INTRODUCTION

This paper explores the role of agriculture in the development of the capitalist world economy, and in the trajectory of the state system. At present, when food security and foreign debt command policy attention, it is useful to examine the assumptions behind attempts to build up national agricultures in Third World countries. We maintain that these assumptions, when considered from a world-historical perspective, have certain shortcomings in theory and real obstacles in practice. Our argument is that contrary to the prevailing development model of the ideal national economy in which agriculture and industry complement one another dynamically (Rostow 1960; Johnston & Kilby 1975; Senghaas 1988), the historical relations between 'agriculture' and 'industry' have been rather more fluid and global in scope.

The very distinction between advanced capitalist and underdeveloped or peripheral economies assumes that the former, in contrast to the latter, are articulated, that is, the main growth dynamic derives from intersectoral exchanges within the national economy (Amin 1974; de Janvry 1981). We argue, however, that this unexamined assumption applies possibly to one nation-state only, and then only for a brief historical period in a context of growing transnational capital movement that has increasingly precluded the model's extension to other countries. This case is the United States, in which agriculture was a source of demand for domestic industry during the period of protectionism accompanying late nineteenth century British hegemony and its decline through to the end of the Second World War. Yet even then US agriculture was principally export-oriented. The ideal of national inter-sectoral balance nevertheless stems from this historical conjuncture, and gained currency with the rise of American hegemony and the proliferation of modernization and dependency theories that generalized the American model.

Our goal, then, is to reconstruct a preliminary history of agriculture to shed light on its impact on the state system, and thereby to offer a critique.
of the nationalist presuppositions that inform the literature on development and dependency. We begin by attempting to complement and enlarge the picture of nineteenth century European industrial specialization as the basis of the modern nation-state. Specifically, we argue that a condition for that specialization lay in the relation of settler agriculture to the maturing of a state system centred on Europe. We then trace this link between the state system, national economic organization and commercial agriculture forward into the twentieth century. Two basic processes are at work: the development of a system of independent, liberal national states, and the industrialization of agriculture and food. We argue that each was the condition for the other in the period 1870 to 1914, but that accumulation by agro-food capitals has in the late twentieth century so subdivided and restructured agriculture everywhere – on the basis of highly protective state policies – that the capacities of states and the state system for further regulation are in question.

We conceptualize nineteenth-century nation-state formation as a systemic process, in which settler states played a key role. Exporting temperate crops competitive with European agriculture, the independent settler states: (i) provisioned the growing European proletariat with wage-foods, and (ii) became the basis of a new type of trade within a new international order, alongside the colonial relation whereby metropoles directly administered (complementary) tropical export agriculture. As we shall argue, these were competitive relations among politically independent national economies, with ecological and social characteristics favouring similar ranges of products. The new international order encouraged a movement towards not only comparative advantage, as an apparently automatic mechanism of specialization. It also favoured the displacement of colonial spheres encompassing geographically vast and disparate regions – all centrally administered from London, Paris and other metropoles – by autonomous, self-governed national economies. The US exemplified the national economy balanced between agriculture and industry.

An agro-food complex which emerged in the US in the nineteenth century became an important basis for US hegemony in the twentieth century in two ways: (i) US grain exports/food aid underwrote the completion of the state system in the previously colonized regions; and (ii) as agriculture became an industrial sector (shifting from final use to industrial inputs), US corporations led a process of transnational accumulation which doubly undercut the independent capacities of states to regulate domestic production and trade. First, even as the former colonies became independent states, their economic basis in tropical products was subject to systematic substitution by temperate or synthetic products. Second, even as the advanced industrial countries balanced and articulated their national economies by renationalizing agriculture, agriculture itself was broken into increasingly specialized sectors linked in input chains.
that crossed national boundaries to create food products marketed transnationally. In both movements agriculture became incorporated within accumulation itself, and states and national economies became increasingly subordinated to capital. We conclude that the growing power of capital to organize and reorganize agriculture undercuts state policies directing agriculture to national ends, such as food security, articulated development and the preservation of rural/peasant communities.

We organize our argument around the concept of the food regime, which links international relations of food production and consumption to forms of accumulation broadly distinguishing periods of capitalist transformation since 1870 (Aglietta 1979). It allows us to characterize late nineteenth century capitalism as an extensive form constructing capitalist production relations through the quantitative growth of wage labour; and mid-twentieth century capitalism as an intensive form reconstructing consumption relations as part of the process of capital accumulation – with particular consequences for agricultural production. In the first food regime settler agricultural exports produced by family labour underwrote the developing wage-relation and attendant growth of food markets. Thus settler agriculture was a political-economic centrepiece of the formation of metropolitan nation-states. In the second food regime, this relationship was extended to the post-colonial world. At the same time, however, metropolitan agricultures were undergoing reconstruction and international integration. Like the automobile industry, new durable foods and intensive meat industries became important for accumulation; each were central to the social and transnational restructuring of agriculture as a supplier of inputs. As a component of global political-economic dynamics, each food regime embodied two opposing movements – in the first, culmination of the colonial organization of precapitalist regions and the rise of the nation-state system; in the second, completion of the state system through decolonization and its simultaneous weakening through the transnational restructuring of agricultural sectors by agro-food capitals.

The link between the two food regimes is the US, in theory and in practice. That is, US agriculture needs to be understood as a distinct social form that at once revolved the European problems of cheapening wage goods at the expense of traditional domestic agriculture in the late nineteenth century, and anticipated the industrial agriculture of the twentieth century. We shall now offer a more detailed interpretation of the dynamics of the two food regimes.

THE FIRST FOOD REGIME

The first food regime was centred on European imports of wheat and meat from the settler states between 1870 and 1914. In return, settler states
imported European manufactured goods, labour, and capital – especially for railways (Thomas 1973). These inter-national – and multi-lateral – trade relations were qualitatively different from the exclusive trading monopolies of the European colonial system, which integrated colonial export production into metropolitan economies through direct political administration by colonial branches of European states. The first food regime was, therefore, a key to the creation of a system of national economies governed by independent states. This movement – creating the system of states governing national economies and the flows among them – was, however, only one of two simultaneous and contradictory movements:

1. The culmination of colonialism. In the closing decades of the nineteenth century, metropolitan states moved to extend their spheres of formal colonial administration in a final scramble for empire. This was the apogee of a centuries-old system of politically-organized colonial empires. As new nations challenged British world power, one – the US – a settler state, the other – Germany – a long-standing European rival, Britain retreated to empire, moving investments and trade both into tropical colonies, and more significantly, into settler states such as Canada and Australia, which were keys to the emerging nation-state system. Thus the revival and culmination of colonialism was completely implicated with the national rivalries of the second, more recent movement to an international state-system. In a contradictory way, the culmination of the colonial principle was the first expression of the conflicts of the international system.

2. The rise of the nation-state system. The settler states anticipated an alternative organization of world economy, both in political and in economic terms. In contrast to the colonial system, with the colonial service an arm of the metropolitan state, settler nations developed representative governments which regulated the national economies within their jurisdictions. Their relations to European states and economies was the basis for the first real international system. The old complementarity within the traditional colonial exchange, between metropolitan manufactured goods and exotic products, gave way to a new trade of competitive temperate agricultural products and manufactures. A truly international division of labour emerged as settler states replicated European agricultural production – and industry – on a more cost-efficient basis appropriate to the large-scale provisioning of the growing European working classes.

The culmination of colonialism

The colonial scramble in the late nineteenth and early twentieth centuries extended colonial rule to the remaining parts of Asia and Africa. The
European powers subdivided Africa, British colonial rule extended to Burma and Malaya, and France secured its Indo-Chinese empire. Meanwhile the United States colonized the Philippines, Hawaii, Puerto Rico, and Japan annexed Korea, Formosa and Manchuria (Kenwood & Loughheed 1970: 155; Hobsbawm 1987: 58). The culmination of colonialism came hard on the heels of the opposite movement, in which settler colonies—Canada, Australia, New Zealand—gained political independence and with it the capacity to enact tariffs and other controls over their political-economic frontiers, indeed to raise capital to expand those frontiers.

In contrast to colonial 'settlement', colonies of 'occupation' were subjected to direct metropolitan rule. This final phase of colonialism was inspired by the new political rivalries and capacities (military, financial) of the interstate system. As Arrighi argues: '. . . within the couplet Nation-State, it was the State and not the Nation that was now expanding' (1978a:37). Here, European states encompassed dependencies within a centralized bureaucratic complex that administered colonial affairs from the metropole. This was a departure not only from settler colonialism, but also from earlier phases of occupation: England had once granted the East India or the Hudson Bay Company political and military powers over colonial territories.

New developments in communication (telegraph and transport) and the professionalization of the colonial service made possible an extension of the metropolitan state itself in the colonial administration. Regardless of varying constitutional arrangements among the colonizing states, 'effective power was generally concentrated in the centre . . . (and) was held by executive departments rather than representative legislatures' (Fieldhouse 1966: 375). In the territories governors ruled with advisory councils and administrative departments subject to metropolitan supervision, with little or no input from colonial subjects (Fieldhouse 1966: 377). In short, the dependencies were administered by fiat, as extensions of metropolitan bureaucracies geared to the control of colonial subjects and the organization of economic resources according to metropolitan requirements.

Late nineteenth century colonialism expanded the supply of tropical products to metropolitan economies. The composition of metropolitan imports changed over the long period of the rise of European colonialism. At the outset was the early spice trade from Asia, supplemented, by the eighteenth century, with textiles (cheap cottons and expensive silks), perfumes, drugs, wines, dried fruits, sugar and tobacco, tea, coffee, cocoa, slaves, precious metals and stones, ivory, fur, dyes and saltpetre, porcelain and metal work. In the nineteenth century colonial administrations undertook to organize and extend systematic production for export of sugar, tobacco, coffee, tea and cocoa for expanding European markets (e.g., Mintz 1986). Tropical products were raw materials for industry, for
example, cotton, timber, rubber, indigo, jute, copper, and tin, and articles of mass consumption by industrial workers of vegetable oils, tea, coffee, sugar and bananas (Woodruff 1967: 264-8). The distinctive feature of this trade was the complementarity of colonial exports to metropolitan economies – a geographical and climatic specialization that gave life to the prevailing liberal theory of capitalism as a system most efficiently organized through a global market based on regional specialization.

The economic role of colonial expansion at this time has been the subject of much debate, usually in response to Lenin's theory of colonialism (1965). Certainly, most foreign investment in this period concentrated in Europe and the Dominions (Brown 1976: 193), and 80 percent of European trade in the nineteenth century concentrated in the metropolitan world (Hobsbawm 1987: 73-4). However, more than a matter of economic statistics, colonial annexation was a simultaneous movement of global partition by a handful of rival states attempting to secure their geo-political position in what was now a 'single global economy' (Hobsbawm 1987: 62). After the weak profits during the 1870s' Depression, rivals to British hegemony moved to guarantee markets for nationally organized business, in addition to gaining access to tropical products required by new technologies and new mass diets (Hobsbawm 1987: 63-4). In turn, Britain militarily enforced a 'world-wide freedom to trade and invest wherever her traders and investors wished' (Brown 1970: 88).

In short, late nineteenth-century colonialism, which reproduced direct metropolitan political control, simultaneously expressed new dynamics of the emerging nation-state system. The very scale of world partition demonstrated the competitive capacities of a reconstituted industrial state system with greater military and financial powers. In this way the opposing movements of the nineteenth century – the culmination of colonialism, and the emergence of the nation-state system – mutually conditioned one another.

The rise of the nation-state system

While European statemaking in the closing decades of the nineteenth century combined colonialism with national integration, the settler states more clearly embodied the national movement. That is, they enhanced the competitive principle in the emerging nation-state system. Whereas the colonial movement re-divided the world economy into vertical power blocs, subordinating agricultural hinterland to industrial metropole, the national counter-movement reformulated the relation between sectors as internal to each national economy.

The national organization of economies took two, related, forms: (i) the relocation of some temperate agriculture to settler export regions, and (ii) the use of protective tariffs to allow the commercial transformation of
domestic agriculture by France, Germany and Italy, reinforcing the national economy as an interchange between domestic sectors. While all settler states thrived on export agriculture in this period of industrialization, the trajectory of the post-bellum United States most clearly exemplified the domestic integration of agriculture with industry. Such balance or articulation defined the model of successful national economy informing later twentieth century political-economic thought (Amin 1974; Senghaas 1988).

The double movement of the nineteenth century stemmed from Britain’s reconstitution of the world economy. In effect, the ‘workshop of the world’ model projected a colonial division of labour into the international system. It is not surprising, therefore, that it stimulated a nationalist response by rival states. British hegemony involved opening up formerly protected colonial markets to world trade. The free trade regime worked through both force and diplomacy, based on a superior industrial commerce, and an infrastructure of circulation centred on the London discount market with sterling as international currency (McMichael 1985).

National states competed on British terms of political and commercial liberalism because national prosperity could no longer be assured by mercantilist doctrine and practice. After defeating the popular uprisings after the 1840s’ economic crisis, the states of continental Europe extended commodity relations and reformed political and administrative structures. They sought both to co-opt political unrest and to stabilize state revenues with a uniform tax base. Establishment of constitutional government, reforms of the civil service, public education and regulation of commodity relations (for instance, central banking) constructed the political framework for making capitalism national. These active state measures underpinned the economic liberalism of the third quarter of the nineteenth century, which promoted mobility in land, labour (including migrants), capital and commodities (Polanyi 1957). Paradoxically, to the extent that such national reforms intensified world commerce, British hegemony grew. The construction of national economies, and, indeed, nation-states, thus occurred within, and then against, world market relations (Radice 1984: 117).

Competitive trade expanded in the third quarter, putting pressure on profits (Arrighi 1978b), stimulating rival states to protect national markets for industry and expand colonial blocs. Competition from settler agricultural exports stimulated a long-term European movement to protect domestic agriculture. Even as Britain’s hegemony declined, the sterling/gold standard assumed an international regulating function because of London’s axial role in world trade. It constrained all states to stabilize foreign exchanges by maintaining sterling balances in London, and to regulate their national currency and domestic budgets according to their interna-
tional trading position (Polanyi 1957; Phillips 1977). Precisely because of sterling's role, Britain retained its ability to organize world markets through the manipulation of these balances to maintain liquidity in the multilateral trading system (Cecco 1974: 121). While protectionism certainly ended the monocentric world economic order of Britain's free trade era, it did not eliminate trade (Fieldhouse 1966: 374). In short, national and international relations reproduced each other through the construction of national capitalism as a contingent outcome of British hegemony (McMichael 1987b).

Thus the national framework of capitalism, itself contingent, was the basis for replacing colonial with international specialization. Both must be seen in context of the defining feature of capitalism, the wage-relation. In the 1840s, Britain allowed free grain imports (mainly to reduce wage costs) and exported capital goods (notably for transportation). Both reorganized and unified world economic relationships. The rise of a truly international trade broke through the limits of the colonial trade in tropical goods and handicrafts, establishing a world trade in industrial products governed by world prices (Woodruff 1987: 286). This included the large-scale settler production – commodity production paradoxically based on family labour – of wheat and meat, the dietary staples of the European working classes. World crop cultivation increased by 50 percent between 1840 and 1880, with North America and Australia accounting for half of this expansion (Hobsbawm 1975: 179), and from 1880 to 1914, international trade in primary products tripled (Hobsbawm 1987: 50). Facilitated by steamships and railways, international trade formed around the exchange of wage-foods, both temperate and tropical, for capital goods. Of course, tropical and subtropical industrial crops, notably cotton and other fibres, were equally important.

European imports of wheat and meat from the settler states, and exports of capital and people to organize production, were the core of the first food regime, geared to industrial capitalism. The settler family farm, which represented a new form of specialized commercial agriculture (Friedmann 1978) was itself industrial. Settler agriculture provided demand for emerging national industries in the settler states (Fowke 1957; Aglietta 1979; Post 1982). This was a new form of capitalist development: whereas the European metropoles had fostered proto-industry and colonial trade through mercantilist policies, the settler states at once defined national territories and established fully commercial – and integrated – sectors of production.

This reconstitution of the world economy as an international economy altered the content, if not the form, of the colonial division of labour and anticipated its long-term decline. Through the world market colonial producers experienced competition from goods produced through wage labour. Planters reorganized production along industrial lines – the 'sec-
ond slavery' (Tomich 1988; and see McMichael 1987a) for example, and the substitution of tropical products grew (e.g. French sugar beet). The intensification of colonial labour encouraged nationalist politics that began to call into question notions of natural complementarity between temperate metropoles and tropical colonial relationships. In this period lay the beginnings of a century-long movement of decolonization – from the Indian sepoy uprising to the surge of Caribbean independence coinciding with the incorporation of sugar into metropolitan working-class diets (Mintz 1986).

The major link in the reconstitution of the world economy was between goods – and regions – of wage labour and settler agriculture. Despite different weights of industry and agriculture, of domestic and export production, all major national economies now produced (or could produce) the same products. Wage labour expanded through the cheap wage-foods and raw materials flowing between nations within a unified, price-regulated world market. This facilitated the relocation of commercial agriculture from Europe to extensive settler frontiers. Imports allowed European capital to evade the limits to accumulation set by landed property through high food prices (Gerschenkron 1943; Murray 1984). From the other side it established a new type of commercial export agriculture as the foundation of new nation-states with distinctive patterns of capitalist development. Settler agriculture cheapened agricultural commodity production, via the political appropriation and colonization of new lands. Subsequent technical changes, especially mechanized harvesting, adapted settler agriculture to labour shortages. Specialized commodity production of cereals, with owner/producer congruence (Friedmann 1978), and capitalist pastoral estate production (McMichael 1984), were actively promoted by settler states via land and immigration policy, and the establishment of social infrastructure, mainly railways and credit facilities.

The resulting competition of cheaper grains from settler regions induced an agricultural crisis in Europe, particularly in large-scale grain farming (Tracy 1964: 25). The social consequences were urban distress and an agrarian mobilization to temper the effects of free trade (Rosenberg 1933). Economic nationalism followed as, faced with an altered balance of class forces (following political liberalization and industrialization) and fiscal crisis, states instituted protectionist policies. These included tariffs on industrial and agricultural imports (Kindleberger 1951), factory legislation and an active colonial policy. In this way, economic nationalism expressed world market forces. After several decades of war, experimentation and depression, the intensive commercial development of European agriculture finally complemented the industrial structure (Tracy 1976). Across the oceans, settler states introduced direct regulation of agricultural markets to help farmers cope with the collapse of international trade. Price supports and other market controls would eventually be
adopted in both Europe and the new nations formed through decolonization.

World agriculture of the late nineteenth century had three new relations with industry, all mediated through international trade between settler states and European nations:

1. Complementary products based on differences in climate and social organization gave way to competitive products traded according to Ricardian comparative advantage. Settler agriculture produced abroad the same plants and animals that were produced at too high a cost or with insufficient commercial development in Europe. This anchored the first international division of labour and underpinned a new phase of industrial development. Specialized agricultural sectors in the settler states set up a pattern of trade among nations which was fundamentally different from the colonial pattern. Complementary products based on differences in climate and social organization gave way to competitive products traded according to Ricardian comparative advantage.

2. Market links to industry clearly demarcated agriculture as a capitalist economic sector. In the language of Goodman, Sorj and Wilkinson (1987), industrial capital ‘appropriated’ phases of the agricultural production process. Chemical and mechanical inputs increasingly replaced the biological inputs produced internal to the farm in mixed farming. Extensive and monocultural agriculture in distant grasslands required industrial inputs to replace labour and the inputs cyclically generated in a rotational system of mixed farming. To these incentives to industry should be added the processing and global transport of agricultural products and the greater requirements of farm populations in settler regions for commercially produced consumer goods. Of course, railways were the most important investments of the period: they were the means by which states opened new territories, whose commerce in turn generated revenues from freight in both directions. Yet this agriculture was industrial mainly in its external links, purchasing inputs from industry and providing raw materials to industries doing minimal processing (flour mills, meat preservation). The clear boundaries between agriculture and industry would be undercut in the second food regime.

3. The complementarity between commercial sectors of industry and agriculture, which originated in international trade and remained dependent on it, was paradoxically internalized within nationally organized economies. The resulting home market for domestic industrial capital – the agro-industrial complex – represented in social thought the model of national economy. Even in post-hegemonic Britain it replaced the colonial principle of economic complementarity organized by a metropolitan state. Paradoxically, the idea of agro-industrial regions first appeared in the midst of the first food regime, with its
unprecedented international integration of inputs and markets for food. Alfred Marshall (1977: 228-231) argued that the apparent decline of agriculture relative to industry was illusory: workers and capital producing agricultural inputs, transporting and selling food on a larger scale, all created complex agro-industrial relations.

THE SECOND FOOD REGIME

The second food regime is a rather more complex and contradictory set of relations of production and consumption rooted in unusually strong state protection and the organization of the world economy under US hegemony. As US hegemony has declined, the basic tension between nationally-organized economies and transnational capital has been amplified. The present anarchy in world markets reflects a fundamental transformation of old patterns of international specialization. As in the earlier regime, there have been two opposing movements of the state system and international division of labour:

1. Extension of the state system to former colonies. Decolonization of Africa and Asia, like the earlier independence of Latin American nations, effectively destroyed the political basis for colonial specialization within protected trading blocs centered on the metropole. The expanded state system, which had originated in the agriculture/industry divide of the late 19th century, did not deepen colonial specialization (as is often suggested by the terms 'neocolonialism', 'periphery'). Instead, integration into the second food regime proceeded on two completely new fronts: a) importation of wheat from the old settler colonies, especially the US, at the expense of domestic food production, and b) decline of markets for tropical exports, notably sugar and vegetable oils, through import substitution by advanced capitalist countries.

2. Transnational restructuring of agricultural sectors by agro-food capitals. In contrast to frequent distinctions between articulated (developed or core) and disarticulated (dependent or peripheral) economies, the intensification of agriculture within advanced capitalist countries was accompanied by intrasectoral integration across international borders. Agriculture became an industrial sector as food increasingly shifted from final use to manufactured (even durable) products. Like garments and airplanes, the food sector increasingly became a statistical artefact, measuring the value of production but not reflecting the global sourcing and assembly that underlay the final product (Froebel, Heinrichs & Kreye 1981). All national economies, not only peripheral ones, were compromised. The key complex integrating advanced capitalist economies was, in addition to the durable foods complex mentioned above, intensive meat production.
Extension of the state system

The first movement, decolonization, broke up the colonial trading blocs, with their politically constructed specialization, and completed the state system. Yet as new states were created, their first economic goal, like that of their earliest predecessors in Europe, was to establish a national economy based on commodity relations as an effective base for political control and taxation. Also like the European experiences of statemaking, this involved force both to secure frontiers and to convert communities based on traditional, local rights and practices in the production and distribution of food into units – usually households (Harris 1981, Roseberry 1986) – amenable to taxation and commodity relations (Tilly 1975).

The late twentieth-century variant of nation-state formation, however, was unique. The United States as a state had a political interest, passed through the filter of competition with the Soviet Union, for influence over new states, in encouraging independence from European powers. At the same time, as a hegemonic power it had an economic interest in incorporating these new nations into international trade. Although tropical export production continued, the restructuring of trade better expressed emerging relations within the expanded state system in the decades after World War II.

On the import side there was a conjunction of interests between the US, which sought to find new markets for its ever-increasing wheat surpluses, and new states, which sought cheap food to facilitate industrialization. While European import substitution policies deprived all settler states of historic grain export markets (first through the Marshall Plan, and then the EEC), only the US had the ability to act on its interest in selling wheat in the Third World. Its economic power was expressed through the dollar as world currency. This underpinned the main mechanism for redirecting wheat trade towards Third World countries despite their lack of dollars, concessional sales in American-held non-convertible national currencies (counterpart funds).

Newly independent states, for their part, for their own reasons and with encouragement from international agencies, generally adopted cheap food policies as part of industrialization programmes, and welcomed US wheat when it came as foreign aid. Even when it didn’t, the downward pressure on world prices by constant American dumping through aid gave imported wheat a price advantage over domestic grains. Thus proletarianization in the Third World far from depending on national food markets occurred through imported American wheat, at the expense of domestic agricultural production. Cheap American grain led to the displacement rather than the commodification of traditional foods (for empirical evidence, see Friedmann 1982; 1987).

This thread of the second food regime was distinctive not only in its link
of American (and eventually other) advanced capitalist farmers to Third World consumers, and not only in its notable effects on proletarianization and import dependence, the two most desperate features of food and agriculture in the South. It remained outside the main organizational changes of capital in the agro-food sector. To a notable extent before 1973, the grain companies remained merchant in form (Morgan 1980), and family grain farms were not directly incorporated into agro-food complexes to nearly the same extent as the specialized production of other agricultural commodities. Both merchant capital and family farms survived by selling to the new proletarians in the Third World.

In the 1970s, banks extended credit to expand this relation at both ends. Farms increased investments, often by expanding land, and Third World countries borrowed to finance imports of (among other things) food. This extravagant expansion of the system was inspired by the very thing that was undermining it permanently. The dramatic price rise of wheat, that at once produced a price boom for farmers and a foreign shortage crunch for Third World importers, was precipitated by the huge Soviet-American grain deals of 1972-73. The isolation of the Cold War trading blocs had been a stabilizing condition of the second food regime. Yet the difficulties of food import dependence, and the potential political crises of new proletarians in Third World countries, were not balanced by expanding markets for American farmers. Other countries, not only the traditional wheat export competitors, but also Europe, began to compete, using export subsidies and all the other items in the American inventory of international commercial strategies. Prices plummeted, and with them the inflated land prices of the speculative boom, inducing a debt crisis in the grain heartland.

Transnational restructuring of sectors

The completion of the state system occurred simultaneously with the transnational restructuring of agricultural sectors. The sectoral boundaries started to blur through (i) intensification of agricultural specialization (for both enterprises and regions) and integration of specific crops and livestock into agro-food chains dominated at both ends by increasingly large industrial capitals; and (ii) a shift in agricultural products from final use to industrial inputs for manufactured foods.

Restructuring mainly occurred through two large complexes: the intensive meat complex and the durable foods complex. The intensive meat complex integrated newly specialized agricultural sectors— notably separate animal and grain producers and the dramatic introduction of vast acreages of soybean production— across national frontiers. Integration occurred first among advanced capitalist countries, then incorporated certain peripheral and even state socialist countries (and marginalized others).
The durable foods complex changed food from a local, perishable set of ingredients to a widely marketed manufactured set of products with a long and hardy life. After meat the most important inputs to manufactured foods as a whole are sweeteners and fats. These had specific effects on the Third World. Global sourcing and generic substitution of sweeteners and fats, led to import substitution (already partially implemented through domestic production of beet sugar and various vegetable and animal fats) of traditional colonial exports to the centre. Meat products are its major input by value, though this is now subject to substitution through a generic protein category that includes, for example, processed soybeans.

Like the automobile, meat was a key product in the mass production and consumption of standardized products that provided the central dynamic of post-war capitalism in advanced capitalist economies; and like petroleum, as Bertrand et al. (1983) and Berlan (1987) point out, soy was a critical input to mass production. So was hybrid corn (Kenney et al. 1987; Kloppenburg 1988), supplemented by increased production of other coarse grains. Beef, the symbolic centre of the post-war diet, after staying steady for the first half of the century, increased 50 percent after 1950. Much more impressively, poultry consumption per person, also steady from 1910 to 1940 at about 16 lb/person, increased almost 45 per cent between 1940 and 1950, and almost tripled to 70.1 lb/capita in 1985 (Kenney et al. 1987, Tables 3 and 5). To supply this consumption livestock producers were increasingly linked to corporate purchasers that processed and distributed livestock products on an ever-extending scale geographically and socially. (This was parallel to the geographical concentration of fresh, canned and frozen fruits and vegetables distributed through national and international marketing systems.) Corporations collected, graded, packaged and distributed meat, eggs, and milk; manufactured traditional products on an increasing scale and created new versions of cheese and meats preserved in various ways, and manufactured entirely new food products and meals containing livestock products as ingredients.

During World War II, with the encouragement of the US state, the breeding and rearing of livestock, especially poultry, was transformed (with varying degrees of success and speed) from handicraft and extensive techniques of husbandry to intensive, scientifically-managed continuous production systems. From the input side, increasingly concentrated livestock producers required feedstocks and many other goods and services. Manufactured feeds were purchased from corporate manufacturers which sold only mixes of protein and caloric and other ingredients, a practice which originated in order to evade the price scissors created by US price supports for soybeans and price maxima set for soycakes by the American Government as part of a policy to intensively restructure wartime meat (especially poultry) production (Bertrand et al 1983: 46-50; Berlan 1987;
The chain extends backwards to suppliers of feed manufacturers: farmers producing specialized crops of soybeans and hybrid maize who also adopted capital-intensive production techniques. Thus the intensive meat complex created a new specialization at farm and regional levels between livestock production on one side and on the other, the components of manufactured composite feeds – soybeans for protein and coarse grains, especially hybrid maize, for carbohydrates. Thus agriculture was separated and recombined by capital, mainly through contracts tying soy, maize and meat producers to corporate processors.

The increasingly complex and commercial linkages which centred on the expanding feedstuffs industries were at the same time international, deeply implicating farmers in a new meat complex that leapt the frontiers of advanced capitalist economies. The key was the concentration of soy and hybrid maize production in the United States. Partly this was a strategy to compensate for the loss of European markets for wheat (Morgan 1979). In a context of land scarcity, European meat production was already intensive. In France intensive animal production was developed after World War II (under the auspices of Marshall aid) with inputs consisting of domestic wheat, traditional oilseed cakes made from linseed (imported from Argentina and other parts of Europe), and peanuts imported from France's traditional colonial sphere. With the Common Agricultural Policy, France, like the rest of Europe, was opened to American soy. The US accepted European protection against wheat in return for excluding soy from duties in successive GATT rounds (Bertrand et al. 1983: 56-87). American corporations, already well established domestically during the War, established subsidiaries with processing plants in Europe. The corporations of the meat/soy/maize complex later extended the transnational integration of the most dynamic agricultural production to certain peripheral economies. Just as cars and meat were both crucial to the mass production and mass consumption that gave a dynamic impetus to post-war capitalism and integrated advanced capitalist economies, so global sourcing and marketing are parallel developments incorporating a few peripheral countries into production of the 'world car' and the 'world steer' (Sanderson 1987).

Expanded meat production in many countries of Latin America has different effects on domestic agriculture and diets, depending on which end of an increasingly differentiated world market for high and low quality beef is at stake. Extensive grazing, especially on frontier lands in the Amazon regions and Central America, produces beef for the low quality market that enters into processing industries for supermarket and fast food outlets. At a cost less than half that of intensively produced American high quality beef, extensively produced beef for hamburgers, frankfurters and canned products is in high and growing demand (Feder 1980). The ecological effects for the planet of the destruction of tropical
forests rival in the long term the immediately devastating social effects for the peoples displaced by cattle (Skinner 1985).

At the expensive end of the market, Sanderson (1986: 124) shows the standardization of global markets for high quality (by US standards) beef and the attendant requirements for standardized and centralized production, regardless of nationality of ownership. Technologies involving specific genetic lines, feedlots, feedstuffs, antibiotics, immunity from disease, marbled meat, internationally preferred (rather than locally traditional) cuts, and standard packaging, dictate scale and procedures, and favour central, large operations to the virtual exclusion of small mixed or sideline producers of local cattle. Cattle produced by peasants in conjunction with other activities are displaced from local markets and at best must pass through a merchant to reach the central slaughterhouse where hygienic standards can be ensured and certified by local, US approved inspectors. At worst, sideline cattle production is closed out completely as mixed agriculture gives way under commercial pressures to specialization in feed grains, thereby undermining the viability of self-provisioning (meat, milk, lard, hides, etc.) rural communities.

This incorporation of specific peripheral countries into the transnational meat complex intensified during the post-1973 crisis of the world economy. It overlapped with a distinct process of import substitution of traditional colonial exports, the legacy of colonialism from the first regime. The specific products most susceptible to substitution were those which, after meat itself, were most central to the industrial mass production of durable goods.

Turning to the durable foods complex, the shift from farm produce to manufactured foods in the centre during the 1950s and 1960s reflected the larger trend to mass consumption and mass production of standardized products. Consumption of frozen foods in the US, for instance, more than tripled between 1950 and 1975 (Statistical Abstracts of US). Product diversification became as intensively pursued through research and marketing divisions of food corporations as new models in the automobile industry. The number of items on the typical grocery shelf increased from 800 in 1930 to 12,000 in 1980 (Gussow 1984). For farmers all over the world this shift to manufactured foods meant a transformation of markets from either local markets or an anonymous mass of distant consumers, to an oligopolistic relation to corporate buyers of agricultural raw materials.

For farmers in tropical countries, the effects on each traditional crop varied with its changing role in relation to food manufacturing. While coffee and cocoa flavouring could in principle be chemically synthesized, direct consumption of these products still determined the scale of demand. Here the strategies of agro-food capitals to cheapen inputs were restricted to the traditional ones. Despite some processing such as freeze-drying coffee, the main strategy continued to be global sourcing, that is,
diversifying supplies and playing off one region against another.

For the tropical products, mainly sugar and oils, that became key inputs to manufactured goods of all kinds, the model of combined technical and import substitution is the displacement of cotton by synthetic fibres in textile production (Mann 1987). Sugar and oils faced the same combination of diversification of supplies and product substitution. As food industries found natural and synthetic substitutes, the US and other advanced capitalist economies phased out tropical imports of sugar and oils. This involved a double shift: first, the share of the total consumption shifted away from table sugar and cooking oils (both involving only processing that yields a final consumer product) to industrial sweeteners and fats as ingredients in manufactured complex foods; and second, domestic inputs substituted for imported ones, especially if we consider advanced capitalist countries as a unity (consistent with the increasing integration of their food sectors for sourcing and marketing manufactured foods).

The key to understanding this renationalization of domestic agriculture in the core countries is substitution of tropical sugar and oils by generic sweeteners and fats. US per capita consumption of sugar actually declined by one-third between 1970 and 1983. The difference was made up partly by artificial sweeteners, both consumed directly and in manufactured foods and drinks, but mainly by sugars produced from grains, now principally high fructose corn syrup. Together all sweeteners other than sugar (both cane and beet) now account for 40 per cent of US domestic consumption (Mahler 1987). Sweeteners can be derived from any grain—with varying costs—and attempts are now under way to use wheat as a source (Busch & Lacy 1987). Choice of raw material depends entirely on relative prices with prevailing techniques, and both are subject to intervention which is directly political: agricultural policies determine supplies and prices of grains while research, funded by interests partly structured by these policies, seeks solutions favouring one or another substitute raw material. Relative costs are thus political and therefore influenced by competitive national policies structuring agricultural prices within the state system.

The key to oils is soya, which integrates the double movement of import substitution (accompanying extension of the state system to former colonies) and transnational integration of sectors. Soy oil largely displaced other vegetable oils, both temperate and tropical, as a function of its joint production with meal cakes for animal feeds. The shift to soy, outside of Asia almost completely an American crop between World War II and 1973, reflected American power. This power was exercised through specific policies in Europe (Marshall Aid and GATT) in the periphery (cooking oil—mainly soy—was second to wheat as a product shipped through PL480 food aid in the 1950s and 1960s).
As Berlan (1987) and Bertrand et al. (1983) show, soy was at the centre of the postwar transformation of agriculture, and with it major shifts in the international division of labour. Most of the story applies to meat, but its origins lie in the combined properties of processed soybeans as vegetable oil (initially important for margarine manufacture) and an excellent source of protein in animal feed. Here the advantage, after considerable manoeuvring, alliance formation, and lobbying by agro-food industries in the 1930s, created ideal conditions for soy oil relative to existing oilseeds. By the time soy oil was established in world markets, partly through US food aid, it was price competitive, and the US had established its dominance in world soybean trade. Soy oil exports in 1980 were 3,196 million metric tons, 4.5 times larger than in 1960 (FAO).

Thus, both dimensions of transnational integration in the agro-food sector undercut national policies not only in peripheral economies, but also in the centre countries. Both import substitution of sugar and vegetable oils (parallel to cotton in textiles) and intrasectoral integration of agricultural and food chains (parallel to the world car and oil), were implicated in transnational reconstruction of the agro-food sector. The source of these changes was the new role after World War II of agricultural products, with the notable exceptions of wheat (the new Third World wage food) and dairy products (all organized nationally or even sub-nationally), as inputs to transnational food corporations. Agro-food capitals increasingly sought not only global sourcing, but also, as Goodman, Sorj and Wilkinson (1987) have argued, substitutions of raw materials for one another as members of generic categories, e.g. sweeteners, thickeners, stabilizers, etc.

From the international perspective, this substitution of products had two effects over the course of the second food regime: import substitution of sugars and oils, the two key components of manufactured foods, which were also two key tropical exports, just as synthetic fibres replaced imported cotton as a double process of technical substitution and import substitution in textiles; and intra-sectoral integration of the meat sectors of advanced capitalist countries, mainly through the separation at all levels (farm, region, and nation) of feed grains and intensive livestock production, and their integration – and restructuring around soya and hybrid maize – into agro-food complexes centred on the feedstuffs industry. In addition, feedstuffs became closely linked to the oil industry (joint production with soycake), pharmaceuticals (antibiotics for intensive livestock and meat processing), and chemicals (preservatives), as well as food manufacturing, where meat is the largest single ingredient in value. Thus analysis of national, regional and international restructuring must focus on the organization of capitals for the buying of inputs and selling of increasingly complex and diversified products to consumers differentiated by income, but nonetheless standardized across regions.
CONCLUSION

We have argued that the US model of capitalist development constitutes the link between the two food regimes that promoted the nation state system, the industrialization of agriculture, and the growing tension between these processes. In the first instance, settler agriculture provided exports of dietary staples (wheat, meat) as essential wagefoods, underwrote industrial profits by lowering food production costs, and absorbed surplus labour from the European countryside through international migration. Even then, US agriculture was industrial in its mechanical and chemical inputs, if not its labour process (Friedmann 1987; c.f., Thomas 1981). After World War II it became increasingly tied to industrial capital in its outputs as well. With the important exceptions of wheat, and dairy (Young et al. n.d.; Friedmann 1982 and forthcoming (a)) American agriculture increasingly supplied not final consumers – whether in local, regional, or world markets – but inputs to corporations manufacturing and distributing foods internationally.

As the hegemonic power, American capitalism became the model for post-war theories of development applied to the Third World. The dominant metropolitan ideal of integrated national economy (Tracy 1976; Senghaas 1988) drew on the American model in which agriculture was a source of demand for domestic industry (Post 1982), rather than an increasingly residual precapitalist sector yielding food and labour supplies to growing urban centres. At the same time this model has informed Third World nation-building projects (e.g. early anti-communist inspired land reforms in States such as Taiwan, South Korea, and those of the Alliance for Progress; and later Green Revolution projects to replace imported with domestic foods).

Nevertheless, the US model is misleading insofar as settler agriculture was a component of an integrated national economy only because it was first an export sector. The US itself was a product of the world market/state system of the nineteenth century, and adopted protective measures in the industrial sector (in this respect like Germany and France) as much as it depended in agriculture on free trade with England and price competitiveness (despite protection) with Germany (Polanyi 1957). Even in its hegemonic period, the US role as breadbasket of the world is in tension with two ideals: comparatively, of industrial specialization as the basis of capitalist development, and ideal-typically of the internal character of demand for each national sector. Moreover, the export dependence of settler, and later European, agriculture, combined with the growing export dependence of industrial enterprises in all national economies, together precluded the viability of national capitalist development for the rest of the world.

In short, as we follow the trajectory of settler agriculture, relating its
history to changes in the organization of the state system, we find a thread
that enables us to trace movements in capitalism to the structuring and
restructuring of the state system around the division and recombination of
industry and agriculture. It is in fact possible to see a mutual conditioning
of state system and capital. In our first period, the modern state system
forms around nationally-organized economies responding to the compet-
itive relations between Europe and settler nations. Maturation of this
movement after World War II is often described under labels such as
social Keynesianism and Fordism, in which state regulation underpins a
new and inherently national form of accumulation based on high wages
and mass consumption (Friedmann 1987; Kenney et al. 1987). However,
corporations became transnational through national regulation, and cre-
ated significant interdependence among national economies. In the 1970s
and the 1980s transnational corporate integration extended to European
hinterlands and Newly Industrializing Countries (NICs) and New Agri-
cultural Countries (NACs) (Lipietz 1987; Friedmann, forthcoming (b)).
The overriding shift is from state to capital as the dominant structuring
force.

Transnational and intrasectoral integration of advanced capitalist coun-
tries now extends to certain NACs and state socialist countries in a
comprehensive ‘reshuffling of the hierarchy’ (Lipietz 1984) of nations
that had been the legacy of the nineteenth century food regime and its
crisis. Indeed, the restructuring of agriculture in all countries in response
to the demand by transnational agro-food corporations for inputs to
manufacturing and distribution networks, casts doubt on the very idea of
nations as an organizing principle of the world economy. It also under-
mined the assumption that advanced capitalist economies, in contrast to
dependent economies, are articulated, that is, derive their dynamism from
interchanges internal to the national economy (Amin 1974).

What then is the appropriate unit of analysis and intervention? National
states are now reinforced by the international payments system and
undercut by transnational restructuring of production. The restructuring
not only shifts sectoral balances within nations, but also disaggregates
large sectors, such as agriculture, into minute divisions and reintegrates
each division into a complex web of inputs and outputs to increasingly
complex and differentiated food products. Not only is agriculture no
longer a coherent sector, but even food is not. It is linked, for instance to
the chemical industry at all phases from fertilizers to preservatives. New
technologies promise to extend and deepen such links, for example, to the
nuclear industry through food irradiation.

The international payments system reinforcing national states is itself in
disarray. At one extreme is the American deficit, at once funded by the
continued reserve function of the dollar and further undermining the
willingness of other states to allow the dollar to play that role. At the other
extreme is the impossibly large official debt to private banks of key Third World and state socialist countries. Increasingly routinized austerity measures, followed by popular resistance and compromise, are less and less a form of international regulation (in the sense of stabilizing accumulation), and more and more an unplanned and unpredictable political thrust to increase the export orientations and openness to capital of indebted countries.

Two complementary alternatives present themselves, each building upon the global and local forces undercutting the economic powers of national states. One is the formation of truly global institutions to regulate accumulation. A minimal institution in this direction is a world reserve bank, with real controls over a real world currency (Tsoukalis 1985). This would require the acceptance by all states, including the United States, of a higher sovereignty. Such plans existed and had real support after World War II (Block 1977). The food and agriculture component took the form of a proposal, defeated at a meeting in Washington in 1947, for a World Food Board that would have given considerable planning and enforcement powers to the Food and Agriculture Organization.

The second is the promotion and redirection of regional, local, and municipal politics taking a lead from the decentralizing ideologies (and in some countries the realities) of much national politics of the right and left. The movement of agro-food complexes, like other production complexes, is increasing separation and mediation by capital of each stage between raw material inputs and final consumption. While this undercuts the powers to implement any national polity, it also presents opportunities to reconnect and redirect local production and consumption. Every success will be appropriated by capital and reorientated globally (e.g. health food companies purchased by transnational corporations use far-flung distribution networks to undercut similar enterprises of a similar scale elsewhere). This is an immense task of political education of consumers, organization of co-operative and private locally oriented enterprises linking farmers and consumers, and political pressure for land use and taxation policies favouring local economic linkages. Ultimately the success of local projects depends on their combination and co-ordination at higher levels, to replace the policies (and confront the powerful interests associated with them) favouring a global orientation of both production and consumption.

Finally, however, national states do have power, and this is convenient in the short term for powerful transnational corporations, while any attempt to build up global and local institutions must build on the disintegrative effects of the transnational restructuring of the world economy. Such attempts will confront the powers of both states and corporations. However, the strategic location of states in the state system and nations in the world economy both matter a great deal. Block (1986) is correct to
state that the US is uniquely situated to exercise controls over capital movements. Capital flight has been the apparently automatic mechanism preventing national planning (not to say democratic planning) in the past. Yet the US state has exercised such controls in the past, and all major countries have done so in wartime. Other nations face more limited but real possibilities, despite the sad lessons of for example, France under the socialists and the much sadder lesson of Chile under Popular Unity. For example, much agricultural policy in Canada, such as marketing boards, resides in the provinces, which could in principle undertake a shift of agricultural subsidies from price supports to structural policies, including comprehensive goals concerning land use and ecology as well as food supplies. If renationalization was the protective movement of the nineteenth century, relocalization combined with global co-ordination may be the protective movement of our times.

NOTES

The authors wish to acknowledge constructive criticism of this paper by Maria Fonte, Hugo Radice, Laura Raynolds, Dale Tomich and William Waters.

1. We acknowledge Giovanni Mottura for this reference.

REFERENCES

BLOCK, F. (1986), Political choice and the multiple 'logics' of capital, Theory and Society, 15, 175-191
BROWN, M.B. (1976), The Economics of Imperialism (Harmondsworth: Penguin)
FEDER, E. (1980), The odious competition between man and animal over agricultural resources in the underdeveloped countries, Review, III, 463-500
FINK, D. (1987), Farming in Open Country, Iowa: women and the changing farm economy,

FOWKE, V. (1937), The National Policy and the Wheat Economy (Toronto: University of Toronto Press)


FRIEDMANN, H. (1982), The political economy of food: the rise and fall of the postwar international food order, American Journal of Sociology, 88 (Supplement), 248-286


FRIEDMANN, H. forthcoming (a), Family wheat farms and Third World diets: a paradoxical relationship between unwaged and waged labor, in J. COLLINS & M. GIMINEZ eds., Work without Wages: Comparative Studies of Homework and Petty Commodity Production (Albany: SUNY Press)

FRIEDMANN, H. forthcoming (b), Agro-food industry and export agriculture, in W.H. FRIELAND, L. BUSCH & F.H. BUTTEL eds., The New Political Economy of Agriculture


GERSCHENKRON, A. (1943), Bread and Democracy in Germany (Berkeley & Los Angeles: University of California Press)


HOBBSBAWM, E. (1975), The Age of Capital (New York: Scribner)


LENIN, V.I. (1965), Imperialism, the Highest Stage of Capitalism (Peking: Foreign Languages Press)


MAHLER, V. (1987), Controlling international commodity prices and supplies: The evolution of United States sugar policy, in F.L. TULLIS & W.L. HOLLIST eds., *Food, the State and International Political Economy* (Lincoln: University of Nebraska Press), 149-179


TRACY, M. (1964), *Agriculture in Western Europe: Crisis and Adaptation Since 1880* (London: Jonathan Cape)
Tracy, M. (1976), Fifty years of agricultural policy, *Journal of Agricultural Economics*, 27, 331-348


Young, B., L.N. Lindberg & J.R. Hollingsworth (n.d.), The governance of the American dairy industry: from regional dominance to regional cleavage. unpublished manuscript