

Object Conflicts in a Health-Environmental Social Movement: Organic Food and Agriculture in the U.S.

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The politics of food constitute one of the main points of intersection for social movements (SMs) oriented toward science, technology, health, and the environment. Food-oriented SM mobilisation can be directed at the safety issues caused by pesticides, food processing, industrial agriculture, or genetically modified organisms, or they can be directed at the health and environmental benefits of a transition to organic food production and sustainable, community-oriented food systems. This article will focus on the latter, in particular the conflicts that have emerged around the organic food and agriculture movement (OFAM) in the United States. At a theoretical level, the article will develop the concept of "object conflicts," which may be of general value for thinking through the role of laypeople, the public, and SMs in democratizing decisions over scientific research agendas, technology design, and infrastructure.

BACKGROUND CONCEPTS

The STS (science and technology studies) literature has increasingly shown concern with how publics, citizens, or laypeople can be afforded greater democratic participation in science and technology (e.g., Fischer, 2000; Martin, 1999b). In addition to processes such as deliberative policymaking and user-centered design, SMs provide one avenue for increased democratic participation in science and technology. However, the role of SMs with respect to science and technology is often conceptualised as negative or oppositional, as in the case of protest against nuclear energy or genetically modified food. This essay focuses on an alternative form of mobilisation, "technology- and product-oriented movements" (TPMs), which afford a somewhat different dynamic than anti-technology or oppositional movements (Hess, 2005).

TPMs are defined as support for an alternative technology and/or product, as well as associated policies, production practices, and research programs, that generally involves both a mobilisation of civil society organisations and the formation of alliances with private sector organisations. Examples of TPMs are movements for renewable energy, complementary and alternative medicine, and open-source software. TPMs are distinguished by their support for an alternative technology/product, but they are often spin-offs or parts of broader SMs that have articulated a politics of opposition to an existing technology or product. As a result, there may be significant interaction between TPMs and oppositional

movements, such as between opponents of genetically modified food and supporters of organic food.

Although TPMs may include protest politics, in general they tend to direct their political activity into the construction of alternatives. This action may involve attempts to change government policies, as in traditional forms of SMs, but TPMs generally also involve "private-sector symbiosis," or a mixture of civil society organisations and for-profit firms that work toward the construction of alternative technologies and products. Although large corporations and their technologies/products are often viewed as a target of opposition, in TPMs there are also some industries or firms that pioneer and support the alternative visions of the TPM, and they become private-sector partners and vehicles for SM politics. Because of this symbiotic relationship with some segments of the private sector, TPMs can be analytically distinguished as having a SM component, which organisationally consists of NGOs and related advocacy organisations and networks, and a "reform movement," which consists of organisations within the private sector that pioneer, development, and market reform-oriented technologies and products. The reform movement may also include challenging networks of "maverick" or "suppressed" scientists (Clarke, 2000; Martin, 1999a).

As the TPMs achieve success, existing industries often begin to show an interest in "incorporating" or coopting the innovations, and in the process the design of the technologies/products often undergoes a transformation. Jamison (2001) has described the process of "incorporation" of environmental social movement goals into business practices; his analysis is extended here by drawing attention to the concomitant transformations of the design of technologies, products, and technological systems. The usual direction of the transformation of the design is to modify aspects of the design that are in conflict with existing technologies so that the "alternative" becomes "complementary" (Hess, 2003). One example is the transformation of community-controlled wind energy into grid-controlled wind farms; another is the change from alternative cancer therapies to complementary cancer care. The process of incorporation and transformation may coincide with mergers and acquisitions in the private sector, particularly if the for-profit firms that originally supported the alternative technology/product were small-scale and entrepreneurial.

Conceptual categories such as "TPMs" are ideal types that define a field of comparative analysis and may have better or worse matches to specific historical cases. Although as a type TPMs can be found in other time periods, they appear to be particularly prominent since the middle of the twentieth century, and hence their analysis can benefit from the perspective of historical sociology. Specifically, TPMs display a particular linkage with the denaturalisation of the material world, represented by the increasingly important role of science and technology, as well as concern with health risks and environmental hazards. The ways in which TPMs are constructing "alternative pathways in globalisation" are currently under investigation in a larger work (Hess, 2006). At this point, it can be said that TPMs represent a relatively middle-class but nonetheless crucial political position in a broader pathway of

other types of social movements, such as oppositional or anti-technology movements and justice movements. Although the role of private-sector symbiosis and the importance of the incorporation and transformation process might make it tempting to view TPMs as neoliberal SMs with an inherently conservative class politics, such interpretations tend to obfuscate the fluidity of TPMs over time, their tendency to migrate across classes, and their linkages with other sorts of more traditional, grassroots protest movements.

The concept of "object conflicts" is developed here in part to capture the problems of fluidity and multiple sites of contestation that emerge in the development of TPMs. The concept draws on and extends two traditions of research in STS. First, social worlds theorists have drawn attention to the construction of "boundary objects" that allow cooperation and communication to occur among disparate networks and organisations (Star and Greisemer, 1989). Subsequent work in this tradition has drawn more attention to conflict, particularly between scientists and SMs around woman-centered contraception (Clarke, 2000). A second tradition focuses on the design of technologies, infrastructures, and other objects, and it draws attention to the political and societal implications of selections among various design alternatives (Schumacher, 1999; Winner, 1986). Object conflicts are understood here as a specific type of politics of artifacts that emerges from the incorporation and transformation process. Organisationally, object conflicts take place between the SM and RM sides of the TPM as well as between them and large industries over the range of technologies/products and their design. As the incorporation and transformation process develops, the conflicts shift from alternative versus existing technologies/products to choices among various types of alternative or complementary technologies and products that are developed as the alternatives become mainstreamed.

The case study developed here draws on the history of the OFAM in the U.S. Other research has examined the cases of wind energy, nutritional cancer therapies, and open-source software (Hess, 2003, 2005). The OFAM case represents both a movement for a particular type of technological system--organic agricultural production, with an increasing array of variants over time--and a movement for a type of product--organic food, which itself has undergone change over time. Labels for this movement change over time, and the movement has increasingly redefined itself around themes of sustainability and local ownership. After first developing an historical overview of the development of the movement in the U.S., the essay will use the empirical materials to further elaborate the concept of "object conflicts."

THE ORGANIC FOOD AND AGRICULTURE MOVEMENT IN THE U.S.

The development of organic food and agriculture can be viewed through the lens of knowledge and technology as a mixture of three forms of expertise: traditional or pre-industrial horticultural and agricultural knowledge, lay/professional knowledge embedded in the practices of gardeners and organic farmers, and scientific knowledge as produced formally in studies of organic agriculture (Hassanein, 1999). The alternative knowledges and technologies in

turn are embedded in a changing social movement (termed here the OFAM, which over time increasingly shifted toward sustainability and localism). As a SM, the development of organic food and agriculture is largely a response to industrial agriculture, which itself is undergoing change throughout the twentieth century. In other words, the OFAM harkens back to preindustrial modes of agricultural production, but it has a specific history that involves a dialectical relationship with twentieth-century industrial agriculture that is currently being worked out (Buck et al., 1997; Kaltoft, 2001). The ongoing interaction with industrial agriculture and the food industry results in a mutual shaping of industry and movements and their respective knowledges, technologies, and products.

Most historical accounts see the American OFAM as developing from various mid-twentieth century European thinkers. One convenient point of origin is the mid 1920s, when Rudolf Steiner, the leader of the anthroposophy movement, taught a course on biodynamic agriculture, and the British colonial scientist Sir Albert Howard began an agricultural research station in Indore, India, where he perfected a composting method and an approach to agriculture that became known as the Indore Process (Conford, 2000, p. 21). The 1940 book *Look to the Land*, by Lord Northbourne, probably contains the first modern use of the term "organic" farming (Lotter, 2000).

In the United States during this period support came from Secretary of Agriculture Henry Wallace, who advocated "humus" farming, and J.I. Rodale, who launched the magazine *Organic Gardening* in 1942 in the midst of war-generated shortages of industrial inputs (Lotter, 2000; Peters, 1979). Rodale attempted to interest scientists in testing and developing organic agricultural research, but the research community largely ignored him, and in some cases scientists attacked his calls for organic agricultural research (Peters, 1979). Rodale responded to attacks by criticising the role of chemical companies on the boards of directors of agricultural colleges, that is, by using an argument that predated environmentalist critiques of interested science (Peters, 1979). As a result, at least some of the knowledge being produced around organic food and agriculture was being produced outside the university setting (cf. Conford, 2002). Radical in terms of its challenge to contemporary agricultural knowledge, Rodale's original vision of the object "organic" (1948) was quite technical and relatively free of the concerns with justice, sustainability, and localism that would later preoccupy the activist end of the movement.

At an organisational level the OFAM was structured as a mixture of advocacy organisations and practitioner farmers and gardeners. Some of the organisations had conservative and even fascist leanings, particularly in Europe, but the politics shifted to the left after the 1960s (Conford, 2000; Reed, 2001). Rodale's magazine, *Organic Farming and Gardening* (originally *Organic Gardening*), was a leading advocacy organisation in the U.S. Although it was technically a firm and eventually became a successful publishing company, during the early years the magazine was supported by Rodale's electrical wiring company, and Rodale also funded a foundation (Peters 1979). The ambiguity of classification is an example of the mixture of advocacy goals and profit-oriented production that is characteristic of TPMs. Rodale was also a strong supporter of

alternative health and nutritional supplements--his company launched *Prevention* magazine in 1950--and his work is one example of the confluence of dietary therapies in the medical field with the sustainable agriculture movement (Conford, 2000; Hess, 2002). In other words, from the beginning there was a mixture of advocacy with emerging markets and industries. As organic farming developed, state-level organisations devoted to the needs of organic farmers also emerged. The Northeast Organic Farming Association of Vermont (2004), which claims to be the oldest organic farming association in the U.S., was founded in 1971, and two years later the California Certified Organic Farmers Association (2004) was founded.

In the wake of the 1960s social movements, the OFAM became interwoven with environmental and social justice concerns, particularly around issues of sustainable development at a local or regional level. Several organisations that were influenced by the appropriate technology movement—among them the National Center for Appropriate Technology, the Center for Rural Affairs, and the Land Institute—helped build networks of sustainable agriculture activists (Kleiman, 2000). The Community Alliance with Family Farmers (2002) provides one example of the diverse interests that could be connected in agricultural advocacy organisations. The Alliance focused on farmworkers' rights, pesticide poisoning victims, pesticide legislation, and creation of funding for the University of California to help small farms and farmworkers. In the 1980s and 1990s the organisation became more involved in supporting organic agriculture, connecting consumers with organic farmers, preserving water rights for small farmers, and attempting to get more support for research on sustainable agriculture.

The SM side of the OFAM developed in the direction of sustainable, local agriculture that was centered around institutions that linked consumers to small farmers or gardens and by-passed the traditional food processing industry and retail supermarkets. Five examples of such institutions are community-supported agriculture, farmers' markets, food cooperatives, community gardens, and community-oriented natural foods restaurants, all of which demonstrated significant growth during the last half of the twentieth century. Three of the institutions—farmers' markets, food cooperatives, and community gardens—were prominent earlier in the century but had waned after World War II and then underwent renewal during the last decades of the twentieth century. For example, farmer's markets grew by 79% from 1994 to 2002, by which time there were 3100 farmers' markets in the U.S., of which 82% were financially viable and through which 19,000 farmers were selling food (USDA, 2003). Few food cooperatives from the Depression era survive in the U.S. today, but a second wave of food cooperatives emerged after the 1960s, and by 2001 there were about 300 food cooperatives in the U.S. (Swanson et al., 2001, pp. 2, 9). At the peak of World War II there were twenty million gardens of various sorts in the U.S. that yielded forty-two percent of fresh vegetables, and some of the community or "victory" gardens from that era were still in operation at the beginning of this century (Von Hassell, 2002, p. 40). Although the victory gardens entered into decline after World War II, a new wave of community

gardens re-emerged in the wake of the post-1960s civil rights, poverty, and environmental concerns. By the end of the 1990s there were an estimated two million community gardeners in 6,020 gardens in the U.S. (Von Hassell, 2002, p. 142). Other institutions in this group are more recent in origin. For example, community-supported agriculture in the U.S. grew rapidly from the first farm in 1985 to over 1000 farms in 1999 (U. Mass. Extension, 2003). During this period some natural foods restaurant also developed linkages with local farms, such as White Dog Café in Philadelphia and Chez Panisse in California (Guthman, 2002), and in 1993 the Chef's Collaborative (2004) was founded to link restaurants with local farmers. In summary, this set of institutions provides a key link between food and consumers that are rooted in a vision of organic food that ties it to SM goals of enhanced justice, local economic control, and environmental sustainability.

THE INCORPORATION AND TRANSFORMATION PROCESS

As growth occurred at the grassroots level, another type of development occurred in the private sector. By the year 2000 organic food sales had only reached one to two percent of total food sales in the U.S., but the six-billion dollar industry had grown rapidly enough and had shown high-enough profits to attract the interest of large-scale agribusiness, the food-processing industry, and supermarket chains and restaurants. As a result organic food and agriculture became increasingly embedded in industrial agricultural production and supermarket retailing. The phenomenon has attracted the attention of several social scientists, who have analyzed various aspects of the process in detail (e.g., Allen and Korvach, 2000; Goodman, 2000; Guthman, 1998; Klonsky, 2000). The literature has increasingly moved beyond a linear conceptualisation of the industrialisation process, that is, a view that the industrialisation process has ended the earlier, SM phase. Instead, there is increasing recognition of a bifurcation in which both the SM side and the industrial side of the OFAM continue to exist and grow (Campbell and Liepins, 2001; Guthman, 2002). This discussion will add to previous studies of the industrialisation of organic agriculture by developing a focus on the role of technology design and object conflicts.

One dimension of the industrialisation process was the consolidation of farms and the development of large, commercial farms oriented toward the emerging mass market for organic products. For example, by 2001 several organic farms in California were 2,000 to 5,000 acres, and the firm Horizon controlled about 70% of the U.S. organic milk market (Nutrition Business Journal, 2001; Pollan, 2001; Dupuis, 2000). The growth and consolidation process tends to be associated with changes in agricultural technologies, such that the larger farms tend to be less committed to the full range of ecological farming techniques that were behind original conceptualisations of organic farming (Guthman, 2000). The development of organic standards created a minimum level of production and product quality that is often below that of the more SM-oriented farms.

A second dimension of the industrialisation process is the incorporation of organic food into the food processing industry. In some cases, organic farms

have moved upstream into food processing, where profits are higher. In the U.S. the most well-known case is probably Cascadian Farms, which was founded in 1971 to grow food for hippies in the region near the farm. Eventually the farm developed into a food processing company that was acquired by General Mills (Pollan, 2001). The acquisition is far from a special case. During the 1990s major food corporations such as Kellogg, General Mills, H.J. Heinz, Gerber, and Mars acquired smaller organic or natural products firms.¹ New organisations emerged to support the growing industry; for example, the Organic Foods Production Association, founded in 1985, changed its name to the Organic Trade Association (2004) in 1994 partly as a reflection of the trend toward a diversification of organic food production into food processing.

A parallel transformation occurred in the retail sector, as the conventional grocery stores and chains (known as the "food, drug, and mass channel") developed natural foods sections and organic foods offerings. By 2002 the food, drug, and mass channel of the natural foods retail market was growing more rapidly than natural foods retail stores (15% versus 9%), and its sales totaled \$4.2 billion, that is, a little less than half the sales volume of the natural food stores (Spencer and Rea, 2003). Although food cooperative sales grew at a rate that was comparable to other natural foods retailers, food cooperatives were displaced by both the enclosure of natural foods in supermarkets and the rapid growth of the natural foods chains Whole Foods and Wild Oats (Swanson et al., 2001). Although the two chains represented only a small share of the market for natural products (about 30% of \$10.4 billion in 2002), the food cooperatives were watching the market consolidation process with some trepidation, and some were investing in expansion (Spencer and Rea, 2003). In part to combat the rise of both natural foods chains and the retail food sector, in the early 1990s food cooperatives started forming regional cooperative grocer associations, and in 1999 they formed the National Cooperative Grocers Association (2002).

A second area of retail affected by the growth of the organic foods industry was the restaurant business. The industry grew rapidly during this period; for example, the percentage of meals eaten away from home grew from sixteen percent in 1977-78 to twenty-nine percent in 1995 (Lin et al., 1999). The Green Restaurant Association (2002a) was founded in 1990 to provide information to restaurants on the greening process. The organisation had eleven areas of greening—including "sustainable food," recycling, energy conservation, and the use of chlorine-free paper products—and it offered certification and a logo for restaurants that commit to some areas of the greening process (Green Restaurant Association, 2002b). As with the organic foods retail chains and supermarkets, the category of "green" restaurant was disengaged from the concerns of economic localism and the SM goals that were embedded in the locally oriented natural foods restaurants.

OBJECT CONFLICTS

As the incorporation and transformation of organic foods into the mainstream food industry has proceeded, a nested series of "object conflicts" developed around the definition and design of alternative foods. Analysis of

object conflicts in the OFAM reveals three major types: funding for research programmes that shape the future of various types of alternative food, consumption decisions among the array of possible alternative foods, and standards set by private-sector or governmental bodies that govern definitions. These object conflicts center around the politics of definitions of what “organic”—that is, the object—will be. In the rural sociology literature, Goodman and Dupuis (2002) have argued for a focus on the politics of knowledge embedded in contestations over organic standards; the concept of “object conflicts” is consistent with their approach but also covers conflicts over product and technology design and from a broader, cross-movement perspective.

Regarding research programmes, one category of object conflicts involves funding decisions over how much money will be devoted to organic research as well as decisions over the types of research on organic food and agriculture. Because the category of “organic” includes a wide range of production technologies that may or may not include crop rotation, composting, and biological pest management (Guthman, 1998), research agendas that focus on one dimension of the production technology may favor industrial organic over localist organic. A similar valence emerges in research agendas on the health benefits of food and nutrients. Also known as “functional food” research, the field has been divided between an orientation that focuses on specific nutrients and their health benefits (which can then be added to processed food products) and an orientation that focuses on the health benefits of whole foods (for which specific nutrients are black-boxed or may be unknown).² For example, a research agenda can be tilted toward documenting higher levels of a specific nutrient—such as omega-3 fatty acids in grass-fed, organic meats—or tracking a general health indicator for a black-boxed whole food, such as weekly consumption of grass-fed organic meats in human subjects or animal models. To the extent that research agendas on organic foods tend to focus on the health benefits of specific nutrients (or the risks of specific pesticides or additives), they will tend to promote an understanding of “organic” as a subfood entity (a nutrient) rather than a whole food. Those agendas will in turn tend to favor an industrialised vision of organic as processed food rather than fresh, whole food.

A second type of object conflict appears in the embedding of the organic foods category in a broader category of health or natural foods (Lockie et al., 2000). The food processing industry has capitalised on the health consciousness and environmental awareness that favored organic food by developing the marketing category of “natural” or “health” food, as well as food that is free from a substance that is perceived as risky, such as antibiotics or bovine growth hormone (DeSoucey, 2004; Dupuis, 2000). However, categories such as “natural” or “health” food are unregulated and generally only have a vague meaning in terms of differential food quality. For example, “health foods” may be defined by the absence of partially hydrogenated oils, growth hormones, or some types of preservatives. Categories such as “natural” and “health” foods displace consumer attention away from organic products by diversifying the product mix so that health concerns are differentiated into the nutritional benefits of a particular food choice versus the safety benefits of the claimed levels of

lower pesticides or other contaminants in organic foods. Likewise, health concerns with nutritional benefits are separated from environmental concerns associated with buying organic. The development of complementary categories, such as natural and health food, therefore creates a broader, confusing field of healthy or green food options for which “organic” is diminished to the status of just one consumer choice among many.

A third type of object conflict is the one that has received the most attention in the literature: product labeling and production standards. In the U.S. standard-setting for organic food was originally based on state standards, such as those of the state of California, and certification was completed by private organisations that were driven by organic farmers. As the organic foods industry grew, standard setting increasingly shifted to government-controlled bodies, and the Organic Foods Production Act of 1990 mandated that the U.S. Department of Agriculture set up a National Organic Standards Board. Although the creation of organic food standards was originally driven by small farmers, over time the labels have increasingly benefited food processors and retailers (Guthman, 2002). The focus on “organic” as a technology of production and type of product, rather than a more complex system of small farmers and local agricultural networks, has assisted the industrialisation process.

The tensions between the SM side of the OFAM and the increasing prominence of the industrial side were evident in a controversy during the late 1990s over the national organic food standard (Vos, 2000). In 1998 the U.S. Department of Agriculture proposed new organic food standards that would have allowed sludge, irradiation, and modified seeds to be included in the definition of organic, and it would have also increased paperwork and fees for small farms. The Organic Consumers Association (2003) was founded in the wake of the threat, and it launched the SOS (Save Our Organic Standards) campaign, which mobilised consumers primarily through health food stores, community-supported agriculture groups, farmers' markets, and food coops. After the more-or-less successful campaign, the organisation announced a much broader series of goals that included conversion of U.S. agriculture to thirty percent organic by 2010, the phase out of the worst industrial agriculture practices, and a moratorium on genetically engineered food and crops. The platform directly connected the pro-organic movement to the organisations involved in campaigns to label or limit genetically modified foods, such as Greenpeace and the Campaign to Label Genetically Engineered Foods. Meanwhile, in 1999 the standards-setting harmonisation process continued at an international level via the work of the Codex Alimentarius Commission of the World Health Organisation (EnviroWindows, 2002).

Even though the final U.S. standards preserved some of the key aspects of organic food quality, they increased the costs of labeling and deleted some of the more environmentally oriented practices that had been embedded in some of the state codes. For processed foods that contain a mixture of organic and non-organic ingredients, the standards also created a new interstitial category of food label called “made with organic ingredients.” As a result, the standards fragment the object “organic” into a new set of categories of completely organic versus

made with organic ingredients. The distinction may be defended as a helpful guide to consumers in the complex world of processed foods, but it also implicitly encourages consumers to think of organic as a separate object from fresh, whole foods that have been grown on locally owned farms (Goodman, 2000). The distinction also creates object conflicts for labeling organisations and consumers, which face choices or trade-offs between the construction of labels that focus on the technical dimensions of the object as organic versus the societal dimensions of the object as contributing to locally owned economic development networks.

Because object conflicts occur in diverse settings or arenas—in this case research agendas, consumption decisions, and standard setting—the resolution of a conflict in one setting may have ramifications in others. For example, closure over a battle in standard setting may impact consumer decisions and research agendas, just as changes in research agendas and consensus shifts in scientific fields may impact consumption decisions and regulatory standards. At stake in the diverse settings is a constantly shifting politics of definitions of what is the object: whole food versus food component, health food versus organic food, technical standards versus social standards, and so on.

CONCLUSION

The pattern of historical development for the organic food and agriculture movement (OFAM) in the United States is best understood in comparison with other technology- and product-oriented movements (TPMs), that is, other movements that are not merely opposed to existing technologies and products (e.g., nuclear energy, genetically modified food) but are also in favor of alternatives (e.g., renewable energy, organic food). The OFAM began as a very marginal activity in the 1940s and 1950s, but over time it grew as farmers and consumers embraced the concept. On the private-sector side, an organic industry emerged that was eventually incorporated into the conventional food industry via organic food processing and the development of an organic niche in supermarkets. In the process, the category of “organic” became transformed into a technical product standard that was increasingly divorced from other kinds of social change goals. In a parallel historical development, the SM side responded to the post-1960s social movements and the longer term trends toward farm consolidation and globalisation by increasingly linking the category of organic with local and urban agriculture. The concept of “object conflicts” is introduced to describe the ongoing conflicts over the definition of the technologies and products associated with “organic” and, increasingly, “sustainable, local agriculture.” The conflicts play themselves out in various, interacting fields of contestation: research agendas, consumer decisions and loyalties, and production and product standards.

The concepts of object conflicts and the incorporation and transformation process of TPMs have general implications for the study of social movements, science, and technology. In TPMs the role of private-sector partnerships between SM organisations and firms is crucial to understanding the trajectory and outcomes of a movement. The focus makes TPMs somewhat different from traditional SMs, which tend to focus on the state and governmental policies as

the target of change and to utilise protest as the main means of change. The general point can be accepted without dismissing the examples of TPM activism that are continuous with traditional SMs or even the confluence and spillover of TPMs and broader SMs. For example, organic food and agriculture activists have supported changes in governmental policies that would increase research on organic agriculture and modify standards, just as local OFAM activists have helped reform regional government policies to be more supportive of community gardens and farmers' markets. That said, there is still the distinctive feature of TPMs, which is their focus on the politics of change via the design and diffusion of different technologies and products.

The points of similarity and difference between TPMs and traditional protest movements provide an opportunity to draw on SM theory and to elaborate on it, particularly regarding the problem of how SM demands have been incorporated into mainstream institutions. SM studies have long recognised that as elites open the doors to the partial integration of SMs or radical political parties, the SMs tend to undergo bureaucratisation and migration toward the political center (Michels, 1958; Tarrow, 1998). Usually the process is accompanied by the splitting of the SM into an accommodationist wing that is brought into the political process and a radical wing that remains outside it. The phenomenon has been documented in the environmental and poor people's movements in the U.S., among others (Dowie, 1995; Piven and Cloward, 1977). However, the focus of traditional SM theory on states and their policies limits understanding of what "politics" and political activism mean in the context of science, technology, and social movements. The point has been recognised in the study of health social movements, a category of analysis that is very similar to TPMs and in some cases (such as alternative medicine movements) overlaps with them (Brown et al., 2004). The study of TPMs draws attention to the type of politics that occur when reform efforts are directed at private industry and their associated technologies and products, and when SM organisations develop partnerships with private-sector firms that offer alternatives. Under those conditions political activity expands to the ground of material culture innovation and the politics of industrial innovation.

The alternative focus of political activity, which the comparative study of TPMs brings to light, has implications for the theorisation of the advanced phases of the incorporation process in SMs more generally. Although the process is similar in TPMs and traditional protest movements, there are some differences. First, the definition of success and failure is different. Because the goal is a shift in material culture, to have an existing industry (such as agribusiness and the major food processing companies) take up and incorporate that goal represents a victory, even if the change involves displacing the original, small-scale, entrepreneurial partners that represented the "cradles of innovation" (Truffer and Durrenberger, 1997). The defeats center not so much on the acquisitions of alternative firms or their displacement by large firms as on the transformation process and the object conflicts that emerge around the redesign of the technology or product in its new mainstream location.

A second difference from the incorporation process for traditional SMs is that the activist end of the field does not necessarily disappear or retreat into isolationism, sectarianism, or violence. Rather, in this case the mainstream industry incorporates and transforms the technologies and products of the TPM, but it does not destroy the alternatives. Instead, the alternatives continue their own process of historical development. To some extent they may even be driven to new waves of organisational innovation, such as the development of local direct-to-consumer marketing, due to the lack of capitalisation needed for access to conventional commodity chains (Buck et al., 1997). In other words, the two pathways—a mainstreamed “complementary” pathway and the alternative pathway that remains more connected to the original SM goals—grow in parallel. In the case of the American OFAM, the point was demonstrated with some of the statistics for the more alternative institutions--urban agriculture, farmers' markets, and CSAs--that indicate that they are growing alongside the organic foods industry.

The outcome of the incorporation and transformation process is the diversification of a technological/product field, as well as associated scientific research fields, with new political sites that emerge as the fields themselves undergoes change, rather than the simple modification and mainstreaming of an innovation. The SM itself is a dynamic historical entity that is changing over the decades, rather than a static social entity that interacts with and is overwhelmed by state and industry. In the case of the OFAM, as the technology and product of “organic” has been mainstreamed and transformed, the SM has come to redefine the object as “sustainable, local agriculture” to emphasise that organisational forms and economic scale are crucial elements in its alternative vision of food and agriculture.

However, an historical perspective also brings attention to the changed circumstances of the OFAM at the beginning of the twenty-first century. The romantic localism of the back-to-the-land efforts of the 1970s no longer makes sense in a world characterised by globalisation of markets, including food markets. Instead, the goal of sustainable regional development is being conceptualised within the problematic of production and consumption in a globalised economy. As a result, an alternative politics of labeling and standards emerges from these concerns, one focused on the product as carrier not only of a technical standard of production, such as organic, but also of a social standard of production, such as fair trade and localism (Guthman, 2002; Raynolds, 2000). Here, the grounds for object conflicts shift from battles over technical organic standards or over bona-fide organic versus ersatz natural food products to battles over technical concepts of organic versus those linked to fair trade politics. The concept of object conflicts draws attention to the continual shifts of sites of contestation as the history of a SM unfolds. Its chief value may be to avoid encysting an analysis in a linear model of phases and instead opening it up to the dialectics of ongoing historical change and political activism.

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NOTES

1. Kellogg bought Morningstar Farms; General Mills bought Sunrise Organic Cereal; and Hain bought Earth's Best baby food. While H.J. Heinz took out a stake in Hain, Gerber bought Tender Harvest baby food, and the Mars Company acquired the organic food marketer Seeds of Change. Even MacDonald's moved into the arena when it acquired a minority interest in Pret à Manger, a British health fast-food company. See *Advertising Age* (Sept. 18, 2000, pp. 32-36) on Kellogg, Morningstar, and Hain; *Agricultural Marketing* (May, 2000, pp. 56-57) on Heinz and Gerber; *Advertising Age* (Oct. 13, 1997, p. 3) on the Mars acquisition; and *Nutraceuticals World* (March, 2001, p. 18) on McDonald's.
2. The material on functional foods is based in part on attendance at the Tenth Annual Conference of the Functional Foods for Health Program, University of Illinois at Chicago Circle, Chicago, June, 2001. See also Lehenkari (2003).

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