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sector, where the large returns to be made on the sale of upmarket, quality wines has encouraged extensive investment in new techniques of production and processing. To a lesser extent, innovation is taking place even in some of Tuscany's most traditional products sectors, such as, for instance, olive oil. Thus, traditions are maintained at the same time as they are modified in line with new consumer expectations. Second, the market is changing. In particular, large numbers of affluent consumers from outside the region are entering as tourists to sample local food products. This movement has been bolstered by the extensive provision of agri-tourist facilities (which also serve to give the farm household an alternative source of income, perhaps maintaining their involvement in the provision of local products). Again, change and continuity go hand in hand.

As innovations and change occur in the production and consumption spheres, Tuscany may have to face new challenges and threats. Our *lardo di Colonnata* case study, for example, reveals the existence of a tension between the localized quality of a product and the scale of global demand. Potentially, this may lead the region to face a 'conventionalization' of the agri-food sector. As Guthman (2004) argues with regard to California's organic sector, and as we will describe in Ch. 5, this is a process of appropriation of the most high-value crops and the most lucrative segments of an alternative food chain by agri-business firms. This would lead to 'agro-ecological enfeeblement' (Guthman, 2004: 310), such that the alternative sector would cease to be substantially differentiated from the conventional one. For instance, as Guthman (p. 312) suggests, if expectations of intensification become embedded in land values, the cost of land would make conventionalization hard to resist.

To deal with these threats, as we have described in this chapter, in recent years regional authorities have developed a loosely defined concept of the Tuscan model. Beyond rhetoric, this concept has provided a regional platform around which Tuscany has successfully built a significant degree of consensus among different actors over the future of its agri-food policy. As stated above, this has promoted a bottom-up approach to agri-food development which has given all stakeholders some degree of ownership over the policies implemented.

However, it is important to consider that Tuscan farmers, like all farmers, operate within a larger political economy. The region has been successful at shaping its own model and creating an institutional fabric that supports it. Yet, for this model to become sustainable, political interventions are needed at scales beyond the region. In the context of an increasingly complex regulatory structure such as the one we have described in Ch. 2, only a concerted action involving the national and supranational levels can realistically prevent threats such as the 'Californiaization' of Tuscany.

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California: The Parallel Worlds of Rival Agri-food Paradigms

Introduction: Separation or Integration?

The aim of this chapter is to explore the nature of the contemporary agri-food worlds—the conventional and the alternative—in California. More specifically, we ask: what are the variations within each world? What sources of contestation are leading to (1) convergence and potential appropriation by the dominant agri-industrial complex; or (2) separation and real ecological modernization; or (3) a sort of coexistence and spatial multifunctionality and regulation of the two systems?

In this chapter we make some preliminary assessment of the agri-industrial pathway that distinctively marks out California as one of the most highly productivist¹ agrarian regions in the world. This region has applied successive waves of capitalist and endogenous development, with or against a series of 'obstacles'. As the literature has traditionally emphasized, the history of agri-food in California is the history of a tension within a regional brand of agrarian capitalism continually wrestling with its own contradictions between economic accumulation and social legitimacy.

The chapter first examines the historical and contemporary dynamics of the agri-industrial paradigm as it has played itself out in this bountiful but peculiar agrarian space. Specifically, it describes how the agri-food system in California has (quite successfully) attempted to overcome 'the obstacles' of what we term 'first', 'second', and 'third' natures. More so than any other region, California has developed since 1849 an agri-industrial dynamic that continues to exploit its natural and social conditions in ways that sustain an exceptional and endogenous form of 'agri-cultural economy'.

After exploiting the natural resource 'initial endowments' through a very effective 'extractive' mode (i.e. 'first nature'), the agri-industrial paradigm assembles a specific form of fictitious circulation of capital, goods, and services. This creates a 'second nature': a longstanding framework of flows

¹ 'Productionism' is used in this chapter to refer to the overall food system orientation which is geared to maximizing production through the setting up of regulations, production and marketing arrangements throughout the food supply chains. 'Productivism' holds a narrower connotation which refers largely to (primarily) farm-based increases in both the scale and intensity of land-based production.

of capital and labour, infrastructure and technologies, which provide a superstructure for the state to overcome the well-documented obstacles of labour and production time in the agri-food sphere.

However dominant or celebrated this peculiar model becomes at the end of the twentieth century, we see another set of profound challenges ahead. These are 'third nature' obstacles which were in part created out of the very success of a century of Californian agri-industrialism. Ranging from consumer and environmental pressure to the rising power of corporate retail capital, these concerns create a new dynamic terrain for the agri-industrial system that we analyse here by looking at the fruit and the dairy sectors.

The second part of the chapter examines the quite longstanding struggles of alternatives against the prevailing paradigm in California. At the very least, it is suggested that these represent a new 'space of articulation', one which may be less coherent, but which shows some signs of 'autonomous relocalization'. This dynamic is producing a more variegated set of producer-consumer linkages in agri-food, suggesting that there may indeed be two Californian agri-food worlds.

Seeing the Exploitative Vista

Speaking at the Californian State Agricultural Society in 1889, William H. Mills, a land agent for the Southern Pacific railroad, foresaw the significant global comparative advantages that existed for Californian agriculture (quoted by Stoll, 1998):

the competition of soils and climates is immediately present. . . . In these markets, we see the fertility of the soils and the favouring conditions of climate competing with the environment of every other portion of the world. . . . In every market there are immediately present the effects of the system of labour, the methods of production, the favouring conditions of soil and climate; they meet face to face; distance no longer divides them. Their economic presence has become equivalent of physical contiguity.

Mills claimed that California could become the 'orchard of the world' and that it was turning the von Thunen principles of distance on their head. In short, it was making a fool of distance and nature as barriers to agricultural development. By the 1930s, as Stoll (1998: 181) argues,

California fruit business represented industrial farming at its apex: the almost complete separation between farm production and consumption and the dedication of soils in a vast region to consumers far away. Though nature presented a set of ecological options making possible a great diversity, the growers' particular reading of nature led them to plant a limited number of plants in monocultural strands. Determined to enjoin California with the emerging national economy, they invested in labor practices, chemical inputs, and market-organisations intended to sustain specialised crops. People and nature served the growers in a singular capacity, but the growers refused to serve either in return.

These initial endowments set in train a course of dynamic agri-industrial development. Many writers have documented the innovative and distinctive features of this 'Californian model' (Allen, 2004; Walker, 2004), which is seen as representing the leading US agricultural region in terms of production and value, as well as being the premier home of alternative and food security movements. As such, the California model provides us with a distinctive and valuable insight into a world of food where the intensity of the 'battleground' between the alternative and the conventional is at its highest. To explore the architecture of this battleground, we will focus in particular on the power relations in the Californian agri-food system.

California as an Innovative Region: First, Second, and Third Natures

First Natures

In his fascinating agrarian history of California, Henderson (1998) admits that any student of the state faces the problem of the sheer complexity of its agricultural space. A kaleidoscope of varieties of crops has been grown, usually at productivity levels which far exceed the US national averages. Indeed, as Henderson argues, the unevenness in natural conditions and in the social and economic frameworks built up in certain places and in certain sectors stimulated capitalist accumulation through intensive agriculture.

Beginning with wheat in the gold rush era, sustained productivity increases were yielded on the back of the technological innovations, which were first and foremost based upon a unique set of 'first nature' physical endowments. Stoll describes how Californian agriculture took advantage from the start from being located 'in the rain's shadow':

the Pacific High regulates the rain, but the mountains allocate it. Storms from the ocean drop some of their moisture on the coastal plain before encountering the Coast ranges, a series of parallel ridges that run north-south, from Los Angeles to the Oregon border. . . . Parallel ranges traversing the state create hundreds of valleys. Much of the state's agriculture came to be conducted on these grass-covered prairies in the years after the American takeover, and the gold rush of 1849.

The great valleys, the Salina and Santa Clara south of San Francisco, the Napa and Sonoma to its north, the Orange and Los Angeles to the south, and those composing the Central Valley, which runs north-south for 450 miles, contain the river basins of the San Joaquin in the south, the Sacramento in the north, and the Delta area abutting San Francisco Bay. These arteries and valleys provide variable but rich bases for intensive agricultural development and specialization. Bounded by the Mexican deserts to the south, the Sierras and Nevada to the east, and the forests to the north, California came quickly to represent a sort of agricultural island, distanced from the rest of the US in

terms of markets but with its own geophysical features which allowed for commodity specialization across different climatic zones (Bill Friedland, personal communication, 15 March 2005).

These first natures became the basis for capitalist agricultural development, which intensified production and raised productivity in California well beyond other regions in the US. By 1930, California was the greatest fruit-growing region, contributing between 60 and 100 per cent of the US production of table and raisin grapes, apricots, prunes, lemons, figs, almonds, and walnuts. By 1955, the average yield of tomatoes and cotton was twice the national average; milk per cow was ahead of all other states; and by 1980 strawberry yields were five times the national average.

First-nature natural resource exploitation was, then, central as a starter for agrarian capitalist development in California, and it was integrated with the exploitation of minerals and forest lands and the parallel developments of urbanization. Following Cronin's (1991) classic account of how Chicago became the centre of regional commodity circulation in the Midwest, profiting off the circulation of wheat, lumber, and meats from the surrounding rural areas of Wisconsin and Illinois, Walker (2001) documents the peculiar, but dramatic evolution of 'Californian capitalism' as it is based upon intensive but variable forms of resource exploitation. It was an exploitation of first natures, and one that sustained itself by creating the superstructure for a second nature.

Second Natures: Circulating Capital, Commodities, and Technologies

While the natural advantages and bounded geographies of California may have first stimulated its peculiar path of agrarian capitalism, it has been the dynamic social development of its organising forms, its private property rights, its generalized and liberalized market structures, its wage labour arrangements, and its flows of finance and money capital between the urban and the rural that instituted a framework within which such resource endowments could be further capitalized. Once the chief obstacle to the imposition of white individual farm occupancy had been removed (with the half a million indigenous residents reduced to 10,000 within a century), a 'free' system of labour (which involved large imports of migrant Mexican labour) and competitive markets could unfold quickly. Small settler farmers proliferated from the 1880s to the 1920s as extensive arable and grazing lands were broken up for more intensive systems of fruiticulture and dairying (Liebman, 1983). These macro trends hide the development of social struggles between extensive and irrigated lands and a variety of ownership and labour patterns that emerged in different parts of the state.

By 1925, there were 136,000 farms and many of their occupants were of urban origin, innovators and experimenters who had strong links to urban

finance houses. While the rural spaces were to be the domain of the petit bourgeois family farmers, their wealth was banked and circulated back into reinvestments in agri-business and capital stocks associated with the burgeoning financial centres of San Francisco and Los Angeles. In short, an agri-industrial complex was born. Karl Marx, writing in 1880, recognized the importance of the rapid centralization of capital taking place in California (quoted by Walker, 2001: 1900): 'California's regional capitalism was a mighty engine of resource discovery, extraction, cultivation and plunder that left no stone unturned in its efforts to wrest the maximum reward from the land.' Walker sees this as a 'pure' form of capitalist development that not only held the three key features outlined by Marx—private property controlled by a capitalist class, the exploitation of wage labour, and monetary investment for profit—but is also qualified by three distinctive regulatory features or infrastructures. These include: (1) the expansive and expansionist notion of agrarian commodity systems (and their attendant social division of labour); (2) the vital relation and transformative effect on nature in production and commodity circulation; and (3) the distinctive social organization of production and the business management side of the industry. From the 1850s, California became the first and most complete example of industrialized agriculture (Jelinek, 1982), which promoted an agri-industrial complex based on a hierarchical and diverse division of labour, from the farm to the factory. This created an 'integrated business system' which involved the flow of materials through commodity chains (Friedland, Barton, and Thomas, 1981), the interaction of different elements of the agri-industrial complex and the organization according to modern business practices.

Another distinctive feature was the lack of social resistance to the onset of this new agrarian capitalism. Unlike other regions of the US, such as for example the Midwest or the East Coast, where settler agricultures based upon family farming preceded the development of agri-business capitalism (see Friedmann and McMichael, 1989; Guthman 2003), California lacked the history and sunk costs of 'pre-capitalist' farming communities. Its 'island status', initially at least, reduced large-scale social resistance to its agricultural revolution.

Even though, as we shall see below, alternative visions and 'paradises' of small-scale agriculture, such as small horticultural enterprises at the end of the nineteenth century, the New Deal of the 1930s, and the organic movement of the 1990s, periodically emerged, these movements are all compromised into variants of an agri-food complex built upon a super-productionist paradigm. In this sense, California represents a quintessential exemplar of super-productionism, whereby, as we discussed in Ch. 3, the production sector is designed to produce more and more and the processing and retailing sectors tend to design and sell more and more. In California, this led to the 'redesign' of plants and animals and the scientific reconfiguration of first natures' outputs.

For Henderson (1998), this capitalist agrarian experience (of *second nature*) in California turns much of the principle of the widely recognized distinctiveness of agrarian capitalist development on its head. Following Kautsky (1988), as we explained in Ch. 3, the Mann and Dickenson thesis (1978) has long explained the persistence of relatively non-capitalist production forms, such as family labour and individualized property rights, as a function of capital's inability to reduce the gaps between 'production time' and 'labour time' in agriculture. The simultaneous rise of regional finance capital and agricultural capital in California suggests that disparities between labour time and production time can in fact become new opportunities for capitalist development. According to Henderson (1998: 32, emphasis added):

this same nature-centred production poses opportunities for capital precisely because [capital] must circulate and precisely because the disunities of production and working time (necessitated by natural processes) and capital's time in circulation (in part, nature as distance or as space) exist. That is, if these things exist for potential capitalists *as a cost to be averted*, then they exist as an *investment for capitalists* looking to fund anyone who does get involved in having to cover the cost.

It is this integration among finance, agricultural, and agri-business capital that lies behind the sensational growth of Californian agriculture. The geography of credit takes on a special importance here. Its role was crucial in transforming many farmers into what Henderson calls 'capitalist-labourers' who functioned at times as a deployer of capital and employer of labour and at other times as a more or less proletarianized labour source for the owners of credit. What becomes significant in the Californian case is the degree and type of capital circulation and whether that circulating capital confronts a 'capitalist-labourer' farmer or a migrant labourer. In this sense, capital again confronts (second) nature, that is, nature in the form of the human body. As Henderson (p. 41) argues: 'workers are sets of biological processes and energy flows for which capital has only partial substitutions (robotics). They are themselves obstacles to capitalism. Bodies persist. That they are waged bodies is a capitalist solution. That they are waged bodies is a capitalist problem.'

For Henderson (1998), there are always partial solutions to the problems thrown up by capitalist circulation. For instance, the specific circulation times of capital and credit, work as human and mechanical labour, and the vagaries of nature give rise to the specific and variegated geography of Californian agricultural production. As Mitchell (2000: 474) summarizes:

patterns on the ground do not autonomously give rise to other patterns, rather, complexly intersecting patterns of circulating money, bodies and nature create new patterns—new obstacles and new opportunities... only overcome or realised as the result of never-ending struggles as to who is going to control the point of production, the point of credit, and the point of labour reproduction... Human agency sits right at the centre of Henderson's theory of regional development: the decisions of

innumerable actors as they interact with shifts in capital, processes of nature, and unruly bodies continually mold the logic of capital, commodity and labour circulation.

For example, in the early 1920s San Francisco's Anglo and London National Bank became a broker and promoter of irrigation district bonds. As Henderson (1998: 122) explains, 'the borrowed money becomes a part of the [irrigation] industry's productive capital... the installation of an irrigation system is a capital investment such an industry might make—and results directly in the creation and addition of new wealth to the security back of the debt'. For Henderson (1998) this represents an example of the 'geography of fictitious capitals over supra-local space'. In the process, the meaning of nature changes:

nature has in a sense led the district's farmers to over-accumulate periods of slow turnover—therein the investors' opportunity. But it is not so much the direct transformation of nature that constitutes the opportunity. Rather they rely upon a broadly differentiated space of 'second nature', the geography of human-produced differential rents—sites of different capitals in different locations, circulating along varied timelines and producing different 'needs' and different 'yields'.

Fresno County, for instance, from the early days functioned as a rural centre of production within a wider matrix of flows of commodities, labour, and capital. In the change from an arable and beef-producing area to one of intensive fruit cropping, finance capital was a key agent. When farmers needed to obtain credit to expand production or to manage the disunities between production investments and working and growing cycles, they turned to the (often, grain-based) financiers in the San Joaquin Valley or in San Francisco. The latter was the main financial centre, a regulatory centre and a transportation centre for the grain trade. Capital mobility in agriculture was thus highly developed by the start of the twentieth century, with rural banks keeping deposits in San Francisco and the gold and silver reserves being quickly translated into cash for investment and credit bonds.

This regionally mobile development of urban and rural-based credit fuelled the productivism of Californian farming and stimulated the development of mechanical technologies and the capitalization of the land, not least through irrigation technologies. Privatized forms of credit and finance capital became the main 'regulator' of the countryside and encouraged greater and greater local and regional specialization. Finance capitalized the land, forcing producers to get as much production as possible from it. This major dimension of regional development throughout the twentieth century also facilitated the growth of agri-business firms.

The state government played a supportive role for capital and agri-business by developing educational, research, and extension programmes to enhance production and make innovations. This publicly funded knowledge creation was rapidly applied to commodity specialization, especially after the

