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A Growing Movement

At Threshold Farm in New York's Hudson Valley, biodynamics' old wisdom feeds a very modern hunger for a better way to eat.

By Keach Hagey

Hannah Bail is busy. Her first words to me are a breathless apology for sticking me with the job of picking up the apples that have fallen from the overladen trees.

"It's just been one damn thing after the next," she explains in the robust accent of her native Germany. She has large, clear eyes and the kind of flawless, rosy complexion you'd expect of someone who has spent most of her 38 years working on farms. "We usually try to do it every afternoon but just couldn't do it the last three days."

The job is important, she says, because keeping rotting apples out from under the trees is one of the keys to producing apples without pesticides. "Everyone says you can't grow organic apples. B.S. But orchard hygiene is very, very, very important to us."

The apples at Threshold Farm in Philmont, NY, where Bail and her husband Hugh Williams have cultivated an orchard for the last 13 years, are certainly organic by anyone's measure, though they can't legally label them that. The organic certification requires recordkeeping they don't have time for and fees they cannot afford. Instead, they label their apples with an older, and stranger, designation: biodynamic, a method of growing based on the ideas of Rudolf Steiner, the Austrian philosopher, educator and esotericist best known for founding Waldorf education.

I dragged my boyfriend up to this farm in the Hudson Valley to pick half-rotten apples from piles of deer droppings because I wanted to see what this strange word, biodynamic, really meant. I ran across it for the first time when some Threshold Farm apples ended up at my neighborhood Community Supported Agriculture drop-off, Eat Records in Greenpoint. The staff at the store explained biodynamic as being "beyond organic" with a twist of pagan voodoo. There were sustainable growing practices, yes, along with a bit of howling at the moon.

This image could not have been farther from what we encountered upon arriving at the 45-acre hilltop farm. A freakishly warm October was finally settling into something that resembled fall. A dozen rather well-adjusted-looking people in fleece jackets and stocking caps milled about the top of the orchard, some on ladders, some crouching next to plastic bins, as children ran around shrieking with laughter. Bail moved methodically from group to group, engaging in some political chatter as she gently showed her volunteers how to tell when an apple is ready to pick or where to drag the bulging bags so that Williams could pick them up on the tractor.

Most had driven an hour up from Beacon, NY, or beyond to support the farm, pass a pastoral afternoon, and drive home with cars stuffed with exquisitely fresh apples and vegetables that simply tasted better than anything else around.

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Threshold Farm apples snap against the teeth and coat the chin with candy-sweet juice. They kept unrefrigerated on my window sill for two weeks without going mealy. But they don't look like the waxy, plastic-perfect fruit raised on a steady diet of fungicides and flown in from Chile that you find at the grocery store. There are two main reasons, each with its own rather unappealing name: sooty blotch and fly speck.

"It's only due to high humidity and rain," Bail explains, pointing to the dark marks mottling the red fruit. "At this point, we haven't found anything that we can do about it." Neither disease damages the sweet, but they do limit the places they can be sold. She now tells people who complain about the marks to go right ahead and buy "perfect" apples from the supermarket. "Buy them for less money," she tells people, "but have the funigicides."

This defiance shouldn't suggest that Threshold takes a passive stance toward pests. In addition to spraying clay to battle caterpillars, Williams spreads elemental sulphur on the trees early in the season to protect against apple scab, a common black fungus that can defoliate a tree. Sulphur is the only fungicide approved for organic growing, and is not particularly easy to administer. Williams must wait until the air is a certain temperature and the leaves are at a certain stage to spray. It requires a willingness to stop whatever else he is doing and be completely tuned in to both the plants and the weather.

Williams' ability to tune into his trees so completely makes his friend and fellow biodynamic farmer Mac Mead, director of the Pfeiffer Center in Spring Valley, NY, think of him as one of their own. "He struck me

as being like a tree," Mead said about his first encounter with Williams at a workshop he taught in 1978. "He's very one with his subject. He knows the trees, inside and out."

Fruit growing is a very intimate kind of agriculture, Mead explained, because, unlike vegetables, you can't rotate the crop. You're married to those particular trees, for better or for worse. When fungi take hold of a one, it's very difficult to get rid of them. That's why growing apples organically is commonly thought of as something close to impossible – and why Mead calls Williams, who teaches a class on orchardry at the Pfeiffer Center, "one of the best organic fruit growers that I know."

A tall Australian native with a booming voice, Williams, 60, grew up working on an orchard, and today heads up the apple production and cows on the farm. Bail, who found the farm through the World-Wide Opportunities on Organic Farms, or WWOOFing, program, came here to work for a year in her 20s after agriculture school and, after another year of travel, came back to settle for good. She and Williams have two children, Emma, 4, and Christopher, 6, who are the center of all life on the farm. She's mostly in charge of the farm's vegetables, but lends a hand in the orchard during the labor-intensive jobs.

One of these is hand-thinning, a laborious process that begins in mid-June. Williams, Bail and their only full-time staffer thin the clusters of blossoms from four-to-eight flowers down to two to ensure that that the fruit that survives is larger and better shaped. "It does get weary, though, hand-thinning," Bail admits. "But, you know, it's really worth the experience."

I later learn that hand-thinning the five acres takes five weeks, and wonder if it really has been "worth the experience" all the past dozen years. Then I imagine standing atop a ladder on this hillside, overlooking the rolling slopes of Columbia County, and consider it might be.

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The final weapon in Threshold Farm's crop protection arsenal is a little different. Biodynamics involves the use of processes and "preparations" made from plants and animal parts that are thought to harness the energy of the stars, planets and Earth.

Steiner outlined the principles behind these preparations in his farming lectures, which were a way of expanding his brand of "spiritual science," or anthroposophy, to the realm of growing things. Anthroposophists believe that the spiritual world is accessible through non-sensory intellectual work that's no less precise or rigorous than scientific work, and that the human soul can be changed through willpower. Steiner began using the word, from the Greek roots for human and wisdom, to refer to his philosophy in the early 1900s as a way of distinguishing it from theosophy, or divine wisdom. Formerly a bigwig in the Theosophical Society's chapter in Germany, he broke with the group as it veered toward a fascination with all things Eastern, particularly Indian, while he was more interested in reconciling Christianity with natural science.

In the agricultural lectures, Steiner points to the peasant calendars of old in arguing that humans once understood how the planets, moon and stars affected their crops. Modern man has become detached from these forces, he said, but plants are still tuned into them. ("We shall never understand plant life unless we bear in mind that everything which happens on the Earth is but a reflection of what is taking place in the Cosmos," Steiner declares in the first lecture.) To help balance these forces, Steiner prescribes preparations of yarrow, chamomile, nettle, oak bark, dandelion and valerian flower to add to compost piles, and horn manure and horn silica to add to soil and plants.

At the center of all biodynamics in Steiner's conviction, stated in his final lecture, that "truly the farm is a living organism." To be healthy, it must emulate nature as closely as possible, with fallow fields, biodiversity and plants nurtured by the manure of the animals that feed on them. If this balance is managed well, the theory goes, no external inputs will be needed, and things will grow better.

Yet there is also a more literal dimension to Steiner's comparison of the farm to the organism. One of its most interesting aspects is when he compares manure to the mind. "What is this brainy mass?" he asked in his final lecture. "It is none other than the dung, which is transmuted – through this particular organic process – into the noble matter of the brain."

This relationship is underlined in the preparation known as horn manure, made by packing a cow horn with cow manure and burying it over the winter, which is thought to be transformed, through the cosmic and earthly forces that enter it, into a "thought organ" that can capture the secrets of the earth in winter and give them to the soil in the spring. In this "organ," the manure functions as the brain and the horn as the cranium. And so the compost pile is, in a way, the seat of the farm's soul.

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Williams takes me out to visit his own compost pile after lunch. Eight brown and white cows with elegantly curved horns and old-fashioned neck bells graze nearby. Williams points out the arabesque of the cows' horns with great fascination.

"You see where the area between the eye and ear pulsates when they chew?" he said. "That pushes up against the horns. That is how the cow is aware of itself."

He explained that our ideas don't actually come from our head, but from our guts. Our brains are like moons to the suns of our stomachs, reflecting the images generated there. Cows, whose four stomachs give them arguably the most complex digestive system on earth, have a great deal more going on in their guts than we do. The horns amplify the cows' self-awareness back to them, he said.

The cows are essential to the functioning of a biodynamic farm because they allow it to be self-sufficient in its compost and avoid buying synthetic fertilizer. Williams dug his hand into the pile, which had been treated with a biodynamic preparation of valerian flower, and it was held it up for me to smell. There was almost no odor at all, and certainly no remnant of its origins as mostly cow manure. The preparations act as enzymes, he explained, which began the process of turning the dead into the life-giving.

Wiliams also credits valerian flower with saving his apple crop a few years ago. The trees were two and a half weeks in bloom and the temperature suddenly plunged below freezing. For two nights, Williams and Bail lit fires in the orchard to keep the air circulating, while Williams sprayed the trees with a fine mist of a solution made from about a cup of pressed valerian flower, believed to have heat-giving properties, diluted in water. Incredibly, although there were five acres to cover, this small amount of valerian flower helped keep the frost from killing the blossoms, he said, protecting their apples while their neighbors' perished.

Such preparations are available via mail-order from the nonprofit Josephine Porter Institute in Virginia – horn manure, which "stimulates root growth and humus foundation" costs $7.50 a unit — but Williams prefers to mix his own.

I asked him how he knew what ingredients to use. "Insight," he replied, somewhat cryptically. He has

trained himself to look around at plants and see the "gesture" of their healing properties. It's a way of seeing the world he calls "carbon thinking."

When asked for an example of how such thinking works, he offered me one from my own life: "There's something in you that drove you to come up here and do a report on this farm," he said. "That's carbon thinking."

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Even many self-proclaimed biodynamic growers distance themselves from some of Steiner's more mystical ideas. Yet his practical suggestions about plant diversity, crop rotation and the importance of composting have been gaining adherents with the rise of organic and local food movements. Many of them were recently popularized in Michael Pollan's "The Omnivore's Dilemma," which tracks down one of its four sample meals at Joel Salatin's ultra-sustainable "beyond organic" Polyface Farm in Swoope, Virginia. (Pollan's book is toted around by devotees of the local food movement the way Rachel Carson's "Silent Spring" was by the first wave of environmentalists. Several of the orchard workers that day had copies of Pollan's tome tossed in the back seats of their cars.)

Salatin calls himself a grass farmer and is obsessed with making his farm a nearly closed system built on grass' ability to make edible energy from sunlight. By meticulously managing which animals graze where when, he can maximize the amount of energy that comes from them and minimize the use of fossil fuels. He's developed some pretty zany ways of doing this – like a henhouse on wheels called the Eggmobile – along with a healthy side career as a lecturer and grass farming evangelist.

Bail and Williams admire Salatin and have attended his talks, but are quick to point out the "weak spot" on Salatin's farm: imported corn to feed the chickens and pigs.

They also admit that Threshold Farm had plenty of weak spots of its own when it started. For the first seven years, they had to import compost from another farm to nourish eight acres of vegetables – a cash crop that kept the farm financially solvent from the beginning.

Although the land they lease has long been used for farming, thanks to an easement from the Columbia Land Conservancy, the previous farmers stripped much of the fertility out of the soil by pulling hay off of it year after year without adding back manure. "That's why we've been suffering," Bail said. "But the farm has gotten a lot better since we've been here with our own animals."

Today, Threshold still brings in potting soil for the seedling vegetables, but they keep their eye on the sustainable prize. "As long as you keep in mind what you are trying for, that's what's important," Bail said.

Williams believes the best way to actually achieve this prize is to move away from vegetables. "Vegetables are very, very demanding of fertility, water, labor and so on," he said. "You have a high return per unit of land, but also an enormous use of labor."

Initially, the farm was driven by vegetable production, running CSAs in New York City for many years. They were so embraced by the cutting edge foodies that the New York Times' Living Section purchased a $355 share in Threshold Farm in 1997, and sent various writers to pick up the produce at the drop-off at an Upper West Side church throughout the season. "It was wonderful for us, because it allowed us to live from the farm income from day one," Williams said. "We never had an off-farm job."

But as other aspects of the farm have begun to produce more and more – the still-growing apple trees will produce 2400 bushels a year by 2009 – they've been able to scale back the vegetable operation from eight acres to two this year. Today they run CSA drop-off out of their garage and deliver to a handful of restaurants.

One of them happens to be right down the hill from their house. David Wurth, chef of Local 111, a locavore restaurant that's helped made Philmont a foodie destination, looks forward to Bail pulling up to the back door with her red wagon heaped with kale, arugula, broccoli rabe and fennel in the summer, and apples in the later season. "They grow incredibly tasty vegetables," he said. 'And some of the best apples that I have ever had in my life."

Wurth buys from about a dozen farmers in the area, as well as from Joe Angelo, a local distributor of organic produce from around the world. Williams has mulled selling to Angelo, but decided against it. "They would want us to certify what we do," he said. "That would be a big cost for us."

Wurth said he buys from a number of farms that don't do the "backflips" required to slap "certified organic" on their produce, saying simply "they are organic as far as I am concerned."

"The word 'organic' is now a government-controlled word," Williams explained.

The paradox that a farm as ultra-sustainable and chemical-eschewing as Threshold couldn't market its products as organic in a supermarket is merely Exhibit A in Williams' and Bails' case against the government's role in today's food chain.

From their perspective, it sure does look like the policymakers don't want small, local, sustainable farms to exist. First the federal government puts them at a huge handicap by doling out subsidies to conventional farmers, of which they see not one penny. Then, through regulations, states manage to cut off the few avenues that farms like Threshold would have to capitalize on their niche status.

Until recently, Threshold Farm sold the intensely flavorful raw cider we all enjoyed at lunch through its CSAs and farm stands. This year, a New York State law went into effect requiring all cider sold in the state to be pasteurized or treated with bacteria-zapping UV rays. It was designed to restore confidence in New York State's cider industry after an outbreak of E. Coli in 2005 was traced back to an orchard near the Canadian border. The ban is the only law of its kind in the country – but then, New York is the only state, outside of Washington, with an apple industry big enough to need such protection.

The meat issue is even more mindbending. Williams has put a great deal of energy over the last seven years breeding his mix of Dairy Shorthorn and Ayrshire cows. With each generation, he says, the meat has gotten better. Although he's had cows butchered at USDA-approved slaughterhouses in the past, lately he's decided to do it on the farm, even though that means they can't sell the meat. He's found that, contrary to what you might think, having cows watch their relatives die is actually a good thing.

"We've found that the herd actually absorbs it better if the animal doesn't just disappear," he said. "There's a lot of anxiety around that. It's much better if they recognize, OK, so-and-so died, and they have their little ceremonies and so forth. They come right over the fence, they sniff and are kind of involved, and they go back to their grazing. It's just incredible."

It's the kind of humane experience that would likely be highly attractive to the consumers of the Pollan-

reading locavore set. Yet, for now, the only way they can taste such humanely raised, grass-fed beef is by coming over for dinner. Which is just what they did Saturday night.

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Heavenly aromas of roasting garlic and grass-fed beef spilled from the kitchen of Bail and Williams' house, as the volunteer workers kicked off their muddy boots in the entry way and made their way inside from the cold. By the time we arrived, the kitchen was packed and humming like a Manhattan cocktail party.

The guests sip local wine and chat about farm policy, global warming and recipes for homemade sauerkraut. There's the electricity in the air of a political movement in its early stages. But few of the guests would probably admit it. As one of the guests from Beacon put it, "We have enough concepts." They're here for the good food.

For most of the 1970s and 80s, Williams was the lone biodynamic farmer in Bridge Hampton, Long Island. "I felt pretty isolated for several years," he said. "I felt like I needed a peer group." He picked the Hudson Valley because it's "one of numerous concentrations of biodynamic activity in the Northeast." Most notable among these is the nearby campus at Spring Valley, where Steiner disciple Ehrenfried Pfeiffer began his pioneering studies into biodynamics in the 1930s. The Pfeiffer Center that bears his name cultivates the same ground he tended more than 70 years ago.

The area is also a lively center of organic farming more generally, a phenomenon chronicled elegantly in the local Valley Table Magazine. Williams gets very excited when he talks about the widening network of personal connections of buying clubs and individuals that's getting the word out about the farm, allowing them to rely less and less on centralized forms of distribution. He compares the network to a fungus, which, he reminds his rapt guests, is the largest organism in the world.

When dinner is served, the full impact of this spreading network becomes almost uncomfortably tangible. There are not quite enough chairs at the very large table for everyone. It's not until we drag some extras in from the living room and get everyone, including Christopher and Emma, wedged into place that we realize why: We are 18 – a new record. If this isn't a movement, I thought, I don't know what is.

Yet there was very little talk of biodynamics around the dinner table that night, or really, at any time that I didn't bring it up. For most of the diners, I realized, the food they were eating was delicious, fresh, humane and ecologically sound – no metaphysics required.