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Jim Hanson
Southern Illinois University, Carbondale

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Jim Hanson

Office of Economic and Regional Development
Southern Illinois University, Carbondale
150 East Pleasant Hill Road
Carbondale, IL 62901-6891
jmhanson@siu.edu

ABSTRACT—This phenomenological analysis concludes that the American family farmer is a steward of the environment in a way that the corporate farmer is not. As a study of consciousness, phenomenology recognizes that family farmers have more sensitive and less selective experience because of living in the farm environment. It draws from the first-hand accounts articulated by family farmers—accounts that reflect their firsthand and direct experiences of the farm environment. Although considered to be irrelevant by many scientists and statisticians, phenomenological accounts of direct experience are important starting points for the scientific study of farmers and their knowledge of environmental problems.

KEY WORDS: environment, farming, phenomenology, stewardship

> But it is too often forgotten in our current fashionable environmentalism, our worry about fading open spaces, that we now are paving over an equally valuable resource: men and women who can read the weather, who know the cycles and signs of plants and animals, understand the human experience of physical labor, and are about our last bulwarks against uniformity and regimentation.
>
> —Victor Davis Hanson, *The Other Greeks* (1995:13).

Problem

If the American family farmer is indeed the better environmental steward, as this paper sets out to demonstrate, then the diminishing number of family farmers is part of the problem. From 1974 to 1997, the number of farms decreased from 2,314,000 to 1,912,000 (US Census Bureau 1999: table 1100, 1985: table 1112), and the decrease would be even larger if in 1993 the US Department of Agriculture had not broadened its definition of

farm to conform with the North American Industry Classification System. This reflects an alarming decrease in the number of family farms and farmers in the United States, by any definition. USDA once defined family farmers as those "who depend on farming for a significant though not necessarily a majority of their income, and whose family members provide most of the labor and management" (Carlin and Crecink 1979:933). Few apparent farm families, whose income derives increasingly from nonfarm sources, can meet these criteria. The family farm is a rapidly vanishing economic institution and the family farmer a vanishing vocational species.

Large farms are the exception to the decreasing numbers. Farms over 1,000 acres during 1974-97 increased from 155,000 to 176,000, and farms of more than 2,000 acres grew to account now for most of the total farm acreage and receipts (US Census Bureau 1999: table 1100). Although most corporate farms continue to be owned exclusively by families, the increase of large farms overlaps the increase of corporate farms, which have grown from 67,000 in 1987 to 84,000 in 1997 (US Census Bureau 1999: table 1100).

In addition to the number of farms becoming larger and more corporate, we also know that many agricultural environmental problems appear to have increased, despite Environmental Protection Agency (EPA) regulations and USDA sustainability programs. These problems are indicated by the following:

- The National Water Quality Inventory reports that 35% of US river and stream water is "impaired" for supporting aquatic life, fish, and other uses and that agriculture constitutes 60% of the polluting sources (USEPA 1998:61-62); that 40% of lakes, ponds, and reservoirs are impaired and that agriculture constitutes 30% of the polluting sources (USEPA 1998:87-88); and that the 12 leading sources of groundwater contamination include fertilizer applications, pesticide applications, animal feedlots, and agricultural chemical facilities (USEPA 1998:164).
- The pollution is increasing for surface and groundwaters that are affected by chemical fertilizers; about 24 billion tons of nitrogen, phosphorus, and potash are used each year, which is estimated to be more than twice that absorbed by crops (Wagner 1994:60).
- The pollution probably is increasing for surface and groundwaters, and these are affected by the use of pesticides, especially so for some 6,000 contaminated community wells and 246,000 private wells in 26 states (Wagner 1994:256).

- Soil and water are polluted by livestock excrement (mostly pigs, cattle, and chickens) from crowded feed yards called CAFOs (concentrated animal feeding operations); this produces health-threatening pathogens, which made several thousand people sick in 1993 when using water from the Milwaukee River (Wagner 1994:32-33).
- The nonoxidized, chemical-infested water of the Mississippi River watershed has produced a "dead zone" over an area of about 8,000 square miles in the Gulf of Mexico, killing every breathing thing in its depths (*St. Louis Post-Dispatch* 1997).

Some environmental problems have lessened, such as soil erosion (USDA 1997b). But the problems identified above are aggravated by the increasing use of chemical fertilizers and pesticides. From 1987 to 1997, annual spending on commercial fertilizers has increased from $6.7 billion to $9.6 billion, and spending on agricultural chemicals has increased from $4.7 billion to $7.6 billion (USDA 1997a: table 15). These increases are consistent with a 45-year trend in the increased use of fertilizers and chemicals as reported by Uri (1999:8-12).

Most farmers' use of fertilizers and chemicals is excessive. A study of 1,928 farmers in Wisconsin concluded: "Two out of three farmers apply excess nitrogen (N), while four out of five apply excess phosphorus (P^2O^5) for corn production. Few use the recommended BMPs (best management practices) in an appropriate fashion" (Shepard 2000:63). Chemical overuse results in part from USDA spending about $2 billion annually on research and education related to the use of chemicals while at the same time spending only a small fraction of that amount for sustainable agriculture. It ties in with the overall federal commitment to be internationally competitive, to decrease the trade deficit by increasing exports, and to dominate world markets. How agricultural production and exportation may contribute to environmental problems in rural American seems to be a secondary concern.

Question

Considering the parallels between the increased numbers of corporate farms, dollars spent on fertilizers and pesticides, and related environmental problems, it seems fair to ask whether family farmers are better environmental stewards than corporate farmers. To provide a fair answer, we cannot rely only on statistical correlation among these factors. The correlations

may be coincidental, making any causal relation spurious. We need an explanation from an independent source. We need to ask on what basis might we be less trusting of corporate than of family farmers?

An easy answer is that corporations are more concerned about immediate profits and stockholder dividends than about the long-term environmental consequences. But financially pressed family farmers also get greedy. I believe the critical point about corporate farming and immediate profits is warranted, but less for reasons of psychological greed or economic need. The reasons are phenomenological.

Phenomenology

Phenomenology simply is the study of the consciousness of people-the perceptions, conceptions, and imaginings that make up their subjective experiences and stream of consciousness. Phenomenologists make no assertions about the nature of the so-called objective, material, or real world. They concentrate on those aspects of the "real" world that are constructed in the mind and recognized in consciousness, following George Berkeley's principle of *esse est percipi* (to be is to be perceived) (Pappas 1995). The father of phenomenology, Edmund Husserl (1970: appendix 3) stated that phenomenology studies the structures of consciousness, not the material objects outside consciousness. Through the procedure of the *epochè*, phenomenology "brackets" or isolates the outside, material objects so that it may investigate the subjective consciousness of the individual and the social consciousness shared by individuals.

All phenomenologists go on to recognize that consciousness is very selective in reference to outside objects. Regarding perception, people smell or see or hear only what they want or need to, only what they feel impelled to recognize. Husserl (1970:158) has stated that "[e]very perception has, for consciousness, a horizon belonging to its object," which indicates that the possibilities of perception are open and endless. Husserl's perceptual object has three horizons—the object's "front" that is perceived, its "lateral" aspects that is sensed only intuitively, and its "back" that at any given time is not sensed even intuitively (Spiegelberg 1960:131). Regarding conception, people also think and speak selectively through language, which is illustrated through the selective thinking and speaking of the Inuit who have 25 words for snow (Dorais 1990:205). And perceptual and conceptual selectivity increases with the passing of time and extending of space—that is, with reliance on memory.

To minimize the selectivity and maximize the sensitivity of consciousness to the complexity of the world and its objects, phenomenology attempts to capture experience that is immediate and concrete rather than mediate and abstract. It prefers the method of introspection, which we all do by simply observing what is in our minds at given moments, by observing what William James (1950) called our "stream of consciousness." When communicated to another party, such observations usually are called "accounts," which for Garfinkel (1967:1) are "observable-reportable, i.e., available to members as situated practices and looking-and-telling." And Bittner (1973:116) insists that "the tie of accounts to settings is unavoidable and irremediable because the accounts drive their sensibility and warrant from it"—that is, accounts must be immediate and concrete. If the accounts are expressed while they occur and in their setting, to an observer and recorded by an observer, then this is an exercise of the method of social introspection. If accounts are expressed after they occur as a result of memory, then the observer is employing the method of retrospection, which is the methodologically weak sister of introspection.

Finally, phenomenology is a philosophy, not a science. After phenomenology brackets or isolates experience and identifies first-person accounts, science then can use these accounts to formulate propositions and identify data to prove or disprove what these accounts say about the material world. Phenomenology only presents accounts; it proves or predicts nothing.

Environmental Sensitivity

Our phenomenology focuses on the firsthand accounts provided by family farmers about their experiences in their farm environment. Because farm families both work and live on their farms and ranches, they are exposed to environmental hazards 24 hours a day. Chemicals are breathed, animal waste smelled, eroded soil walked on, and polluted water tasted. These perceptions penetrate the horizons of objects to the point that subtle changes are immediately sensed. For example, my father always knew whether I had really cleaned the horse stalls or merely thrown hay over the manure, just by sticking his nose in the crack of the barn door.

The magnitude of the family farmer's sense of the environment and the subtlety of changes is a function of consequences. When the eight-year-old child of a farm family drinks from a polluted creek and becomes ill—that is literally right at home and a matter of survival. This realization is not just phenomenological. In researching farmers' adoption of best management

practices for the US Office of Technology Assessment, Logan (1990:205) has advised that "[f]armers' concerns for groundwater protection will be greater than for surface water because farm families are worried about contamination of their own wells. The groundwater pollution problem is one that affects the farm family directly." Put most simply, family farmers represent the common rural phrase, "Caring is bred of familiarity." Caring is a necessary and self-interested concern about one's place in the environment. If you are there, you care.

A keen sense of the environment is not as impelling for employed farmers. Most leave their workplace after work and go home at nights, no longer the occupants of that once colorful form of cowboy housing called the bunkhouse. While most grew up in a rural setting, they prefer the convenience of housing in nearby towns that is away from the work-related experiences on the farm or ranch. Phenomenologically speaking, farm employees have less impelling reason to become acutely conscious of, or sensitive to, any environmental problems. It is still less impelling for their corporate bosses and shareholders in Omaha or Chicago, whose experiences derive mostly from the conceptual and quantified conclusions of a quarterly report and telephone updates. Politically speaking, employees have no impelling reason to criticize their employers' excessive use of chemicals or other environmental abuses or to become outspoken stewards and whistleblowers who might lose their jobs.

Tim Holt, a popular movie cowboy in the 1940s, demonstrated a keenness of environmental sensitivity while visiting our cattle ranch. While walking toward the barn with my father and me, he suddenly gasped and ran back into the ranch house. When he explained that he ran away from a small honeybee, I (10 years old at the time) thought that his reaction was unfitting for one of my cowboy heroes of the cinema. Then he added that he could die from a bee sting. Not caring, my father or I never saw or heard the bee.

Environmental Accounts

To demonstrate environmental awareness that is relatively nonselective, the phenomenological testimonies of family farmers are presented below. The testimonies begin with firsthand accounts from persons living in a farm environment, with emphasis on direct perception. There is no need here to romanticize or glorify these family farmers as super-sensual or folkwise Henry Thoreaus. Because they live as well as work in their farm environments, family farmers simply are less selective and more sensitive

about their farm experience. Like Tim Holt, they avoid the things they fear (or approach the things they desire), as indicated by the following accounts.

- A South Carolina farmer observes the increase in environmental dryness by comparing it to his boyhood experience (Butterworth, 1992:66,69):

> Overall things are drying out. . . . The movement all over the country is toward drying up as people clear more land and remove the trees that trap moisture. There is not as much moisture in the earth as there used to be. You can see that in the swamp. . . . As a boy I remember the streams in the swamps were full all summer and in winter the whole swamp was full. Now there is a lot less water. They keep cutting timber—they clear land, cut the timber, and there's no place for moisture to gather and generate rain.

- A Nebraska farmer sees the changing relationship between his corn, the rain, and soil (Rhodes 1989:94):

> In the summer, rain on a field wasn't usually a problem. You wanted as much rain as you could get short of a flood. The sun evaporated it and the plants sucked it up and used some of it and put the excess in the air. But once the crop matured and began drying out it didn't draw water anymore. The air cooled off and there was less evaporation. About the only place the water had to go then was into the ground. That meant mud.

- A Minnesota farm family realizes the health effects of a nearby hog CAFO (DeVore 1997:1):

> In late 1994, two manure holding ponds servicing hog confinement buildings went into operation roughly a mile from the Jansens' rural home in southwest Minnesota. By the end of the following summer, the entire family (they have six children) was experiencing nausea, fits of vomiting, and blackout periods—all symptoms of exposure to high levels of hydrogen sulfide, a gas produced by rotting manure. The symptoms subsided whenever the family traveled out of the area.
>
> Last summer, Jansen and some neighbors used a borrowed hydrogen sulfide tester and a retired microbiologist to prove that levels of

> the toxic gas were at dangerously high levels in the vicinity of several manure ponds located throughout the county.

- A southern Illinois apple and peach farmer learns about DDT and the mighty mites (Adams 1994:171):

> About the third year I was using DDT, one morning I went over there and the orchard looked like it had been sprayed with copper. Mites, those mites that work underneath the leaves. DDT had killed all the parasites that live on the mites and kept them controlled. And DDT wouldn't kill the mites. We had to use miticides. It's a constant fight.

- A Mississippi farm woman recounts lessons learned about water drainage and soil erosion (Songe 1998):

> In the freshly deposited dirt, I can see it now—a new garden spot two feet deep atop the landscaping beams that keep the bank from toppling. Some hardy plants, requiring very little management that deter dogs from beating a path through them, would be perfect. Something with a summer bloom and lots of color would be even better, if such a plant exists.
>
> Further up the bank, close to the fence that separates two kennel areas, something to stop the soil erosion is needed. Perhaps juniper or some prickly evergreen my pals would avoid would do well. We'll see.

- One California fruit grower instructs another what to do about bacterial gummosis (Hanson 2000:55-56):

> The pragmatic, self-educated grower recognizes the lethality of this species of killer far better than the well-read and smug bacteriologist. The former judges by what he sees, not, as does the latter, by what he reads or is told. Ernie DeLeon taught me that all my research journals and tree-fruit books were of no value, that my education was but a nodding plume, when he studied the annual charred limbs of my pear orchard and offered unsolicited advice: "Get those trees out now; they'll just burn up each year."

- And there are the appreciated experiences, as conveyed by a southern Illinois farmer about the durable nature of mules (Adams 1994:79):

> While a mule is more contrary to a horse, he's tougher, and . . . you can't drive one when he's exhausted. He'll quit; you can't force him to go. Another thing is that you can't drive him into a place where he will hurt himself. It's impossible to get one of them to do anything to hurt themselves. They have some super judgment of danger. . . . If a team of mules gets scared and runs away when they are hitched together, they won't straddle a tree. They both go on the same side of every tree and hole. They have a built-in instinct of self-preservation. Being tough, they will stand more labor and punishment than a horse.

Phenomenology and Science

The accounts above prove nothing about who or what is causing the problems of the environment. But they do illustrate the keen environmental awareness of family farmers about water scarcity, water usage, hog excrement, resilience of pests, land erosion, fruit bacteria, and the overlooked virtues of the mule. And they offer some clues about who or what is affecting the environment. The South Carolina farmer saw that water scarcity was not only worse but due to the clearing of trees. The Nebraska farmer thought that mature crops drew and held less water and therefore contributed to mud and erosion. The Minnesota farming family believed that their health suffered from the toxic effects of a nearby hog CAFO. The southern Illinois farmer observed that mites became threatening because the insects feeding on the mites were killed by chemicals. And the California fruit grower learned to cut his losses at a glance.

Such accounts, especially in-depth accounts more detailed than those illustrated above, provide a potential gold mine of descriptive and causal knowledge about the farm environment. In addition, they beg for a scientific survey follow-up to the overall question: Are family farmers better stewards than corporate farmers are? Phenomenological accounts are not data; they are the direct, raw observations that start scientific inquiry. Such observation leads to the formulating of hypotheses and theories. Hypotheses in turn lead to identification and collection of data that can test hypotheses.

One may contend that stewardship is alive and well, not despite, but because, large corporate farmers rely more on established scientific methods and routinized collection of environmental data. Or contend the obverse:

that stewardship falters because family farmers never get beyond raw observation and anecdotal knowledge. However, this supposes that existing scientific data and theories exhaust all environmental problems and possibilities—a highly dubious assumption that itself contradicts the open-mindedness of scientific inquiry.

New problems keep arising that science detects only belatedly. For example, the reports of the "dead zone" in the Gulf of Mexico came as a surprise. We suddenly learned that the nonoxidized, chemical-infested water of the Mississippi River watershed came down from midwestern farms, especially in wet seasons before much nitrogen was absorbed by the crops; that it extended out in the Gulf of Mexico over an area of 8,000 square miles in the peak runoff season; and that it suffocated and killed every breathing thing in its depths (*St. Louis Post-Dispatch* 1997). Most agricultural scientists in the Midwest believed that the pollution of river water had lessened; they obviously did not have all the data.

Meanwhile, back at the family farm, few Midwest family farmers now fish in their rivers with their kids. Why? One reason is that they don't trust the water; they have tasted and seen enough of it. They all know the fishing is no good anyway, even if not knowing that it results from hypoxia. Another reason is that there are fewer family farmers left to fish with their kids. In fact, the best explanation is all the reasons above.

The phenomenological insight is that corporate farmers are less likely to notice the absence of fish in their rivers. Because fewer farmers are now conscious of the problem, it goes virtually unknown and usually unpublicized. Of course, the commercial fishers in the Gulf are acutely conscious of their problem of dead seafood; its consequences affect their livelihoods. So midwesterners hear of the deadly consequences of nonoxidized water not in the Midwest where it originates but 500 miles downstream in the Gulf of Mexico.

Methodological Issues

As a method of inquiry, phenomenology goes against the grain of contemporary research; it is not considered to be empirical, objective, expert, or quantitative. The scientific-oriented reader may be impatient with the lack of "real data" or "hard facts" in this rather philosophical essay. Nonetheless, the accounts above presented the facts of each farmer's experience. Phenomenologists ask: What is really real and hard—the responses elicited through a questionnaire constructed by experts in their offices, or

the firsthand descriptions about the immediate experiences of individuals on their farms?

Scientists ask in turn: How can such experiential facts, being subjective and individual, be verified? If a farmer sniffs hog manure and says he smells roses, how can we challenge his error? Eventually, his error can be proved or disproved through standard scientific methods. But prior to this, phenomenology can sift raw observations to distinguish reality from illusion. Psathas (1973:12) proposes three tests: (1) Involve other people with the same object and in the same setting and find whether their accounts match. (2) Have other people hear or read the account and determine its sense. (3) Determine whether the conclusion meets the conventionally accepted definitions of the setting or situation. These "prescientific tests" involve common techniques such as panels or focus groups, content analysis, and in-depth interviews that explore the "horizons" of the object in question, not only its front but its lateral and back horizons.

The experiential facts of phenomenological accounts precede the scientific data of survey methods. The raw information obtained through introspection and retrospection serves as the basis for survey data, not vice versa. If being closer to the source really matters, then the accounts of introspection and retrospection may be considered more empirical than the so-called hard, empirical data compiled from questionnaires. Scientific data is not as reliable or predictable as scientists once thought; physicists now recognize that formulas will, when applied to smaller and fewer quanta, eventually produce varied mathematical results, which was first formalized by Werner Heisenberg as the "principle of uncertainty" and is now expressed by John Horgan as "chaoplexity" (Horgan 1996:203).

Therefore, whether acknowledged or not, the observations of accounts lead to the data of hypotheses. The accounts above are from farmers who acquired informal experience living on the farm, not from experts who acquired formal knowledge living at a university. In fact, both are needed—both the informal experience of phenomenology and the formal knowledge of science.

Scientific-minded readers are invited to consider the point about stewardship as a challenge to prove otherwise. The proposition that awareness of the farm environment is less selective and more sensitive for family farmers than for corporate farmers is a proposition that can be quantified and operationalized by studies that compare what is selectively perceived and conceived by various groups of farmers. A survey of Iowa farmers in 1990 found that opinions about commercial fertilizers and pesticides between

small and large farmers do vary and that large farmers are less concerned about chemical effects (Lasley et al. 1990:136):

> Large farm operators . . . were less likely to hold supportive opinions about low-input farming (less use of commercial fertilizers and pesticides) and were less concerned about the adverse health effects posed by modern farming practices than operators of smaller farms.

Conclusion

Before "hard facts" are objectified and verified by experts, the experiential facts of phenomenological accounts usually sound an early warning. In losing family farmers, we could be losing our ear-to-the-ground. We could be losing our collective consciousness about the farm environment because the smells, sounds, sights, and insights of many family farmers are no longer saturated and sharpened by living in the farm environment 24 hours daily with their families. And because their corporate counterparts do not live in their working environment, our public perceptions and conceptions are more selective and less sensitive.

Being high-tech-minded, fix-any-problem Americans, we tend to assume that, on an as-needed basis, our environmental problems will be articulated and remedial action taken, just as the dangers of DDT were fixed in the 1950s. Many of us assume further that corporate farmers are better stewards because they are better-educated and smarter guys. This assumption is encouraged by their ability to communicate through official research and policy language and to gain greater access to the media. The minimal purpose of this paper is to point out that we assume too much about the viability of environmental stewardship and the benefits of corporate farming.

Some dire day, maybe sooner than expected, we may exclaim: It was there all the time, why did we not see it coming? Having someone there to provide accounts at the time is, before all else, the mind-stuff of phenomenology.

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