily be observed, for instance, if you enter a cowhouse a bit abruptly. The cows, slightly shocked out of their dreaming perception, stare at you and within a very short time you hear a rush and a “pat, pat, pat” as they excrete their manure. The cow perceives you, but her response is not an intellectual one. She does not recognize you and respond to you with her head, but rather with her metabolism. Her consciousness is in the rear, where the response from her soul appears not as a spiritual recognition—because the animal has no ego—but as a physical excretion. Now we see how closely related the kidney/bladder system is to what we perceive with our eyes. The eye is the polar opposite to the kidney in its function. The bladder concentrates substances from the wide range of the inner life of the animal and excretes it to the outside world. The eye concentrates the content of unlimited perception from the outside world and then excretes it, as it were, as a picture, into the inner life of the soul.

We take the bladder and the yarrow blossoms, both of which are completely disconnected from their origins. The blossoms are disconnected from the relationship earth-cosmos, from the natural life of the plant, and the bladder is disconnected from the reality of the organism of the animal. The blossoms are internalized and the bladder, having been inside the animal, now becomes an object in the outer world. They are inverted.

Why do we use the bladder of the stag? Studying the Agriculture Course in this respect we may discover two aspects between which we have to distinguish. The bladder, especially of the stag, is in its spherical form an image of the whole cosmos. So firstly we have to consider the form principle. The other aspect is that Rudolf Steiner refers to the special material substance of the bladder. It is formed out of the inner activity of this very sensory-active animal. A powerful stream of perceptions of the cosmic-earthly environment enters its head and condenses to the material substance of the opposite pole, the metabolic region. Observe a stag or any deer. Its nervous, alert eyes, its mighty antlers stretching out and growing as long bones from the skull—it is as if the whole being of this animal expands far beyond its head into the bright, surrounding world. So secondly we have to consider the substance principle. The form is a replica of achievements from the past. All animals are a replica of the wisdom of the past, but in contrast to this the material substance is formed and built up by forces at work in the present. What happens when we put the yarrow blossoms into the stag’s bladder and expose it to the spherical form and

substance of this sheath? My personal answer is that the bladder, having been emancipated from its metabolic function in the animal organism, from the substantial aspect, now becomes a sense organ itself, a kind of eye which perceives, transmits and concentrates into the yarrow flowers the astral forces working in the cosmic surroundings. On the other hand, the spherical form of the sheath enveloping the yarrow flowers and endowed with astral forces, preserves them and gives them permanence.

Proceeding to the second step of making the preparation, we take the spheres and hang them up above the earth in the air and warmth, placing them, so to speak, into the belly of the agricultural individuality where the expansion forces are at their strongest. We do this at the time when the elements of air and warmth and the light and warmth ethers are at their most active, in the summer. In the third step we bury the spheres in the soil in the elements of water and earth. We do this during wintertime when the greatest contraction forces are at work in the head of our agricultural individuality and when the chemical and life ether are active independent of being bound up in plant growth. The present cosmos works vertically above and below the earth in the elements of warmth, air, water and the solid earth, that is, in space; and it works in time, as it were horizontally, during the seasons. So by exposing the bladder to these elements vertically in space and horizontally in time, it and its ingredients are endowed with etheric and astral forces of the present activity and revelations of the spiritual world. The flower of the yarrow, having been without will, is now raised beyond its natural limitation and ability and becomes a carrier of will forces.

What happens during this second and third step of preparation making, while the bladders are exposed to the elements? I already mentioned that, in the first stage, the potassium is taken up by the root and potentized right up to the blossom. This process cannot proceed any further. The blossom fades away and ends up in seed or humus formation. The first step of preparation-making has been to lift the potassium process, which has entered into a kind of germinal state in the flower—reflected in its willless gesture—beyond the threshold onto a higher stage. That happened when it was enveloped in the stag’s bladder. It created the potential to proceed to a new beginning. In the second and third steps of making the preparation this mere potential is fulfilled by the spiritual forces working within the elements throughout the seasons, in space and time. This means that the potassium is not only estranged from its physical properties and enlivened by the plant, but is now open to be endowed with inwardness. This is my understanding of the aim of all the preparations: that physical substances are enlivened. Rudolf Steiner speaks about the aim of manuring, that it is to enliven the solid earthly element itself, which can only be achieved if the physical substance is permanently enlivened. This is not the case in the plant. It dies continuously into form. The green plant keeps the substantial process alive by growing on and on and by forming leaf after leaf, but this cannot proceed in the blossom. In order to give the life process permanence, it must be endowed with inwardness.

MANFRED KLETT

By Hugh J. Courtney

In this issue we have the opportunity to introduce to our readership the work of Manfred Klett, the current Head of the Department of Agriculture at the School of Spiritual Science (Goetheanum), in Dornach, Switzerland. We are especially pleased to have permission to reprint his talk on the yarrow preparation given January 5, 1993.

Beginning in January 1986, under the sponsorship of the International Bio-dynamics Initiative Group in England, a conference has been held approximately every year for the English-speaking biodynamic community throughout the world. Manfred Klett has been a keynote speaker at each of those conferences. His talks have subsequently been published by the International Bio-dynamic Initiatives Group in East Sussex, England, in a series of booklets, now seven in number. A list of those booklets follows (the actual conference year precedes the title of each booklet):

- 1986: *Tomorrow's Agriculture: Are We Meeting the Challenges?* (Two talks by Manfred Klett; also includes one talk by Francis Edmunds.) \$4.50
- 1988: *Building Stones for Meeting the Challenges.* (Three talks by Manfred Klett, one by Michael Spence.) \$4.50
- 1989: *Growing Together - Why Should We Bother?* (Two talks by Manfred Klett; one joint talk by Rose Moore and Andrew Carnegie.) \$4.50
- 1990: *Dying and Becoming: Man's Path to a New Communion with Nature.* (Three talks by Manfred Klett, one by Tim Rapsey.) \$5.50
- 1991: *Agriculture as an Art: The Meaning of Man's Work on the Soil.* (Three talks by Manfred Klett.) \$5.50
- 1992: *The Biodynamic Spray Preparations.* (Three talks by Manfred Klett.) \$5.50
- 1993 & 1994: *The Biodynamic Compost Preparations and the Biodynamic Preparations as Sense Organs.* (Four talks by Manfred Klett.) \$10.00

All of the above titles can be obtained from J.P.I. at the above prices (plus \$3.50 postage & handling per parcel); if all 7 titles are ordered, the postage and handling charge will be waived.

Taken as a whole, the talks by Manfred Klett in these booklets represent a very impressive and stimulating body of work. Most have been reworked and corrected by the author prior to publication, although the English remains a bit uneven.

When one enters into biodynamic agriculture, learns to use the preparations, sees that these most unusual practices do indeed yield impressive results, then questions begin to arise as to what is really behind this form of agriculture and the preparations that are used. Out of a lifetime in agriculture, as well as a lifetime studying Rudolf Steiner’s anthroposophy, Manfred Klett begins to answer these questions. His insights are based on a profound depth of observation and an impressive awareness of the spiritual-scientific research of Rudolf Steiner. More than almost anything else presently available in print, these lectures by Manfred Klett provide answers to the heart-held questions of anyone who has pondered the deeper side of biodynamics.

THE YARROW PREPARATION THE SECOND OF THREE TALKS BY MANFRED KLETT (JAN. 5, 1993)

Today I would like to deal with the yarrow preparation, using it as an example of how to show some of the principles of the preparations, of their makeup and usage. Rudolf Steiner prepares our understanding of the yarrow preparation and indeed all the other preparations, already in the third lecture of the Agriculture Course. This is when he speaks about the archetypal substance of life altogether: protein. The life of the animal and human kingdoms would not be possible without this archetypal substance of protein in the plant kingdom. As human beings we need to have this in order to take it in as a constituent of our food. We break it down completely in our intestinal digestion. This active breakdown of well-structured

protein from outside enables us to build up our own protein. It is not the substance of the protein that is of any value, but its pattern. Its specific structure delivers a kind of model, which we perceive especially with the liver while the protein is broken down. In fact there are four organ systems that are involved in perceiving the protein pattern and they are able, in so doing, to build up our individual human protein. These are the kidney system, the lung system, the liver system and the heart system. All four are able to build up substantiality as if from nothing, yet with the basis of the form pattern, this highly individualized protein. This is the reason why this archetypal creation has to take place first in the outside world, in the plant kingdom. Four

elements correspond to these four organ systems within us: carbon (kidney), oxygen (lung), nitrogen (liver) and hydrogen (heart). These four elements, together with sulphur, constitute protein. In the Agriculture Course, Rudolf Steiner calls them four (or five) sisters. They are also broadly distributed in the outer world. We breathe nitrogen (79% of the air is nitrogen), we breathe oxygen, we find carbon in coal, sulphur in an elemental state, and hydrogen is everywhere. All these elements are carriers of forces. Carbon is the carrier of formative forces, oxygen of life forces, nitrogen of astral or sentient forces, hydrogen is close to the physical and relates at the same time to the spiritual world—it is the carrier of the forces that are released from the physical world into the cosmos. In contrast to hydrogen, sulphur is the mediator of the spiritual with the earthly realm. In the outer world these elements are more or less separate from one another. So it is a mystery how to combine especially the four elements, carbon, oxygen, hydrogen and nitrogen. In the plant kingdom this involves two substances that are polar opposites: sulphur and potassium. Thus we see that protein is formed when the three principles that were once well known in alchemy are equally at work: the salt principle (potassium and related elements), the sulphur principle, and, in between, the mediating mercury principle—the basic constituents of protein. Sulphur and potassium, being representatives and carriers of cosmic and earthly influences, help the mercurial archetype—the proteins—come into being.

Whilst speaking about protein Rudolf Steiner introduces the compost preparations and refers to the mystery of how protein comes about in the right way in the outside world. He says there is one most miraculous plant which can be seen as a model for all the other plants in the way it handles the sulphur and potassium process with regard to the formation of the archetypal creation of protein. He characterizes this miraculous plant, the yarrow (*Achillea millefolium*), from the point of view of spiritual research and I would like to read his description.¹ He says:

Take yarrow—a plant which is generally obtainable. If there is none in the district, you can use the dried herb just as well. Yarrow is indeed a miraculous creation. No doubt every plant is so; but if you afterwards look at any other plant, you will take it to heart all the more, what a marvel this yarrow is. It contains that of which I told you that the spirit always moistens its fingers therewith when it wants to carry the different constituents—as carbon, nitrogen, etc.—to their several organic places. Yarrow stands out in nature as though some creator of the plant world had had it before him as a model, to show him how to bring the sulphur into a right relation to the remaining substances of the plant.

One would fain say, “In no other plant do the nature spirits attain such perfection in the use of sulphur as they do in yarrow.”

(It is very interesting that Rudolf Steiner mentions the nature spirits at this point, and it is the only place in the Agriculture Course where he does so.)

And if you also know of the working of yarrow in the animal or human organism—if you know how well it can make good all that is due to weaknesses of the astral body (provided it is rightly carried into the biological sphere)—then you will trace it still farther, in its yarrow-nature, throughout the entire process of plant growth.

Spiritual Science widens our view and so first of all we should look at whether the yarrow reveals some of its miraculous nature in its outer form [see Fig. 1]. When looking for yarrow, we see that its natural environment follows human civilization. It appears in the open plains where sun and earth meet directly, in meadows which are only cut once—not so much in permanently grazed pastures—and along the roadsides and field borders, in open areas where sun and earth meet directly. We find yarrow more in dry than wet areas, more in loamy than sandy soils, and more in sunny than shady places. When we observe the plant itself, we see that the yarrow

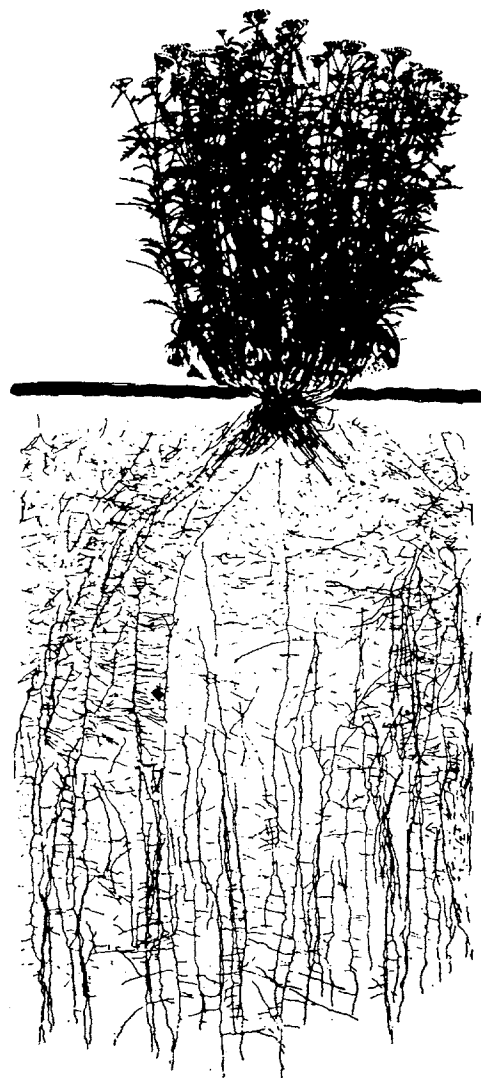


Fig. 1. Yarrow, *Achillea millefolium*
(from Bockemühl and Clark)

Observations and Experiments

Some Effects of the BD Preps

By Stephen Storch

I must share this year's outstanding experiences with you. I had this big, old English Spreading Yew in my yard at the side of the house. It was really in the wrong place and I was going to cut it down. As I started to do this, I realized that it was an incredible opportunity to have a “giant bonsai” type tree, so I proceeded to prune it out. All said and done, it really was beautiful. A few years later, however, I did end up deciding to move it. As you may know, I have been in the tree moving business since 1985, and I thought I might eventually be able to sell it to someone. Upon digging the plant we found that there were very few roots, about three, and a third of the 6-foot root ball actually fell off and we had to stuff that section with straw to fill the gap so we could have a decent ball. Because of this situation I could move the tree only about fifty feet, but that was far enough. I placed it on the ground and then surrounded it with piled up pieces of old firewood around it and some old woodchips and compost.

That was in '92. In '94 I began seriously practicing biodynamics and sprayed some BD 500 around the mound of the root ball, and I repeated this in subsequent years. In March of this year (1997) I decided to re-dig the tree to check the root system. Upon digging in, what I found was astonishing. There were hair roots extending in a dense network fifteen feet out from the ball. There was a root mat a foot thick coming out where we cut around the ball. We secured the ball with burlap and twine and this time I built a pot out of straw bales and filled it in with some of our BD compost. At some point I sprayed the tree with BD 501 and equisetum (BD 508).

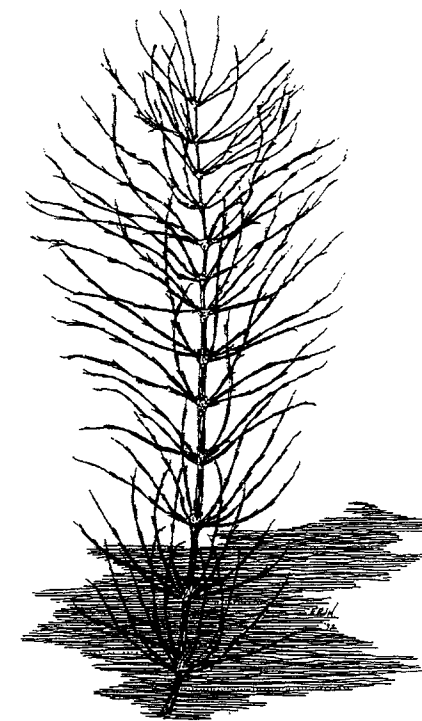
Now for part two of my report. Out of our compost there often grows a surprise garden. This time I ended up with several types of tomatoes, gourds and pumpkins in the pot along with the yew. I ate the tomatoes every time I walked by—they were quite good. The pumpkins grew OK and there were gourds hanging all over the yew like Christmas ornaments. We had some really bad powdery mildew all over the region on the pumpkins and my vines were not immune. The fruits on the vines around the yew, however, were beautiful. I still have a pumpkin that the kids did not cut for Halloween. The vines were dead by September, but three months later the pumpkin still showed no signs of rot or shriveling. The gourds too were miraculous; they were bright and firm and stored very well, in comparison to the other gourds I grew in a field that I have not yet converted to biodynamics. Thank you for your excellent service and advice over the last few years.

Horsetail Tea and Bees

By Evrett Lunquist

When I lived and worked at the Philadelphia Community Farm, one of the responsibilities I took on was tending the bee hive. I wanted to have two hives going just to have some gauge of comparison for the health and vigor of the hives. I did not know the art of splitting a hive, so I ordered a package from a nearby bee supply business. Not wanting to medicate the bees, I thought about what I might do (instead of nothing and hope). To prevent fungus attacks in plants I use horsetail (equisetum) tea with generally good success, so I brewed up some of this and used it for making a sugar syrup. I made one gallon of tea and used about two-thirds of it to feed the bees before the first flowers started blooming. The bees did fine and went on to fill three brooder boxes of honey and pollen over the course of the year.

It happened that a long-time bee-keeper in the area ordered a package of bees from the same place and the same batch. He gave his bees the “standard” course of medications for mites and diseases. He asked how our bees did because his package never increased in size. He even put in a new queen bee. I told him about the horsetail tea and his comment was, “That's probably the way to go—organic and all.”



Was the horsetail the deciding factor? I did not have enough time working with bees to say for sure. The farm was on a river bluff surrounded by forest and prairie, so these bees were isolated within an area treated with the biodynamic preparations. They had a unique place to forage, and there was no risk of the bees getting sprayed by any chemicals. I did not see the hives of the other beekeeper. So, we had two hives going that summer. The original hive had an unfortunate meeting with a black bear and was totally destroyed. The package hive was untouched and I promptly erected an electric fence around it.

I hope this story is useful. I feel bees have an important place on a farm or in a garden. I hope to keep bees again soon. I have more recently heard of people making a tea with all the compost preparation herbs and feeding that to the bees. Perhaps horsetail could be included.

LOOKING BACK ON THE J.P.I. PREP SEMINAR (OCT. 29 - NOV. 1, 1997)

By Robert Grimes

The atmosphere of the prep seminar was one of reverence, infused with levity. Sharing the experience seemed to be the theme. Those in attendance were treated to many spontaneous mini-conferences that broke out at each prep station. The workshop was well-attended by 14 enthusiastic participants, including such BD leaders as Alan York and BDA president Steve Moore. The hospitality shown at JPI reflected the highest ideals of anthroposophy and was a joy in itself. The whole seminar flowed in a well-planned rhythm; even the Virginia weather smiled on our efforts.

The seminar started out on Wednesday evening with discussion lead by Hugh Courtney of the spiritual relationship between the cow and the human being. This was a crucial point for me to understand how the cow's entire being is here to support us. These insights gave way to a calm feeling of gratitude as the slaughter approached. Before the slaughter on Thursday morning, we were given some orientation with a lecture on bovine anatomy by Malcolm Gardner. Once the slaughter was complete, the internal organs were placed in a large mortar pan. After separating out the intestines from the other organs, work began on the removal of the mesentery, a tough rubbery tissue that supports the internal organs. Care must be taken not to cut or tear it needlessly. This was a time-consuming, yet very rewarding process. The mesentery is

Book Review

Gardening Basics by Beth Wieting[†]

Reviewed by Woody Wodraska

This slim, 40-page booklet is a real gem, made to order for the beginning gardener who also wants a start in Biodynamics. Beth Wieting makes every word count, resisting the temptation to go into masses of detail, or to tell everything she knows about gardening (which is obviously a great deal more than she presents here).

Very appropriately, she begins with the “Why” of gardening. “... in our reliance on prepared foods, delicatessens, and restaurants, we are missing something which once gave meaning to the existence of human beings everywhere, which inspired a deeply felt gratitude for what nourishes us and for what makes it possible for all life to be.... But now when our health is under continual assault by one or another aspect of modern life, food which bears in it the gift of vitality is an important means of protecting our well-being. For the most part, we will have to produce this food ourselves ... [and] the quality of biodynamic food is fast becoming a necessity.”

[†] Bio-Dynamic Farming and Gardening Association, Kimberton, 1997. 40 pp. Price: \$6.00 (available from JPI). ISBN 0-938250-42-6.

trimmed of excess fat and cut into naturally occurring patterns dictated by its shape. The patches are sewn on three sides, stuffed like a hard pillow with moistened dandelion blossoms, and then sewn completely shut. The 506 is now ready to bury.

The intestines are trimmed of fat and cut into 2 to 3-foot lengths to facilitate flushing with a hose, and then are cut into 8 to 9-inch pieces and tied with string at one end. Then, with much effort, they are stuffed very tightly with moistened chamomile blossoms and the end folded over, which seals the sausage nicely. The 503 is now ready to bury.

We also had the opportunity to pack fresh manure into many cow horns for prep 500. Approximately 2000 horns were packed and buried during the three-day seminar. We were also treated to a talk on the details of making prep 505 in a cow skull; this was preceded by a demonstration of oak bark grinding. As Hugh talked about the oak bark prep I was transformed in my relationship with the preps, particularly 505. This prep assists with the development of the farm organism's brain or consciousness. As the farm organism gains more awareness, the plants grown in this body become more sensitive and can draw to themselves homeopathic amounts of trace elements or minerals. This process of becoming more whole or more aware is mirrored in the journey of our life as well. For me, the study and practice of biodynamics has served me well on my path of personal growth. This seminar crystallized in my being the utter necessity of correct, mindful prep-making and application. Without this whole-hearted effort, spearheaded by J.P.I., we will not be able to reverse the fragmentation of the body we call earth.

Ms. Wieting's tightly-written but comprehensive chapter on “Starting a Garden” takes up fully a third of the booklet, covering such topics as garden planning, companion and succession planting, fertility requirements, soil types, bed preparation and seed sowing ... all these in a succinct and down to earth fashion. For example: “Crops which have large fruits (the squash and eggplant/pepper families) or large leaves (the Brassicas) require a much more fertile soil than root crops or plants with smaller leaves.”

In the next chapter, “An Approximate Planting Calendar,” she takes us through the planting season, from the earliest alliums, through the salad and root crops, on to the warmth-loving fruiting plants like squash and melon. In each case she offers hints about fertility needs, germination requirements, plant spacing. Again, not too much information, but enough to imbue the beginning gardener with the confidence to get started.

The last section, on building a compost pile and using the preparations, is yet another solid contribution by Ms. Wieting to the Biodynamic gardening literature. It is the answer for the person who approaches the BD practitioner and says, “I'd like to know more about this BD stuff, but it's all so difficult and impenetrable! How do I get started?” Along with the JPI instruction sheets that come with an order of the preparations, this is all one needs to know. With the preparations' continuing use, more understanding will follow.

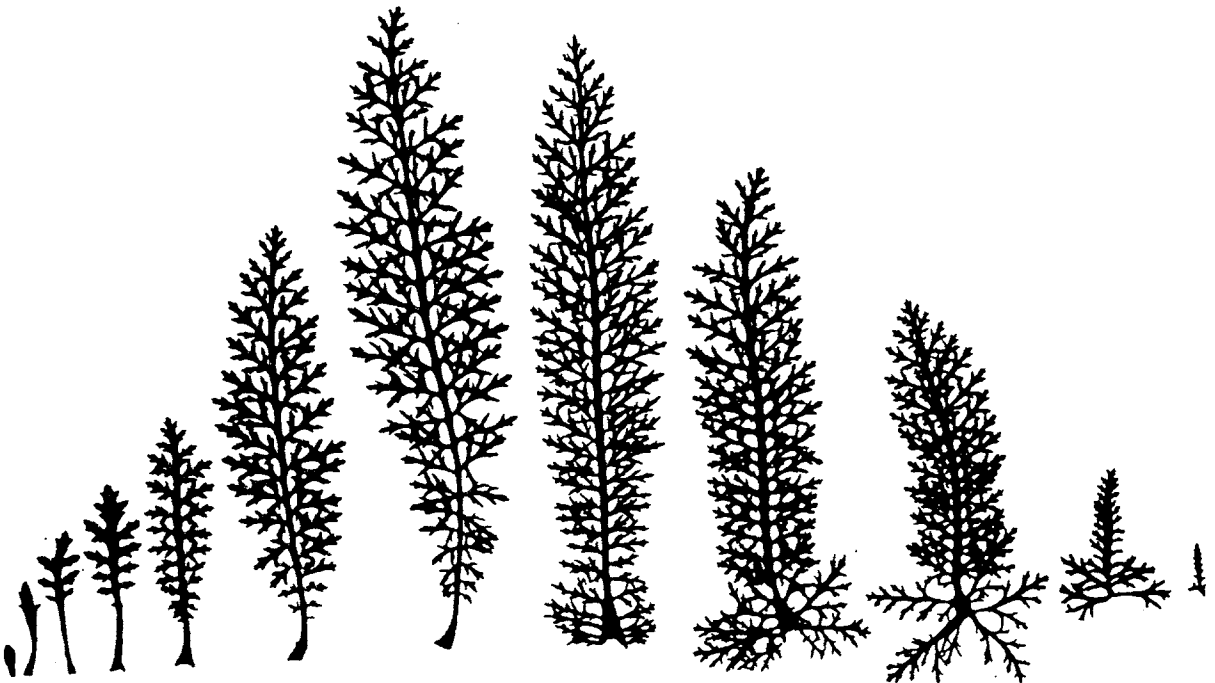


Fig. 2. Selection of typical leaves of *Achillea millefolium* (from Bockemühl and Clark)

germinates in springtime and first forms a rosette. The leaves are pressed flat to the ground. All of a sudden, usually around the middle of June—this depends on the region of course—it shoots up very quickly and forms the first flower buds. Normally the yarrow blossoms during June, July and August, when the earth-cosmos relationship is at its utmost. But we can often see the yarrow flowering in September, October, and even into November. When it wilts in late autumn or winter, what is left? All over the meadows, we see the ligneous, solidified stems gathered in clumps, which give the image of very sturdy plants.

Looking at the leaves, a real metamorphosis is visible [see Fig. 2]. Although the leaves split up from a midrib and almost disperse towards the periphery into a range of leaf stems that fan out into tiny little spears, they show a complete leaf blade. The manifold pinnation ending up in points and spears very much relates to a strong sulphur activity. If we observe these points and spears in greater detail with a magnifying glass we find, astonishingly, an almost succulent shape. This points to a strong potassium activity. The bottom leaves show a fairly long stalk and a well-developed longish stretched blade. Further upwards the stalk becomes shorter and shorter, the blade broadens into an oval shape. Coming nearer to the flower the stalk disappears, the leaf reaches towards the stem.

In the end the leaf-stalk becomes more lanceolate. It envelops the stem with its finely formed spears. So the leaves show a real metamorphosis. They are quite astonishingly dark green and very smooth, which in a certain sense contradicts the extremely pinnate form. If you taste the yarrow leaves they are very sharp and bitter at the base, and become more aromatic the higher you go towards the blossom.

Looking at the blossom we see the stem splitting into the umbrella shaped flower-head. It does not have a very distinctive, out-raying face like some other flowers do. It is

rather more concentrated in itself and gives the impression almost of a dried flower. It is white, sometimes pink, in color, but not very shiny, as if it would hold back some of its powerful force. The whole umbrella (umbel) is composed of many flower baskets (umbellets) which are formed of tiny little blossoms. So the yarrow is truly a typical manifestation of the Compositae family; its nature reveals an enormous differentiation (sulphur), and at the same time a great concentration (potassium).

One could say we have defined a polarity in the yarrow. On the one hand we have this sturdiness of the stem, with a strong lignifying tendency which causes the stems to last so long (one can often see them standing in the meadows the following year), and at the same time soft, dark green velvety and apparently succulent leaves. On the other hand there is a very highly developed flower and enormous segmentation of the leaves. This polarity of an earthly and cosmic influence can also be observed if we look at the roots. Of course they normally cannot be seen, belonging as they do in the darkness of the earth. But in the last decades much emphasis has been laid on root morphology. The yarrow roots are quite extraordinary, with many thin threads going down very deeply into the earth, like a stream. Again there is an inner activity, a motion, like in the leaves, but at the same time they are so firmly bound in the soil that it is almost impossible to pull up a yarrow plant. So there is the movement of the roots flowing down into the earth, but at the same time a steadfastness like in the stem. In autumn and winter, just below the surface, the stolons form runners which then produce new shoots early in the spring. Therefore we often find patches of these stoloniferous yarrows in open pastures.

The yarrow reveals the polarity of earthly and cosmic forces in a very distinct way. Its outer appearance is a

remarkable manifestation of the forces which its own being sends into the earthly realm in order to build up—supported by earthly forces and substances—this image of its being. What we perceive is not a reality, it is an image. The forces that build up this image are real, but imperceptible. They originate in the cosmic and earthly realm and are directed by the true being of the yarrow, which remains in the spiritual sphere. It is important to realize that what we see is an image, an illusion. But it points to a spiritual reality which works through two principles. One can be described as shaping the yarrow according to its cosmic archetypal form, causing that which brings about differentiation of the leaves and flowers, the scent, taste and color of any of its organs and also its fragrance. We may call this the *sulphur principle*. On the other hand we have pointed to a diversified root system, the sturdy stem, the strong turgor pressure causing succulence of the pinnate leaves very similar to the rounded shape of the growing point. All these phenomena are caused by what we call the salt or rather the *potassium principle*. The latter gives the plant its outer earthly appearance, the sulphur principle governs the cosmic archetype that is made manifest. Affirming this polarity we may better understand why Rudolf Steiner, when speaking about the herbs that are used for the preparations, speaks about particular herbs in relation to certain earthly elements. In the case of the yarrow he speaks about the potassium and the wonderful, quantitative relationship between potassium and sulphur with regard to protein formation. He refers to this unique content of sulphur in yarrow, in relationship to its ability to work with potassium, as being an ideal model within the plant kingdom.

We must therefore now ask, what is the nature of potassium, where does it occur? We find potassium as an essential constituent all over the mineral kingdom, especially in mica, feldspar, and therefore in great quantities in granite, but also widely distributed as a salt. It is quite interesting that the quantity of potassium relates strongly to the quantity of silica in the earth's crust. The more silica there is, normally, the more potassium that can also be found there. Potassium is really an earthly element. I would call it the representative of the earthly realm altogether. It is, as are all physical substances, subject to physical, calculable laws which we can study in physics and chemistry. If we make an experiment and dissolve a potassium salt, for example, potassium chloride, in water, it will completely disappear in its crystallized state and dissolve. The property of the water will have changed according to the quantity of dissolved salt. When we then heat the water until it

evaporates, the salt is again formed, in exactly the same quantity and crystal structure. The laws of the physical realm are finite and liable to calculation. From this point of view it is justified to say the physical earthly realm is dead. It is highly disconnected from its spiritual origin.

But potassium stands out through yet another property. It is 0.001% radioactive as it occurs in the earth's crust: it undergoes a decay. What does this signify? Potassium is a physical substance at the border of the sub-natural world, the sub-sensory world. From beyond the border there are beings actively exposing the forces of electricity, magnetism and nuclear energy to nature. The nature of potassium as the representative of the salt-forming elements can be understood to be a link to sub-nature, marking the border, as it were. In contrast to it is sulphur—the substance “the spirit moistens its fingers with”—the representative of those elements that are the link with the supersensory, the supernatural world, with the cosmos. So we find yarrow is a revelation of a very strong interaction, of an extreme polarity (see Fig. 3). The interacting poles of sulphur

and potassium as they occur in yarrow seem to be the fundamental basis for an ideal formation of protein.

The yarrow, like any other plant, takes in potassium by the roots. There the potassium as an earthly substance, with all its properties we have described above, disappears. It leaves its physical environment and enters a living one. Of course we may find potassium to a certain extent still in a salty state in the roots. But in the process of growing and developing in the first still watery leaves, and all the more in the successive ones, the potassium becomes estranged from its physical properties and instead takes on properties step by step that relate to the living. Within

the living sphere it becomes a carrier of living forces. The result of their work in relation to potassium can be seen in the sturdiness of the stem, in the formation of tissue, the scaffolding of the plant culminating in the lignifying tendency; and on the other hand in the swelling, succulent appearance. If you have a deficiency of potassium in soil and plant, on a very hot day the leaves tend to hang down. Evaporation is even increased because the stomata do not close properly. Their regulation, and likewise the pressure of the juice in the cells, the so-called turgor pressure, is a function of potassium in the living context. Down in the roots the potassium still has salty properties. The further it comes up through the stem, participating in the formation of the sequence of the leaves, the more it begins to be under the guidance of the sulphur, and is step by step potentized towards the blossom in the sense of a continuous estrangement

from its physical properties, from its being bound in space. A real potentization takes place in the process of time, that is, in life, as I described yesterday [in the first talk of the series]. The metamorphosis of the plant is an outer image of this potentization of potassium and related earthly elements within the course of the full unfolding of the plant. The further up we look in the plant from stage to stage, the more the potassium loses its definable physical properties and becomes a carrier of living cosmic forces, which are unquantifiable.

It no longer marks the border to the sub-natural world, it has been lifted towards the border of the supersensory world by the sulphur process. This is the mystery that takes place within a plant, in each different species in a highly specialized way. Yarrow is specially qualified to master the potassium-sulphur process in favor of an ideal formation of protein, the mercurial result of this functional polarity.

Here potassium is no longer detectable in the plant by means of chemical analysis. Of course we can find potassium again if we burn the plant to ashes, but then the plant is dead and what we obtain is a salt. We cannot detect the potassium in the very state to which it is raised in the living sphere. The possibility of detecting radioactively marked elements in the living plant is not a counter-proof. It only shows that plant life is submitted to the conditions of its environment, as becomes manifest in the dangerous pesticide residues and other contamination frequently found. Plant life can either be weakened—it is then less able to estrange elements from their physically bound properties, especially the sub-natural properties—or it can be strengthened. This is a matter of appropriate manuring; a matter of dealing with the yarrow preparation for instance. It is impossible to detect the gradual transformation of potassium by the sulphur process through analysis. It comes to the utmost of dilution and potentization, there where the plant ceases to grow, where the flower develops. The question is, how are we able to give permanence to this culmination of plant growth, the flowering stage? The very moment the flower appears, it fades away again. It cannot perpetuate itself, it lasts just a moment. The full opening of the flower towards the cosmos is a kind of *status nascendi*.

Looking at the flowering stage of the plant we can make two observations. One is that the being of the yarrow appears as an image in its perfection in the flower, in the shape, color and fragrance, but that in the unfolding of the flower it comes to an end. The plant dies into the flower. There it is touched from outside by its higher being, which was at work all the time throughout the growing process. On the other hand we can observe this gesture of the flower opening towards the cosmos. We must learn to inwardly follow this gesture with our thinking and feeling; we might approach it with an expression of total openness, devotion and willingness. Observing the flower we again meet a polarity. On the one hand the sulphur process, supported by the potassium process that comes to an end in space and time in the blossom, leads to a perfect image of the true plant being. On the other hand, if we follow the potassium process from the earth upwards, supported by the sulphur process, it begins in the dead state of salt, and ends up in this infinite openness and gesture of willingless will. This gesture of

willingless will signifies an embryonic state to which, in my opinion, Rudolf Steiner is referring when he speaks about the plant releasing germinal forces into the etheric world.²

The blossom fades away. Therefore the question arises, how can we preserve that which has come to an end and that which hides the potential of a new beginning in the blossom? How can we preserve that very moment before it fades away? There are three possible transformations to which the blossom may be submitted. One of these ends in seed formation. All the processes in the blossom are yet undetermined; it rays out its shining color, its fragrance and aromatic substances, but the very moment seed formation takes place, all its processes are determined toward serving the newly formed germ. The seed has just to fall to earth and the new plant will shoot up. The second transformation of the fading flower is when it falls to the ground and undergoes humus formation. Rudolf Steiner points to a third transformation, as mentioned above. It is the surplus germinal forces which vanish from the flower into the etheric world and become the substance for a future macrocosm. Our question is, how to give permanence to the flowering stage before these transformations take place? I think that Rudolf Steiner had this question in mind when he indicated the first step of making the yarrow preparation. The answer cannot be found in the plant kingdom. We must search for an answer in the higher, animal kingdom. We must find a technique, as it were, to lift the flower beyond its natural limitation, over a threshold onto a higher level, onto the level of astral effectiveness, which is present in the animal kingdom.

The soul being of the animal has incarnated into space and time. All its organs are formed out of forces which work into the physical and living realm from beyond space and time. The plant is merely touched by such forces from outside; “the spirit moistens its fingers with the sulphur” and shapes the plant from the outside, while the animal is inwardly permeated by its astral being. Astral forces of the animal sculpt its organs into the stream of life and endow it with the ability to function in permanence. So we must seek on a higher level to find an answer to our question. We must look for an organization to which the yarrow, as a medicinal plant, has a healing relationship. Rudolf Steiner says the yarrow “can make good all that is due to weaknesses of the astral body.” Its healing force is very much related to all processes that take place in the renal system. In order to preserve the very moment of the unfolding of the yarrow flower, Rudolf Steiner recommends that we take the bladder of a Red Deer stag. We will see why later. The first step of making the preparation is to gather the flowers and stuff them into the sheath, this spherical stag's bladder. This step is one of inversion for the yarrow. Previously the yarrow flower was open to the farthest cosmos. Now it is exposed to the astral forces that are working into and within this sphere of the animal sheath. Before the yarrow flower exposed itself in a willing gesture, the potassium process was potentized upwards into a germinal state. Now, within the stag's bladder, this substantial germ becomes the carrier of the astral forces, which are transmitted and concentrated in the flowers by the bladder.

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