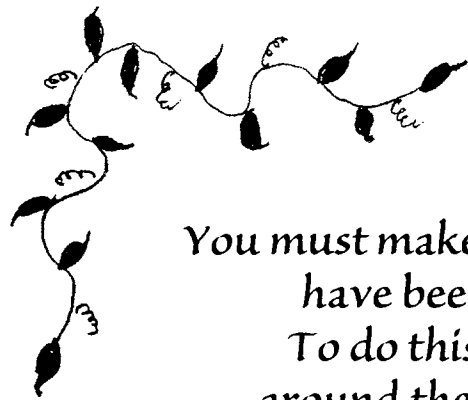


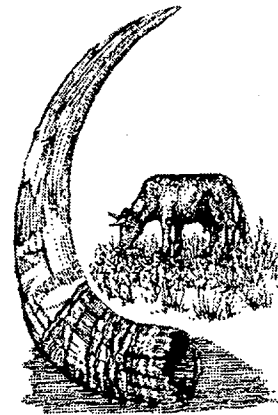


You must make sure that the entire contents of the horn
have been thoroughly exposed to the water.
To do this you have to start stirring it quickly
around the edge of the bucket, on the periphery,
until a crater forms that reaches nearly to the bottom,
so that everything is rotating rapidly.
Then you reverse direction quickly, so that everything
seethes and starts to swirl in the opposite direction.
If you continue doing this for an hour,
you will get it thoroughly mixed.

Rudolf Steiner, *Spiritual Foundations for the Renewal of Agriculture*,
tr. Creeger & Gardner (Kimberton 1993), p. 73

SO THAT THE EARTH MAY BE HEALED

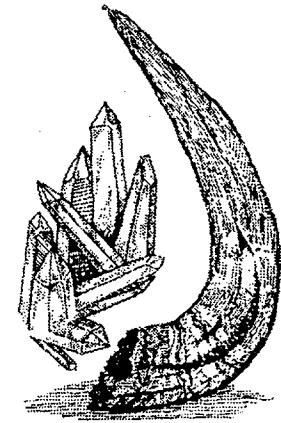
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SUMMER 1997

Applied BIODYNAMICS

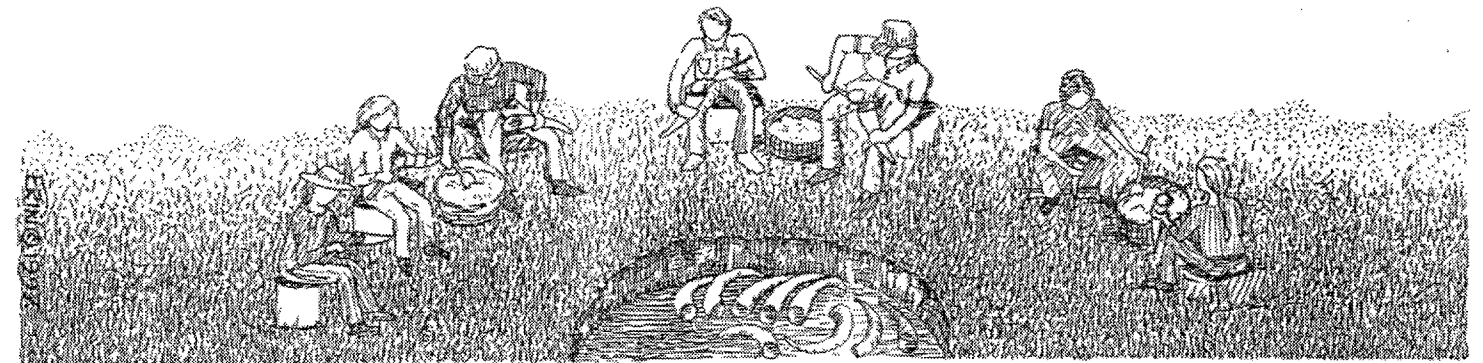
A Quarterly Publication of the Josephine Porter Institute • Woolwine, Virginia



Issue, No. 20

May our feeling penetrate
Into the center of our heart
And may it seek in love to unite
With like-minded human beings
And with Spirit Beings in realms of light
Who gaze down mercifully
On our earnest heartfelt striving,
Lending us strength
And enlightening our love.

(By Rudolf Steiner, given in 1923 to the Threefold Group in New York City;
translated by M.I. Gardner)



FROM THE EDITOR

The emphasis in this issue is on stirring methods, especially for growers with large acreages. Also included is an update on planetary occultations, an interview with seed grower Nathan Corymb, and a new column reporting your observations and experiments (send us more!). We hope you enjoy this issue and have a very fruitful summer.

Malcolm Ian Gardner

GOINGS & COMINGS AT JPI

In May we were saddened to bid good-bye to Steve Yates, who had been working since last Fall as a full time employee and off and on since October of 1995 to support the work here, especially on the new building. Steve has been a friend of JPI since the '80's, 'when he came up from North Carolina for a visit after reading about us in *Secrets of the Soil* by Peter Tompkins and Christopher Bird shortly after it was published. Along with Charlie Garriot, Steve was one of the very first visitors we had after taking over the preparations work in 1984. Not long after his visit to us, Steve moved to the upper Shenandoah Valley of Virginia, where he found a part of the country very much to his liking and started to learn a trade as a stone mason. In leaving us, Steve has once again returned to the Shenandoah Valley he has come to like so much and is resuming his education as a stone mason. We will miss Steve a great deal and are very appreciative of the work he has done here. We will have many reminders of his fine support of JPI these past months, from the taste of the potatoes and the wheat he planted, to the much sturdier hay wagon and cow yard which he rebuilt, as well as his work on the new building.

In June we were fortunate to be able to welcome John and Harold Nelson, two brothers from Hendersonville, North Carolina, who will be with us for the next two and a half months. John and Harold have both experienced a thorough training by Craig Siska in Alan Chadwick's approach to gardening. We will certainly appreciate their youth and energy here as we try to keep up with the never ending workload at JPI.

Hugh J. Courtney

ON A PERSONAL NOTE— OR, IT'S LIKE *DEJA VU* ALL OVER AGAIN

This past Spring, contrary to what we had originally been advised, it was discovered that my wife, Liz, had indeed suffered internal injuries from her automobile accident of May 1996. It seems that the diaphragm on her left side had been ruptured to such an extent that its presence could not be detected on the x-rays or cat scans that were finally taken after many months of complaining about the pain being experienced. The missing diaphragm was allowing organs in the chest cavity to migrate into the abdominal cavity and vice versa. So, almost a year to the day after her accident, she was once again operated upon and spending her birthday in the hospital. Although the operation was far from routine, it appears to be successful in reestablishing the diaphragm, and sorting the internal organs back into their proper areas. There may, unfortunately, be a need for an additional operation to repair tears in the peritoneum of the abdominal wall, so the ordeal may still need to be endured for some time. This latest operation involved a good deal less time in the hospital for recovery, but it has, nevertheless, been a distraction from my attentiveness to tasks at JPI. Special thanks to Steve Yates, Malcolm and Susan Gardner for picking up the slack and keeping things going, as well as to the many friends of JPI whose prayers and good wishes were so vital to Liz's recovery.

Hugh J. Courtney

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Malcolm Ian Gardner, Editor
Josephine Porter Institute for Applied Biodynamics
P.O. Box 133
Woolwine, Virginia 24185
Tel/Fax: 540-930-2463

The subscription price of \$35/yr. helps subsidize JPI research and development.

Artwork by: Erin Coffin

Biodynamic Preparations Legend

BD #500—Horn Manure
BD #501—Horn Silica

BD #502—Yarrow } C
BD #503—Chamomile } O P
BD #504—Stinging Nettle } M R
BD #505—Oak Bark } P E
BD #506—Dandelion } O P
BD #507—Valerian } S S
T

BD #508—Horsetail
(*Equisetum arvense*)

OBSERVATIONS & EXPERIMENTS

Compiled by Malcolm Ian Gardner

This is the start of a new column where informal yet valuable reports of observations and experiments related to biodynamics can be shared and also placed within a larger research context. We hope these reports will stimulate others to repeat or refine these experiments and thus contribute to an unconventional but potentially quite effective research program.

If you have an interesting experience this season, please tell us about it. We are not looking for testimonials; negative experiences can be just as instructive as positive ones. Or, if you make a mistake and learn something from it, we would like to learn from it too. (We're happy to grant anonymity—we just want the details!) On the other hand, the reports we publish must have some clearly recognizable pattern of causation; single factors and side-by-side comparisons are much preferred.

Finally, don't forget about JPI's "Prep Scholarships" (see the last issue of *Applied Biodynamics*, p. 7) In brief, if you intend to do some systematic observations or experiments with the biodynamic preparations, JPI will give you a 10% discount on these preps, and if you report your results to us, we will give you a free set of replacement preps. (Growers with Associative Contracts, please contact us for special arrangements.)

A good example of an accidental experiment was provided by Darrell Newberry, who farms about 1000 acres of red-yellow podzolic soils in the Ozarks. He was disking in a cover crop and spraying Pfeiffer field spray in the spring when his tractor suddenly started having great difficulty pulling through the soil. He found the whole central part of this particular 5-acre field was much harder than any of his other fields had been. Then he remembered that the previous fall he had also disked and sprayed these fields but that he had run out of field spray for the last 2 acres of that 5-acre field. Because of this side-by-side contrast, even a native of the Show Me state could not but be convinced of the efficacy of the field spray in improving the structure of his soil after only half a year.

An interesting if not quite conclusive experience with frost protection was reported by Kermit Carter, who runs *Flowers By The Sea* near the coast of northern California. A freak frost (29°F) caught him by surprise last winter and in the morning he thought he had lost all the foliage on his large crop of Miner's Lettuce. It looked dismal, but he decided to try spraying it with Barrel Compost anyway. The next night it frosted again, but on the following morning he said the plants looked better than they had before the first frost! However, in his concern for his crop he did not leave any portion

unsprayed, and he did not compare other kinds of sprays or even plain water, so there remains some degree of uncertainty about his result. Nevertheless, this kind of "morning after" remedy sounds well worth investigating further.

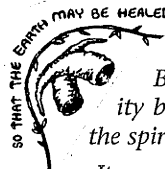
Frost protection was also on the mind of Kachina Via, daughter of a biodynamic farming couple near Eugene, Oregon. For her 10th grade science project she studied "The Effectiveness of Foliar Applications of Certain Plant-Based Sprays in Protecting Frost-Sensitive Plants from Freezing Temperatures." The sprays that she chose to compare were BD 507 (valerian), stinging nettle tea, and kelp tea, as well as a plain water control; her frost-sensitive crop was basil. She chose to spray the flats of basil twice during an eight-week period and then again a couple of hours before subjecting them to artificial frost conditions (a cold refrigerator). Afterwards she used independent experts to gauge the damage to the plants 2 hours, 24 hours, and 1 week later. BD 507 and plain water turned out to be about equally effective; stinging nettle tea and kelp tea were least effective, perhaps because of their fertilizing properties. She is not quite satisfied with her experiment, however, and plans to repeat it with some modifications. We will keep you posted.

BD CONFERENCES COMING UP SOON

AUGUST 29-31. Southeast Biodynamic Conference in Blairsville, GA. Contact: Hugh Lovel at UAI, 8475 Dockery Rd, Blairsville, GA 30512; (706) 745-6056

OCT. 3-5. East Coast BD Conference. Theme: *Alan Chadwick 30 Years Later*. Featuring Dr. Paul Lee, Bruce Blevins, Craig Siska, Peter Tompkins, Bjorn Nilsson, Jennifer Greene, Hugh Courtney, Hugh Lovel, Andrea Hoff, Jim Foltz, & more. Students of Chadwick's are invited & encouraged to present. **Where:** Claymont Court, Charles Town, WV (just outside of Washington, DC). **Contact:** Allan Balliett, POB 3047, Shepherdstown, WV 25443 (304)876-2373; igg@igg.com. Sponsored by the BDA & Demeter.

NOVEMBER 7-9. West Coast BD Conference. Theme: *Water - the Element of Life: Its Essence, Its Nature, Its Future*. Featuring Jennifer Greene plus: Gunther Hauk, Peter Proctor, Anne Mendenhall. Additional Topics: BD Preps, Flowforms, Associative Marketing, Bees and more! **Where:** Anthroposophical Society in America Los Angeles Branch, 110 Martin Alley, Pasadena, CA 91105. **Contact:** Wiep deVries (818) 798-1592. Sponsored by the BDA and Demeter.



MISSION

The Josephine Porter Institute for Applied Bio-Dynamics, Inc., 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 biodynamic pioneer for this work in America.

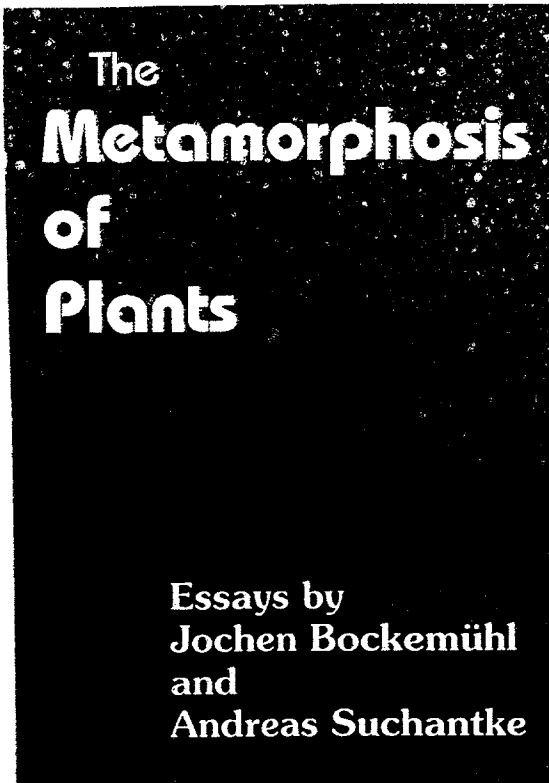
The mission of JPI also includes education and research in biodynamic agriculture.

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

Making and using compost Preparations 501-507 and Preparation 508
 Conversion from a conventional to a biodynamic farm
 Conversion from conventional to biodynamic farm orchards and vineyards
 Commercial and home vegetable production
 Calcium and silica
 A guide to practical observations
 Biodynamic farming on the move—some practical examples
 A journey into India with biodynamics
 Biodynamic farming elsewhere
 Conclusion: why biodynamic agriculture?

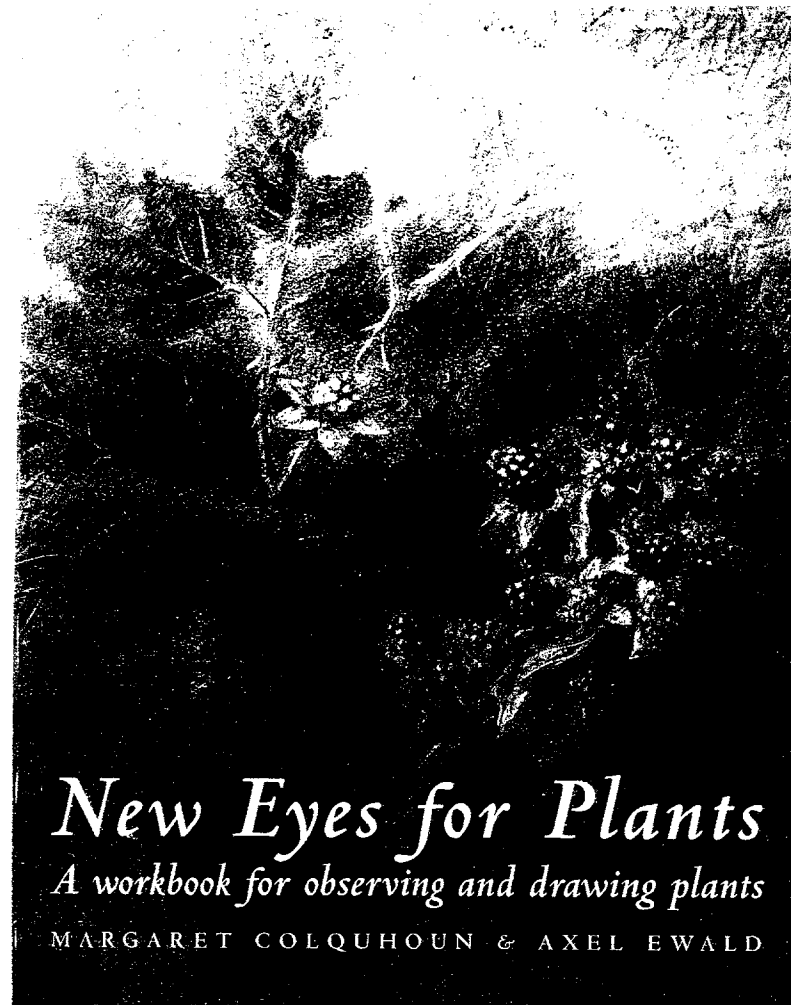
Appendices

Storage and use of the biodynamic preparations
 Checklist for making Preparation 500
 Timetable for making and applying preparations in different parts of the world
 Twenty-one points on animal health
 A herbal ley seed mixture
 Metric/imperial conversions
 Biodynamic associations—contact details
 Bibliography
 'A seminar at Kurinji'
 Index



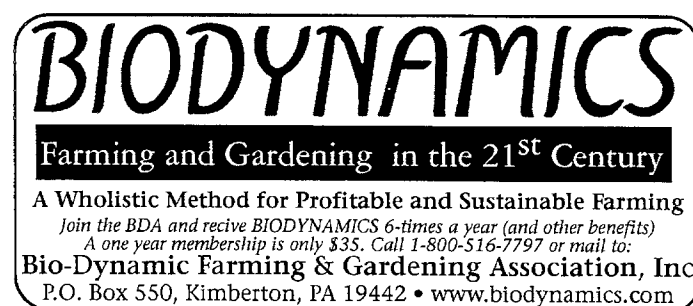
2. Bockemühl, Jochen, and Andreas Suchantke. *The Metamorphosis of Plants*. Cape Town, South Africa, Novalis Press, 1995. 69 pp. Price: \$10.95 + \$3.00 P&H.

This book was inadvertently overlooked when first published because it bears the same title as Goethe's original work, a long time standard. In this collection of essays, the authors, by applying Goethean observation, show how accurate naked-eye observation of leaf, stem and flower forms can reveal much that is hidden from conventional scientific analysis which relies on the microscope and dissection. For the observer of Nature who wants to become more aware of Nature and the Goethean scientific method.



3. Colquhoun, Margaret, and Axel Ewald. *New Eyes for Plants: A workbook for observing and drawing plants*. Lansdown, United Kingdom, Hawthorn Press, 1996. 195 pp. Price \$24.95 + \$3.00 P&H.

An excellent tool to continue the process of Goethean observation of Nature in a very practical and detailed way. Designed to make one much more alert and aware of Nature's expression.



MULTI-DAY FALL WORKSHOP

In response to many requests, we are planning to offer a multi-day workshop in the Fall featuring an on-farm slaughter of a cow and the acquisition and use of various preparation sheaths. This will *probably* take place around the first weekend of November; please contact us after July for further details. Attendance will be limited.

Hugh J. Courtney

THANKS FOR THE DANDELIONS!

We would like to express our deepest appreciation for all those dedicated dandelion harvesters whose efforts ensure that we can provide enough of the Dandelion Preparation, BD#506, for use by biodynamic practitioners not only in this country, but in many other parts of the world as well. As has been mentioned on other occasions, our dandelion harvest time always comes at the time of year when we are busiest trying to fill all the orders for Spring preparation shipments. This year we seemed to be busier than any previous year, and harvesting dandelions, which grow sparingly here in any case, was very difficult. To date, the following individuals and groups have sent us more than 34 pounds of dried dandelion blossoms:

Marianne & Dennis Dietzel, Golden Valley, MN
 Happy Heart Farm, Fort Collins, CO
 Hartsbrook Waldorf School, Hadley, MA
 Paul & Nancy Keiser, Marne, MI
 Karen Lyke, Iowa City, IA
 Bill Oshima, Las Vegas, New Mexico
 Mrs. Phinney's "Morning Garden" at the Waldorf School, Princeton, NJ
 Prairie Hill Waldorf School (1st, 2nd, & 3rd grades), New Berlin, WI
 Mickie & Dan Thomas, Karlsruhe, North Dakota
 Sarah Tufts, Mebane, NC
 Kate Walter, southwestern WI
 Ruth Zinniker & Friends, East Troy, WI

Without the efforts of these people, we would be unable to provide the biodynamic compost preparations in the significant quantities we are now furnishing. If your dandelion harvest is still waiting to be shipped, please take the time to do so; the increased demand for preparations requires even more dandelions than we now have on hand for the Fall preparation-making activities. Once again, our most heartfelt thanks for the work of those listed on our dandelion harvest honor roll.

Hugh J. Courtney

P.S. Thank you, Howard Parks (Hughesville, PA) for the wonderful package of chamomile blossoms.

OCCULTATION UPDATE

By Hugh J. Courtney

While the research effort to establish the rarity of Saturn occultations by the Moon has by no means been completed, a few additional interesting facts have come to light, which I would like to share with our readership. (See the original article in *Applied Biodynamics* no. 18/19, p. 1).

First of all, as it turns out, my surmise that the series of Saturn occultations might extend into 1998 was correct; three additional occultations of Saturn by the Moon will take place in January, February, and March of 1998. This makes a total of 12 consecutive occultations of Saturn in an 11-month period beginning in May 1997 and extending through March 1998. Secondly, it may well be that a series of Saturn occultations is not quite as unusual as was my first supposition. Besides the series of three in 1990 followed by another two in 1991 after a gap of one month, I have learned of one other series since 1981. In 1984, between January 26, and September 27, there were ten occultations in a row of Saturn by the Moon. Unfortunately, I have not been able to obtain data earlier than 1981, although I now have a computer program which shows promise of recovering historical data for quite a long way in the past on this subject. If time can be found, I may have some additional data by the next issue of *Applied Biodynamics*.

By far the most interesting thing uncovered in my research so far, however, is the fact that beginning in March 1998, the series of 12 occultations of Saturn by the Moon is followed immediately by a series of 11 straight occultations by the Moon of the planet Jupiter. A check of the lunar phenomena for 1999 shows that this series of Jupiter occultations is completed as of December 1998. In examining data back to 1989, I could find only four occultations of Jupiter altogether, one in November 1994 (the only lunar occultation of a planet for that year), and a series of three in August, September, and October of 1990. Interestingly enough, this series immediately preceded the series of Saturn occultations mentioned earlier. A tabulation of Lunar phenomena for 1998 involving the planets will be found at the end of this article.

Efforts to establish the possible effects of the Saturn occultations, especially on the weather, have yielded at least one interesting anecdotal coincidence. At the ACRES, USA East conference earlier this year, where Steve Moore and I gave presentations, I learned that the impetus for the very successful CSA that Steve initiated in 1991 came about because of the very cold December that wiped out his lemon and avocado crop. This crop destruction left him scrambling to find an income replacement for his major crops, and it was then that his CSA effort was born. December of 1990 saw the third of three consecutive occultations of Saturn. This at least provides some modest support for my theory that the occultations of Saturn will lead to a significant decrease in warmth forces.

continued on page 13

STIRRING VESSELS AND SPRAYERS (PART 2)

By Hugh J. Courtney

Given the reality of agriculture in these times, what route should the farmer or grower take when treating significant acreage with the biodynamic preparations? The first step is often to find a larger stirring vessel, either an oak whiskey or wine barrel and then to suspend a stirring pole from a beam or other point above the barrel so that it swings a couple of inches above the barrel-bottom. An alternative choice is to use a large plastic barrel, which should be food-grade quality plastic. Any of these choices have one or more shortcomings: the obvious objection to plastic with its offgasing properties, of course, is foremost, but with a wooden barrel there is the concern about its previous contents as well as the problem of the charcoal treatment of the whiskey barrel. The most significant problem, however, is the difficulty in keeping the wooden barrel watertight. Keeping water in the barrel at all times in order to keep tension on the barrel is often counterproductive in the winter months, because the freezing of the water can lead to a greater strain on the barrel and even damage to the staves. Yet leaving the barrel empty results in drying out and sooner or later a loss of tension leaving one with a leaky barrel.

The next alternative for a stirring vessel is to manufacture a barrel and the choices of materials currently are: redwood lumber, copper, or stainless steel. The possibility of using redwood is pretty much limited to the West Coast of America because of the high cost of transporting redwood lumber. A copper stirring vessel is an easier alternative if one can find a person who can work with copper (a greater rarity than it would seem). Because of the relative delicacy of the copper, it must be placed in a steel support frame, and the copper vessel seems to have a limited life span, wearing out somewhat more quickly than other vessels. It is the vessel of choice for Alex Podolinsky, whose efforts with stirring machines have led to such an expansion of biodynamic agriculture in Australia. If stainless steel fabrication is more easily possible than either redwood or copper, then you should make sure that a nonmagnetic form of stainless steel is chosen. Once again, my plea is that you stir the biodynamic preparations in such containers as can be found, rather than to keep waiting for the perfect stirring vessel to appear and manage *never* to stir and spray the preparations.

Once a suitable stirring vessel is found, and a proper stirring pole suspension is set up, one is still committed to a vigorous exercise of hand stirring. Although there have been hand stirring arrangements involving as much as 300 gallons at a time, most arrangements involve from 30 to 90 gallons maximum in any given stir due to limitations of the stirring vessel. If a diligent application of the preparations is to be made several times a year over

substantial acreage, hand stirring with a limited labor pool is not easily possible.

Thus, when farmers or large scale growers are faced with the prospect of applying the biodynamic preparations over larger areas or for different crops requiring different times of application as in a market garden situation, the question of finding some appropriate mechanical means to assist us in this task will inevitably arise. One is then faced with reconciling a stirring machine or even a flowform with the statements Steiner made concerning the question of machines for stirring. To refresh the reader's memory, I will include a somewhat lengthy quotation on the subject. To the question: *Is it all right to use a machine to stir the manure for larger areas, or is that not permissible?* Steiner replied as follows:

Well, you can either be quite strict about things like that, or you can decide to gradually slide toward surrogates. There's no question that stirring by hand has a quite different significance than mechanical stirring, although of course someone with a mechanistic world-view would never admit it. Just consider what a huge difference there really is: when you stir by hand, all the fine movements of your hand go into the stirring, and quite possibly all kinds of other things do too, including the feelings you have as you stir. People nowadays don't think that makes any difference, but in the field of medicine, for instance, the difference is quite noticeable. Believe me, it is really not a matter of indifference whether a certain medication is prepared by hand or by machine.

Something is imparted to the things that are produced by hand—you mustn't laugh at this. [Then follows a reference to the "Ritter remedies" and the value of having these remedies mixed and given directly to the patient by an enthusiastic doctor.] Great things can be accomplished with enthusiasm. However, if something like this were prepared by machine, the effects would probably disappear. That is what is involved here, whether something is done with everything that proceeds from the human hand—and this is a lot—or whether it is done by machine. But it could also turn out that doing the stirring is such fun that you wouldn't even consider using a machine, even when a lot of cow horns were needed. It could be something you do on Sundays after lunch. Then, if you invite a lot of guests and provide some entertainment, you could get it done just beautifully without any machines.¹

OCCULTATIONS *Continued from page 3*

Contacts made with others to bring to their attention the phenomena of the lengthy series of Saturn occultations by the Moon did not seem to excite much attention, although some of those contacts who are in the weather watch and long-range forecasting business also foresee a cold year in 1997. R. E. McMasters, who publishes an economic newsletter did respond with the following comment, "I am expecting severe weather problems in 1997, colder weather and volcanic eruptions. So your analysis checks out." He did not furnish specific reasons for his forecast. Another newsletter which focuses on weather and its economic and agricultural impacts, *The Browning Newsletter* also calls for a difficult agricultural year due to a much colder growing season, attributed to low sunspots and solar activity, greater volcanic activity and unusual high-altitude east to west tropical wind patterns among other events. Here in the state of Virginia, crop planting is 10 days or more behind schedule because of the cooler, wetter weather experienced in May. Reports from New York and Pennsylvania also indicate a colder period. In Montana, on the other hand, a warmer, earlier planting season is being experienced. A recent report from the BD Email List on the Internet advises that CNN is reporting the second coldest spring in history for the eastern U.S., while the western part of the U.S. has had its second hottest on record. If Internet comments are any indication, at least the hope I expressed for an increased level of observation in the earlier article on occultations seems to have been met. We will continue to be watchful on this subject.

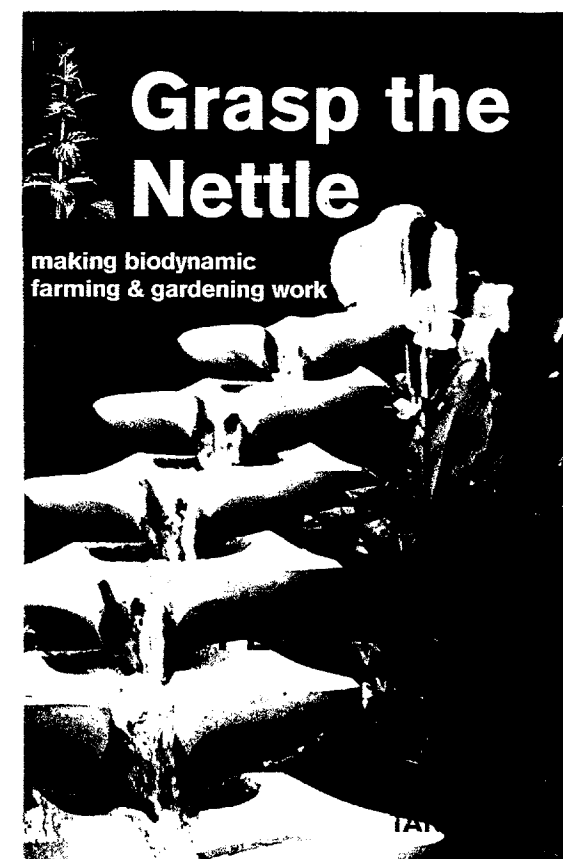
OCCULTATIONS OF PLANETS BY THE MOON IN 1998

January 5	Saturn
February 1	Saturn
February 27	Mars
March 1	Saturn
March 24	Venus
March 26	Jupiter
April 23	Jupiter
April 23	Venus
April 24	Mercury
May 20	Jupiter
June 17	Jupiter
July 14	Jupiter
August 11	Jupiter
September 7	Jupiter
October 4	Jupiter
October 16	Mars
October 31	Jupiter
November 13	Mars
November 28	Jupiter
December 25	Jupiter

NEWLY RECEIVED PUBLICATIONS

By Hugh J. Courtney

We would like to bring to the attention of our readers several titles newly available at JPI:



1. Proctor, Peter, with Gillian Cole. *Grasp the Nettle: Making Biodynamic Farming and Gardening Work*. Auckland, New Zealand, Random House, N.Z., 1996. 176 pp. Tentative price: \$24.95 + \$3.00 P&H.

A very down-to-earth book by a well-experienced biodynamic practitioner/consultant, whose 30 plus years of daily working in biodynamic agriculture shine through every page. One of the most useful books on biodynamics to come along in years. A must for anyone's biodynamic bookshelf, be they a novice or seasoned biodynamic grower.

Grasp the Nettle Table of Contents

Foreword
Preface
Introduction
The spiral and its expression in nature
A closer look at plant forms
The living soil
Making and using the biodynamic Preparation 500
Making and using Preparation 501
Making compost, cowpat pits and liquid manures

continued

At this point, the Cresset Farm Development Initiative (CFDI) is a non-profit, tax-exempt corporation that will own the land. The actual farming will be done as a separate commercial enterprise on the land in conjunction with the CFDI. We're still looking for the land—the actual farm isn't there yet.

K. How many people will be involved with this?

N. We hope to begin with three families. We have two families working together now, but would like to find another family to focus on the dairying and the work with the animals. We would have a strong focus on education inspired largely out of the Waldorf School in the area. It is primarily faculty and parents at the area Waldorf schools who have initiated and carried CFDI to this point.

K. What other goals do you believe the seed work can accomplish?

N. I experience with seed, the seed initiative and biodynamics, an incredible vulnerability. More and more people have become aware of the erosion of genetic diversity. Out of my experience at Camphill, my wish has been to serve that which is vulnerable in the world. I see that as a central task of Anthroposophy and the Christ impulse.

At Camphill there's the story of Kaspar Hauser and what can be known as the Kaspar Hauser Impulse. Kaspar Hauser's destiny was to be the leader of Europe in its development of freedom in the cultural realm, equality in the political realm and brotherhood in the economic realm. The fulfillment of this destiny would have made possible a proper unfolding of European destiny, instead of the developments that led to the World Wars, Bolshevism, Nazism, and so on. This was prevented by his being taken as an infant and being shut up in a dark room with a low ceiling and denied all human contact throughout his developing years. He was put out in the streets of Nuremburg at the age of 16, where he was eventually helped and fostered. He was found to have remarkable abilities and in a few years had recovered his lost years of development. When it came to light who he indeed was by birth, he was cruelly and mysteriously murdered.¹

The Kaspar Hauser impulse is the effort to put oneself at the service of all in the world that is vulnerable. In Camphill this focused on the handicapped child, and later the handicapped adult, but also included the land, the social body, the life of the worker and many more things. In our time, there's a lot in the world that's vulnerable; the Earth itself is vulnerable in a way that it never has been before. Seeds as the etheric basis of life are a very vulnerable aspect of existence in our time.

Conventionally, this extreme vulnerability is being dealt with by the establishment of seed storage facilities like the National Seed Storage Laboratory (NSSL) in nearby Fort Collins, Colorado. They store over 100,000 varieties of seed. However necessary this is and however well done, it's a tragic witness to what is dying and passing away in agriculture.

For the first ten thousand years of agriculture, seeds survived and developed in a very beautiful and diversified way. They did that out of a living agriculture—they survived because people were growing them. Only as agriculture began to die did these seed stocks become vulnerable. Now there's this need for emergency life support, to put them in gene banks. At the NSSL in Fort Collins, they're getting these seeds into liquid nitrogen storage, near absolute 0 degrees, where they think they'll last at least a hundred years, or maybe forever.

In one way it's very inspiring that all this richness and genetic diversity is being preserved. In another way, it's very sad that it's being locked up for a hundred years in cold storage. I see something of the story of Kaspar Hauser, who was locked away in a dark cellar for all of his developing life, but still living.

So as with the stored seed, it's not just the seed, it's the whole plant variety. The seed is just one stage of it. But to hold it at that one stage and not let it unfold and grow and change with the Earth, which is of course always changing? That was the attempt, with Kaspar Hauser, not to let him grow and develop and fulfill his destiny. Rudolf Steiner called it a sin against destiny.

I see that it's absolutely necessary to have these gene banks and seed storage and not to let things just die out. At the same time, it's a tragic testimony to a dying agriculture. The preservation is necessary, but what's much more necessary is the re-enlivening of agriculture. There's no substitute. The seed effort is part of that, but so are people's efforts to bring about this change and to bring life back into agriculture. If that comes, then there's a basis for the seed work. That's even more important. The reason over the seventy-year period when so little did develop in comparison to what people felt should develop was that the basis had to be built for it first. And we're still working on building that basis.

It's not just the agricultural basis, but far more the ability to work together honestly, ethically and fruitfully in spiritually-based initiatives. That's where we really come up lacking.

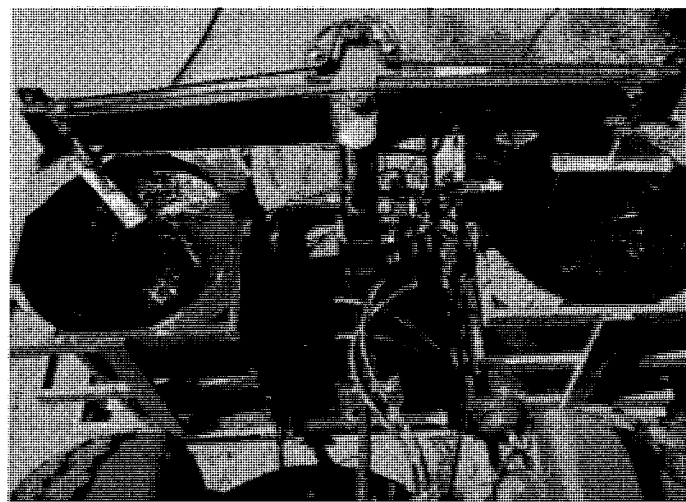
There have been substantial strides in Europe with the seed initiative circle and several small biodynamic seed companies. So I have hope; it's going to happen in one way or another, no matter what the opposing forces.

In this instance, it is a case of what we can bring to birth out of what was shattered in the beginning. I see it as holding great promise, perhaps even more promise now because there's the effort to nurture the shattered seeds, however tragic the shattering was.

But promise is only promise, it's not the reality. People need to grab hold of it and put their entire will and effort into it for the promise to become reality. That's the journey we're all on—fulfilling the promise.

NOTES

1. For further perspective on Kaspar Hauser, see "Who was Kaspar Hauser? - An essay and a play by Carlo Pietzner" (Floris Books 1983).



A double tank stirring machine for large applications has been designed and manufactured by Steven Storch (see page 7).

After such a strong statement, one wonders that anyone in biodynamic agriculture would ever *dare* to think of any kind of machinery for stirring the preparations! The fact of the matter is that the question of a stirring machine is dictated by the economics of present day farming. When one has considerable acreage to tend, either one makes the "slide toward surrogates," or else one forgoes biodynamic agriculture altogether. Nevertheless, even though one may be forced by economics to give up stirring by hand, it is still very important that one continue to "stir with one's heart." Even when one uses a stirring machine or a flowform, one still needs to be quite focused and attentive to the stirring process. Stirring should never be a matter of throwing a switch and walking off to eat dinner or attend to other chores until the hour is up. The intention of the farmer needs to be fully involved in the stirring. (This applies equally, of course, when the stirring is by hand, which is a good reason not to delegate the task of stirring to a "hired hand.") In other words, a mechanical stirring device should save money by saving *labor*, but should not as well become a *time*-saving device. A farmer seeking to maintain the right relationship to the stirring process should perhaps use the time to sit by the machine and review or meditate on the overall direction of the farm. One might even choose to forgo using a mechanical float or electric timer to reverse the direction of the stirring and instead retain this function for oneself.

The ultimate answer to the dilemma of mechanical stirring lies in the social sphere; a farmer needs to be adequately supported by an entire community of people devoted to a true healing of the earth. In the meantime, however, we must deal with the reality of today's farming situation. We must start where we are, and when the time comes that enough people have eaten enough biodynamic food to permit them to think clearly, we may find there is no lack of willing labor to help the farmer stir by hand.

When ready to embark on building a stirring machine, the best collection of information is still contained in *Building a Stirring Machine: An Illustrated Workbook* com-

plied by Anne Mendenhall and published in 1991 by Bio-Dynamic Literature in Kimberton, Pennsylvania. While it is expensive at \$25 per copy, it will probably save its cost by helping you eliminate a few mistakes in attempting your own construction. The cost is more readily understood when one considers that this workbook is essentially a private printing for a relatively limited audience. Its value lies in its detailed look at the state of the art and it is fairly well illustrated with drawings and photographs. It suggests a look at site selection as the initial step, since it is very helpful to have a situation where the stirring vessel can be easily emptied with the help of gravity. A detailed look at the options available for the vessel itself as outlined in the preceding paragraph is followed by consideration of the size specifications for the stirring vessel. The conclusion in 1991 seemed to suggest a maximum diameter of 30 inches as well as a height of around 30 inches. Alex Podolinsky, whose book *Biodynamic Agricultural Lectures*, Vol. 1, is quoted at length in this workbook has stated that 60 gallons is the maximum amount of water for fully effective stirring. Since he has been able to examine the results of stirring various quantities with the Schwenk "water drop" technique, it might be very worthwhile to pay attention to this statement. It should be noted that in New Zealand, machines are in use which stir a great deal more than 60 gallons at a time. The workbook also takes a long look at the design of stirring rods and paddles, gearing and pulley arrangements and examines the question of using a timer or a float mechanism to provide for reversing the direction of stirring. Several different wiring diagrams are included giving extensive details for control panels to provide the reversing for the reversing operation. Listed as resource people, who will either make a stirring machine or be available to consult with those attempting to build their own, are the following three people: John Bashaw of Nokomis Farms in East Troy, Wisconsin; Lincoln Geiger at Echo Farm in Wilton, New Hampshire; and Bob Steffen at RFD 1 in Bennington, Nebraska.

At the time the workbook was published, no stirring machine using a hydraulic motor had been built in this country. Recently, however, Stephen Storch of Water Mill, New York, has developed such a machine and is also willing to build hydraulic stirring machines for others (see his article following this one). Here at JPI, we have called on Stephen to help design our own variation of a tractor-mounted stirring machine that can also double as a spray tank. When we have completed construction and otherwise worked out all the "bugs" we will give a follow-up report on this combination tractor-mounted sprayer/stirring machine.

The present day cost of a stirring machine with electrical timers and panels, etc., can easily exceed \$2,000, so a \$25 investment in *Building a Stirring Machine* is not unreasonable. On the other hand, one can purchase a good-sized flowform for a similar investment. They are usually sold as sets of 3, 5 or 7 forms, but are also available singly. The person to contact in the U.S. for more information is Jennifer Greene at Waterforms and Asso-

ciates, Inc. (P.O. Box 930, Blue Hill, ME 04614; tel. 207-374-2384; fax 207-374-2383). She presently has available the following models:

Bristlecone: 6 gallons/min 360 gal/hr
Beehive: 12 gal/min 720 gal/hr
Järna: 12 gal/min 720 gal/hr
Sevenfold: 15 gal/min 900 gal/hr
Emerson: 15-20 gal/min 900-1200 gal/hr
Acadia: 15-35 gal/min 900-2100 gal/hr
Ashdown: 18 gal/min 1080 gal/hr
Malmo: 25 gal/min 1500 gal/hr
Herten: 30 gal/min 1800 gal/hr
VB500: 125 gal/min 7500 gal/hr

The recently introduced Bristlecone would be appropriate for smaller volumes of water, say 50 gallons or less, which might be especially useful for a greenhouse or market garden operation. A full set of 3 flowforms for this model retails for about \$500 (includes packing but not shipping). Inquire for exact prices and discounts.

Those used to a vigorous hand stirring, or even the finely tuned machine stirring insisted upon by Alex Podolinsky, may be put off by the relatively gentler action of a flowform. In order to present another view of the subject, I would like to quote at length from a new book, *Grasp the Nettle* by Peter Proctor, a biodynamic practitioner, adviser and teacher for many years in New Zealand. Peter's first observation of a flowform was some seven or eight years ago at a biodynamic conference where an operating Järna model was displayed. A practical demonstration of how the flowform could serve in treating dairy barn effluent was undertaken and the BD Compost Preparations #502-507 were added to the contents of the flowform. Within a relatively short time after adding the preparations, all unpleasant odor was gone. Subsequent experiments with the flowforms and various of the BD preparations suggested that "the movement of the water cascading down the flowform had had a marked effect on the working of the preparations."² It was not very long before a number of farmers in New Zealand were using the flowform for stirring the preparations, especially for BD#500, and the same changes in soil structure that were observed with hand stirring of the preparations could also be seen with the use of flowforms for stirring. Peter's thoughts after observing the flowforms in action are worth bringing to your attention, so the lengthy quotation promised above will now follow:

I have pondered a long time over the connection with hand stirring, with the vortex formation and movement of water within the Virbela flowform cascade. Having been a great observer of water movement all my life, watching streams and rivers, the sea around rocks and smooth beaches, I could see in the flowform a very obvious series of vortices formed as the water ran from bowl to bowl.

Also obvious was the pulsing of the water as it dropped into the reservoir tank at the bottom of the cascade. It is almost at one with the human

heartbeat. Also one could observe the rhythmical variation of the water level in each bowl. Sometimes the water would nearly spill over the edge of the bowl, sometimes it would appear quite sluggish. I was reminded of the seventh-wave phenomenon of the sea or the surging of a river around a rock, which is sometimes covered and then exposed as the river flows by.

But what of its connection to what Rudolf Steiner describes in the Agriculture Course as the method of stirring 500 in a bucket and with the vortex?³

Firstly I could relate that with hand-stirring in a bucket, the vortices in effect are built up vertically, one on top of another. In the flowform they are spread put horizontally on a sloping plane. It was not until I watched an experiment on water phenomena by Rob Dewdney, a water researcher, who demonstrated stirring water in a glass jar and dropping one drop of black ink into the middle of the vortex, that I understood what was happening. The ink did not drop to the bottom or disperse through the liquid, but pulsed up and down, diffusing a little and looking like an archetypal jellyfish. Here was the connection between the two methods of water movement. The cosmic pulse! I could thus relate this pulse rhythm of the flowform to the world's great water rhythm, the rhythm of life, the cosmic pulse, the heartbeat of all living creatures, and so it appears to me entirely appropriate to use the flowform for the stirring of 500.⁴

While it is by no means necessary for you to accept Peter Proctor's conclusions, it may help you in making your own observations about flowforms and ultimately in deciding whether to use a flowform or a stirring machine in your own operation. The important point, in my opinion, is to use methods for stirring the preparations which will meet Rudolf Steiner's mandate to "get it thoroughly mixed."⁵

Although there are a number of other issues—most particularly the question of electric motors—still to be discussed under the subject of stirring vessels and sprayers, we will defer these to a future issue of *Applied Biodynamics*, when we will also report on some innovative techniques of stirring and spraying brought to our attention in conversations with a number of biodynamic practitioners around the country.

NOTES

1. Steiner, Rudolf. *Spiritual Foundations for the Renewal of Agriculture*, tr. Creeger & Gardner (Kimberton, PA: Bio-Dynamic Farming and Gardening Assoc., 1993), p. 76.
2. Proctor, Peter, with Gillian Cole. *Grasp the Nettle* (Auckland, N. Z., Random House New Zealand, 1997), pp. 47-49.
3. See note 1, p. 73.
4. See note 2, pp. 49-50.
5. See note 1, p. 73.

conscious way. This, on a higher level, becomes an initiation or passage, a threshold that one goes through to a kind of rebirth. That was the image that came to me as things unfolded. Steiner speaks of the Orphic Mysteries as one of the most profound preparations for the coming of Christ.

I hold a vision that things can unfold in a more profound and deeper way in the future than I could have imagined in the beginning, and that all this painful and difficult process may be a part—even a necessary part—of this unfolding. One always takes risks. It was a risk to trust another person. It was a risk to tear up roots, to leave home and land behind, not knowing where and how we would settle and begin again.

Until this year, we've gardened since coming back from Switzerland in a different location every year. It's a big challenge when you're growing seeds, especially when you're focusing on biennials and perennials. I see that what we've accomplished, compared to the task that needs to be done, is minuscule. It's not a lot. But I also can see objectively that a few other people, even with the best efforts and far greater resources, have not been able to accomplish as much. The amazing thing is to see how much can happen in the most unfavorable circumstances—when there's dedication, when you say, "I'm going to do this no matter what!", then the most amazing things can happen.

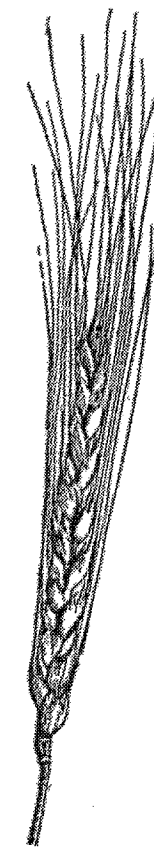
K. What's happening right now with the seed initiative?

N. At this point, not a whole lot has been done. There was an effort to focus on outreach and advertising. Hopefully, there can be more effort to build a quality biodynamically-cultured pool of seeds that can develop their own characters as biodynamic seed stocks. And there's a vision of working together, combining efforts and supporting one another and being able to reach out to a wider group of people. One thing I've felt good about the seed company is that it's been able to reach out far, far beyond biodynamic circles and introduce biodynamics and biodynamic quality to a lot of gardeners who otherwise may never have heard of it. With a relatively closed cooperative initiative, such as a CSA for seeds for biodynamic growers, that may never have happened. So I can't say that the way things have unfolded has been bad.

K. What would you like to see individual growers do to further this initiative work? What can they do?

N. First of all, I'd like to see people sincerely trying to grow seeds and work with seeds. I see it as the ultimate gardening experience, to be a part of the whole cycle. The seeds are something we all share. Rudolf Steiner says that when you share an idea or read a book that others have read, there's something of community there. When you grow seeds that others are growing or have grown, it really builds something of community, it creates something in the etheric realm in a most wonderful way.

That's been one of the most rewarding aspects of the work—the response, the seeds that people have sent me and the seeds that I've sent them. There's a connection there that would not have otherwise existed. No matter how much you share ideals, we must together do some-



thing with them before they can bear fruit. This brings the ideals right down into the realm of life. Otherwise, you're pretty much limited with what you can do yourself. And that is very, very limited.

K. Do you do this work all by yourself?

N. As I've said, many share in it, but for the actual work here on the land I have Beth, my wife, and we have apprentices. Larry and Ursula Holmes have joined us here to work on the Cresset Farm project, and they help us quite a bit, though it's not their main focus.

Others join us now and then, but all in all it's pretty much our own effort. There's some concern with continuity. I know from experience that anything can happen to an individual who then might not be able to continue. That's where an initiative circle would be valuable—to take things up in a

way that would be shared and not be dependent on just one couple or individual.

K. Do you have the support of a biodynamic community in your area?

N. In the community we are working for now, biodynamics is quite new. But they have been very supportive and very appreciative of what has come about in the seed work. We've been allowed to carry that out on a contract basis—paying for the land and the water as we go. The time spent on seed work is apart from the vegetable growing.

To focus so strongly on growing vegetables has also limited the seed work. On the other hand, it's contributed to doing it in a way that's quite positive and quite beautiful, to have it so integrated into vegetable growing. It's very natural—seeds in the past always came out of the growing of the crop. It's only in recent times that it's become a highly specialized activity, quite separated from the production of food.

It's been rewarding to be able to integrate those two aspects of agriculture. Sometimes the seeds don't get as much attention as I'd like for them to get. I guess maybe the ideal would be to have more people so that both could happen fully. I'd like to focus more strongly on the seeds and work with someone who's focusing more strongly on the vegetables but still aware of the seeds, so that both aspects are still fully integrated.

That's what we're trying to develop with the Cresset Farm Initiative that's being started in this area, as well as to have seeds that come out of a full biodynamic farm organism and have a relationship to the animals as well.

could go on. In preparation for that I contacted the Rudolf Steiner Foundation and talked about a fund for an initiative for biodynamic seed work. I got a quick and very encouraging response to that. Then at the CSA conference at Kimberton in January, '94, and at the Biodynamic Association of Northern California conference immediately after that, there seemed to be a real readiness and enthusiasm for this idea of a CSA for seeds. Someone approached me after the conference, who had encouraged me to do the training in the first place, and said he'd like to help in any way he could. I had strongly focused my first year of seed-growing after my training on the crops I knew it would be hard for other people to grow to seed, particularly the biennial crops like beets, onions, carrots and cabbage. I could see that was where the focus for someone with my training needed to be. My main work, what I had been trained to do, was the actual working with the seed—growing seed, trialing varieties, the handling and the testing of the seed. It was clear to me that my strong point wasn't in organizing, so I was very happy, very encouraged that there was this interest and help offered. I said that I needed help with organizing the growers into a CSA circle, getting an organized initiative set up, and following up the contact I had made with the Rudolf Steiner Foundation.

I was happy to put my efforts into continued work with the seed itself, into what I saw needed to be done in this realm so that the initiative could begin the next year with a good supply of quality seed and with every possibility of developing into a really serviceable, self-sustaining CSA for seeds. I could see that during the '94 season enough could be established between other growers getting involved and my own efforts, so that a substantial beginning could be made by the end of the season, and that in '95 a credible seed growing and distribution network could be in place. Otherwise, it might take 3 or 4 years for it to begin showing its potential. That was my vision and what I was working for. I put all my hopes and energy, efforts, resources into this, very glad that someone else had stepped forward to help with organization.

I kept in touch with this individual and it seemed that things were coming along nicely. There were meetings at the Rudolf Steiner Foundation, I was told, and a letter being prepared to send out to growers to form this circle. I thought it was to be a mutually inclusive, united effort in seed work, and had

no reason to think otherwise. Grow all the seed you can," he said, "so that we can get this thing going. Everything's going to work out."

So it was a great shock to me when, in the beginning, I was not even sent the letter that was distributed to form the grower's circle and CSA for seeds. I only heard about it from others, who were puzzled and wondered what was going on. When I wrote to suggest that all these seeds I was growing could be combined in this, I got no acknowledgment or response whatsoever. I was not included in any way in what was established with the Rudolf Steiner Foundation, even though I had made the initial contact and then asked this individual for help in continuing with this aspect of forming the initiative. What was I to do? I was in agonized disbelief. If I were to go on at all and continue in this work, I must take some radical steps. The seed company was formed to have some way to continue with the work in light of what had happened.

As I look back at the point where everything was in place for a beautiful, full and united beginning, there seems no reason it couldn't or shouldn't have happened, and the seed work in America would be much further along. But that possibility was shattered. I am aware that such things have happened again and again in the anthroposophical work, almost as if there's some tragic destiny that always leads to splintering and falling apart of initiatives.

Yet I do have hope. At the Biodynamic Seed Conference in Colorado in September, 1995, there were mediated sessions to discuss these things. Out of this an initiative circle was finally formed which I see as a sincere effort to repair a shattered vessel. There is a Divine Wisdom within events. Shattering is a term we use in seed work that refers to the shattering of the seed vessel or panicle so that the seeds fall to the Earth. It is a natural process whereby the seeds plant themselves without cultivation or human intervention. A large part of the development of cultivated plants, particularly the grains, has been in arresting or preventing this shattering. Something that would naturally scatter and disperse has been held back. In seed work, too, we have to intervene at this point if we are to have any seed to plant at all. The seed needs to come into our hand instead of falling to Earth.

But with the initiative, can this shattered vessel be repaired? In a sense it cannot. It must, like a plant, be reborn and grow again out of the seeds that fell to the Earth. When there's a real will to go on in a new way out of spiritual ideals, what has fallen from a shattered vessel can grow into the most profound, strong impulses. I don't see any blame or fault for all the unfortunate things that have happened—I'm sure my own handicaps are as much to blame as anything.

On a higher level I see all this in the light of what Rudolf Steiner spoke of as the Orphic Mysteries. It involves the story of Dionysus. At a certain point Dionysus was torn apart, dismembered by the Furies. The challenge was to re-member his being, in a sense to reform or regrow what has been apart in a new and

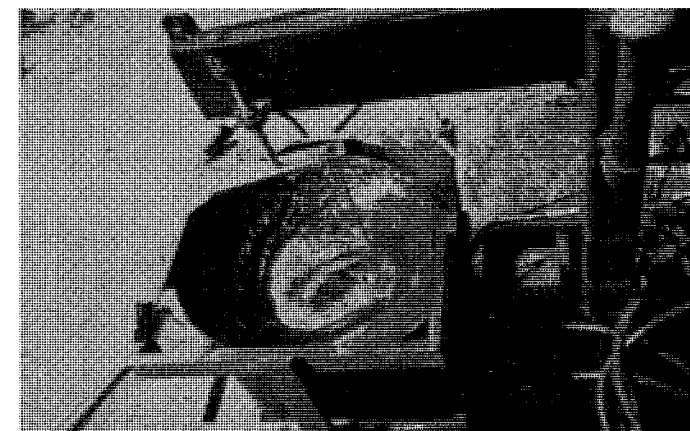
DEVELOPING A HYDRAULIC STIRRING MACHINE

By Stephen Storch

The only connection I have had to farming is that as a boy growing up in Sheepshead Bay, Brooklyn, New York, I can remember some really old Italian landscape gardeners telling me that the concrete sidewalks, asphalt roads, and houses were on top of some beautiful old farms. I have never really thought much about that until recently. Having married into a twelfth generation farm family on the East End of Long Island many realities have been exposed to me about farming as a business, and a way of life.

About 1989 or 1990 I came across Hugh Williams and my brother-in-law, Lawrence Halsey, burying cow horns in the first organic patch on our now 100-acre organic farm. At the time I was just into making compost on the farm out of vegetable waste, horse manure, leaves and some landscape debris. They did not explain much to me when I asked what they were doing, but curiosity got the better of me. I persisted in my questions and soon the world of biodynamics and Rudolf Steiner was opened up to me.

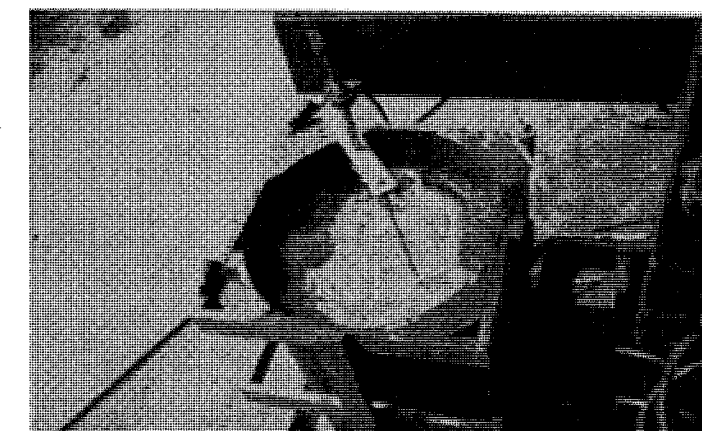
At first I started out just adding the compost preparations to the piles. The following year I stirred some BD#500 and applied it to five acres. The next year I got my hands on a Massey-Fergusson manure spreader. It held about three yards. We spread a couple hundred yards of our BD treated compost. I went great guns and ordered enough preparations for fifty acres (for the spring and fall). After several evenings of hand-stirring thirty gallons, filling my Chapin stainless steel back pack sprayer numerous times, and marching up and down the fields till 9:30 pm I was deeply inspired to develop a different method for stirring and applying the BD field sprays.



Stirring phase.

The following season we grew some lettuce for seed for Hugh Williams. The little field where we grew this lettuce had been treated intensively with BD compost and #500. Hugh would stop by often during his trips out to the island. We would pull weeds, pay lots of attention to the plants and have great conversation. When the heads started to bolt, it was obvious that the dry summer was taking its toll. Some of the heads just stopped growing. I talked to Hugh on the phone and he said to spray some BD 501 on the lettuce and then equisetum (508). I did what we discussed. In a couple of days about 25 of the fifty plants that were holding back continued to bolt quite healthily; the rest of the heads just melted into piles of goo. I was really amazed and impressed. This really showed me the importance and effectiveness of the preparations.

After that demonstration I started in earnest to build the stirring machine. Taking several important factors into consideration I decided to go with barrels built out of copper sheeting and reinforced on the outside with wood. In using the booklet by Anne Mendenhall about stirring machines as a reference, I noticed that all the machines are driven by an electric motor. This did not sit well with me. One goes to all the trouble to store and keep the preparations away from electricity, and then at the time of most intense exposure in the process of stirring one blasts them with electromagnetic fields. The machine had to be hydraulically driven. In about two weeks I had the barrels built, mounted on a platform, and had the main components of the actual stirring apparatus assembled. An eight horsepower Briggs and Stratton gas motor drives a small hydraulic pump (about 20 gpm). I had the usual trials and tribulations. I had to



Chaos stage.

disassemble the whole drive train and get the gear sizes right. I needed to find a way to restrict the flow of oil to control the stirring speed. I then had to find a twelve-volt switch to change the direction of the hydraulic motor.

All of these issues were solved and things fell into place. The machine works beautifully. I can stir one hundred and twenty gallons at a time, though my sprayer holds only a hundred gallons. I am now adding a pump and spraying apparatus to the machine so one can stir and spray from the same unit. With the addition of a permanent base for the stirring machine built out of six-inch channel iron and a three-point hitch for the tractor, the motor can be eliminated and the device can be driven by plugging directly into the tractor hydraulics. The speed of the stirring is then controlled by the RPM's of the tractor motor. Though the machine is still evolving, I think it is ready for general use.

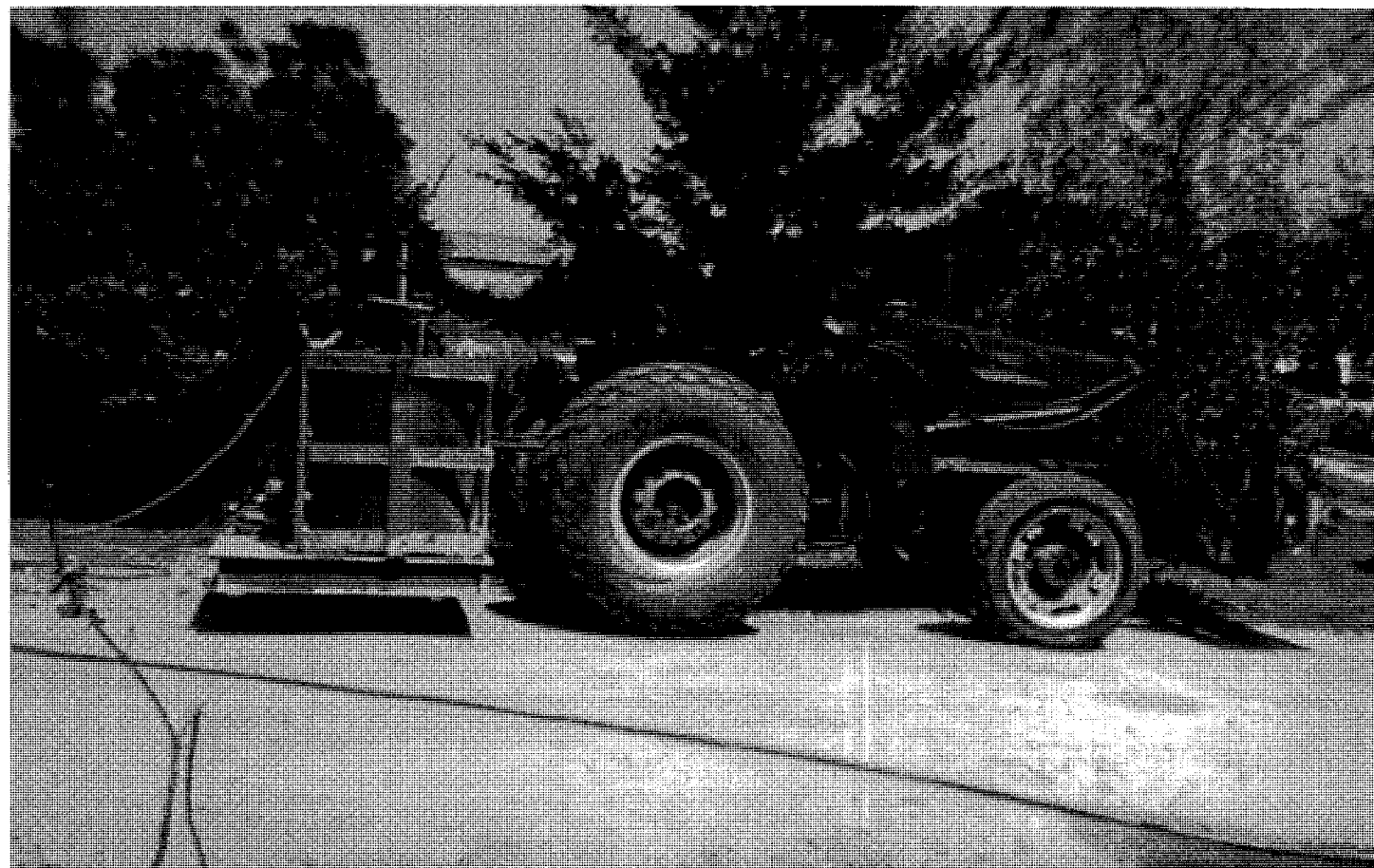
With the completion of the steel base for the stirring machine, the three point hitch, and the addition of a hydraulic water pump and the option for a spray bar or a standard hose bib, the stirring and application process for the biodynamic field sprays is greatly simplified, even on a large scale. I have applied about eighty units of BD#500, fifty units of BD#501, and fifty units of equisetum tea (BD#508) this season in four stirring sessions. I try to pick days when the soil conditions are most

favorable. We had quite a wet spring and now it has turned quite dry. I find that having the right soil and weather conditions is hard to have when the stars are right, so I opt for good soil conditions.

Anyone who has done a serious amount of hand stirring will have noticed a point in the stirring process where there is a transformation in the liquid. The stirring gets easier and there is a noticeable difference in the ease with which the vortex forms and there is something in the appearance of the stirred liquid that changes that I cannot put my finger on. I am very pleased to say that in the initial trials of this machine I have watched almost every batch get stirred and I have always noticed this transformation.

If the proof is in the pudding, then look no further. We have some of the most extraordinary strawberries this year with some of the least favorable weather conditions. Our mesclun greens are as good as if it had been hot all spring. With the exception of the flea beetles eating some greens and edible flowers, all the crops across one hundred acres are doing great. I feel this machine duplicates hand stirring just about as closely as is possible.

For further information, blueprints and prices, contact me, Steve Storch, at P.O. Box 467, Water Mill, NY 11976 (tel: 516-726-6783).



ODYSSEY OF A SEED INITIATIVE: AN INTERVIEW WITH NATHAN CORYMB

By Kathryn Dagostino

KATHERYN: Tell us how you became involved with the seed work.

NATHAN: My first involvement with Biodynamics began in 1983 when I joined the three-year Biodynamic training course at Camphill Village at Kimberton Hills. Before this I'd been farming and homesteading, having grown up with a farm background. Since the mid-1970s, I'd had a growing awareness of the issues surrounding seeds and genetic diversity through the work of Seed Savers Exchange, so it was something that was already in my mind and background when I began with Biodynamics.

After completing the training course at Kimberton Hills—I was there for five seasons—we moved to Camphill Village, Minnesota where I was a gardener there for five seasons.

I always saved some seeds and held it as an ideal to grow and work with seeds biodynamically. But I could never seem to break the dependence on standard commercial seeds. Though I saved a few varieties every year, it was always in a small, individual way. I felt very limited by the pressures and demands of vegetable production and the lack of any training and background in this work. I always wondered why so little had been done with seeds in biodynamics when it was clear that seed work was a central and essential part of the Biodynamic work, particularly as Dr. Pfeiffer spoke of it in his introduction to the *Agriculture* course.

In 1991, in the spring, there went out a call in the Biodynamic newsletter for someone to do training in Europe in seed work so that some kind of initiative could be started in America. I thought, "Somebody should do that," and then I had to ask the question, "Who is that somebody going to be?" As I began asking that, and asking who had come forward, I realized it was the duty of everyone who cared to ask, "What can I do myself?" It seemed like if someone were going to do something, maybe it was up to me!

But it was hard to see how it could happen in my situation. Having a family and being pretty settled, as well as living in Camphill for so many years and really having no independent means, it was hard to believe, "Yes, I can do it." But I did put some effort into it and in the end things, in almost a miraculous way, fell into place for me to go ahead and do the training. I was in Europe working with the seed work from November, 1991 until the end of March, 1993. It was a year of concentrated training at Ekkharthof, a community in Switzerland housing a 30-year-old biodynamic seed company, of living and working at the Camphill Village Humanus Haus where I was doing seed growing and

training, and some shorter periods working with the biodynamic seed initiative at Bingenheim in Germany. So I was trained in growing, handling, and cleaning seed, with a little bit of business set-up and distribution.

Now I'm doing vegetable production for a conference center and community, called Sunrise Ranch, in Colorado. The community is comprised of about 100 people and the conference center has regular conferences throughout the season. My main focus here is growing vegetables, but I include seed crops in the vegetable garden. The climate doesn't allow year-round gardening, but the seed work takes year-round effort, definitely. We distribute seed through a small seed company, Turtle Tree Seeds. Those are not entirely seeds we grow ourselves, but we grow the bulk of them.

From the very beginning of taking up this work in a concentrated way and going to be trained, I lived with the hope that there could be a united initiative of growers working together in a cooperative way to grow seed, and that there could be some kind of focus for helping the growers to do that. From early in 1991 when the call went out, I spoke of this circle of growers as what I termed a "CSA for Seeds". This was my expectation when I went to do the training.

On returning from Europe, I was quite determined not to start a private seed company. I didn't think that was the way to go. I was quite vocal about that; it's not what I wanted to do. I wanted to see the kind of cooperative circle of growers I became familiar with in Europe in the Initiative Kreis für Saatgut aus Biologischen-Dynamischen Anbau with its work centered at Bingenheim.

In 1993 at the CSA conference I painted this rather grandiose picture of what had been developed at Bingenheim as a model for what we could do. Judging from the reaction and response then, people did not seem quite ready for that. Clearly there needed to be a gestation period before the beginning of such an initiative. I wanted to see it go in a CSA direction and I connected to a CSA as a gardener, where it was said I could focus strongly on seed work. It turned out to be a little different than I expected, since virtually my entire time had to go into seeing that the 220 shares that were sold got filled each week. I also had a pretty severe and debilitating illness in that season, but the bags got filled with vegetables and there was a fairly substantial amount of seed grown; in particular a number of the more difficult biennial crops such as cabbage, carrots, onions, beets and parsnips that had been selected and stored to grow to seed in 1994.

At the end of the '93 season, when I could relax and breathe again, I began to look at how the seed work itself