

## **NATURE'S METROPOLIS: THE GHOST DANCE OF CHRISTALLER AND VON THUNEN**

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William Cronon's *Nature's Metropolis* (1991) is a wonderful book, on a par with Fernand Braudel's erudite tomes on European history. This book is a standing brief for a thoroughgoing geographical reworking of American economic history.<sup>1</sup> We welcome its appearance wholeheartedly, even as we admit its ambiguous meaning for geography: a triumphant assertion of the geographic perspective that is energizing western history, urban history and environmental studies, but an opportunity missed by geographers to have written it first. Nevertheless, there is much left to do. While saluting Cronon, geographers must take him to task for the substantial shortcomings of the treatment of Chicago and the American west. For Cronon has reproduced a style of geography that is, for all its narrative brilliance, analytically limited and thoroughly out of date.

*Nature's Metropolis* explores the relationship between Chicago and its vast western hinterland of the 19th century, and in so doing masterfully reveals the environmental basis of Chicago's economic expansion: the abounding products of nature flowing into the city like a torrent. The centerpiece of the book is the section "Nature to Market," consisting of "a series of stories, each tracing the path between an urban market and the natural systems that supply it." (p. xvii). In three enthralling chapters on grain, lumber and meat, Cronon examines in detail the mammoth resource extraction orchestrated by Chicago merchants. Their challenge was to reduce the diverse and living products of nature to abstract and uniform commodities. In this process, a new geographic order, the "second nature" of capital, was superimposed upon the "first nature" of the Great West. Chicago was not simply the product of

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human endeavor. Instead, urban growth was rooted in dramatic ecological transformations; hidden within the city's commerce and wealth, and indeed, revealed within its physical form, were the conquered and vanished natural landscapes of its hinterland.

The guiding proposition of *Nature's Metropolis* is that city and country are inextricably linked in a web of mutually sustaining (and destructive) relations. Cronon begins with Frederick Jackson Turner's frontier thesis, but wishes to "read Turner backwards" (pp. 46ff). He firmly rejects Turner's view of the frontier as a place without cities, observing that: "At the heart of this new system was the twin birth of city and hinterland. Neither was possible without the other." (p. 264)<sup>2</sup> He further argues that Chicago yoked the frontiers of settlement to an established metropolitan core in a larger system of cities. To this end, he chronicles the emergence of Chicago as the dividing line between two different rail systems: the feeder lines to the west which funnelled rural commodities into the city and the trunk roads to the east which forwarded these goods to cities on the Atlantic coast. The city was thus well positioned to become the continent's premier wholesaling center and its merchants were poised to reap enormous commercial advantage, although Chicago's success owed as much to the efforts of boosters and businessmen as it did to geographic fortune, and he goes on to describe how the city's merchants, manufacturers and bankers came to dominate the regional economy.<sup>3</sup>

On these general points we enthusiastically concur. Our objection is that Cronon has produced a magnificent diorama that, however you unroll it, neither explains the basis of the city-hinterland relationship nor captures the dynamism of the regional growth process. Hence we are left with a terrific environmental melodrama but insufficient theoretical insight. In our view, these shortcomings derive from the fact that Cronon's approach rests on a rather ancient economic geography of trade.

Cronon's sources of theoretical insight are Von Thunen's land use rings and Christaller's geometry of central places. Land use rings serve as the principle way to conceptualize how city and country are joined, while central place theory positions Chicago within the broader urban system. While these models direct us to certain effects of commerce on land use and city systems, they provide a wholly inadequate foundation for the study of historical urbanization and the relation of cities to hinterlands because of their unsustainable assumptions about the primacy of intraregional trade. This point was made definitively by geographers decades ago. It is no small irony that Cronon, a proponent of the "new western history," largely ignores most of the important research on regional development produced over the past thirty years.<sup>4</sup> Put baldly, his use of Von Thunen and Christaller as sources of geo-

graphic theory is akin to a contemporary geographer adopting Turner's frontier thesis as a guiding theoretical framework.

Cronon recognizes some limitations of his traditional sources: the abstract and ahistorical character of Von Thunen's "isolated state" (p. 52) and the stasis of Christaller's urban hierarchy (p. 282). He tries to rescue regional trade theory from its own inadequacies in two ways. First, he emphasizes wholesale and export trade. This is, of course, the same shift made by Vance (1970), who spoke of "entrepôts" where Cronon uses the catchy term "gateway cities." Cronon well understands the crucial role of merchant capital on the 19th century American frontier, and he goes farther than Vance by looking at the innovations of the mercantile system and its key institutions, such as the Chicago Board of Trade.<sup>5</sup> Second, Cronon shows that the substance of trade was the plunder of a verdant continent at its midsection. No accounting of American economic success is worth a candle without recognition of nature's bounty off which the nation, its cities and a spreading capitalism fed.<sup>6</sup>

But these shifts are not enough. Long-distance markets mediated between city and country, but what drove the city that ravaged nature on such a colossal scale? Cronon can do no better than to set Von Thunen and Christaller on their ghostly dance across the prairies and plains, making trade itself the force behind the growth of Chicago, the central place. Yet commercial activity in and of itself (whether conducted intra-regionally, inter-regionally or both) cannot explain the astonishingly rapid transformation of the Midwest during the mid-19th century. Trade mobilizes production and growth, to be sure, but is ultimately the creature of other, more fundamental activities. Behind the great freight trains taking nature's bounty in and out of the great metropolis were other engines of expansion: conquest, industrial production, agriculture and capital accumulation – topics to which Cronon devotes precious little attention. We take up each in turn.

To begin with, the foundation for the use of resources is the prior appropriation of nature through conquest, military and economic. Capitalism, as Marx observed some time ago, comes into the world dripping with blood from head to toe.<sup>7</sup> In our case this meant the overrunning and looting of the North American continent by Anglo Europeans (see e.g. Blaut, 1992). Cronon does not grab the nettle of empire with any conviction. His main approach is against the rape of the plains and pine woods, not the elimination of the occupants of the land. Yet the two went hand-in-hand because the exploitation of nature in the modern manner demands that it be cleared of its human defenders and turned into private property (or undefended "public property") before the juggernaut of settlement, extraction and profit-making is set loose.<sup>8</sup>

Next, Cronon turns to nature as the foundation for prosperity. He

points out that the natural abundance of the Great West was a gift that (Euro)Americans accepted without recompense. However, in arguing for the wealth-generating properties of nature (pp. 148–51), he demotes the value-generating power of human labor in order to distinguish himself from the classical Marxist position. In so doing he commits the ancient fallacy of confusing value and wealth: “this was the wealth of nature, and no human labor could create the value it contained” (p. 150). Quite so; natural abundance means that a city and its people can grow fat on wealth won from the soil or the forest with relatively little labor. But Marx’s theory of *capitalist* value does not suggest that labor creates the wealth of “nature’s economy” – only that it serves as the pivotal measure of value in the capitalist economy. Production is always the unity of a labor process and natural action, whether fermentation in a beer vat, photosynthesis on a farm, or oxidation in a steel furnace.<sup>9</sup> The commodity and its value come into existence neither wholly within nature or by the hand of labor alone. This dialectic of nature and labor in all production – and hence all value generation – is widely misunderstood (Harvey, 1982).

Where do nature and labor intersect? In the jaws of modern industry. The missing link in the great whirl of mining, trade and consumption moving through the Great West, with Chicago at its vortex, is manufacturing. Manufacturing was there from the beginning of settlement and commerce, along with the cities and in the cities. Without the unprecedented dynamism lent the whole process of American expansion by the industrial revolution on both sides of the Atlantic, neither settlement nor plunder would have gone on at such a feverish pace and with such horrific efficacy. Adding natural resource exploitation to trade theory may enrich (and enflame) our understanding of the material substance and staggering impacts of commerce, but the *transformation* of nature that industry produces is the key to the way natural resources are defined, sought out, pulled from the land, moved around, and made over into useful products (as society defines use). Yet Cronon fails to situate industry centrally in his story; it is merely adjunct and afterthought to resource extraction, as in all trade-centered theories of development.<sup>10</sup> The ghost in Cronon’s city is the machine.

Recent advances in economic geography have decisively altered the way we look at urbanization and regional growth, making it absolutely imperative to study the course of industrialization and its use of space in reconstructing the way capitalist economies have spread over the land.<sup>11</sup> Production lies at the heart of industrialization and capitalist development, and the course of production – the labor process, technical change, employment, development of factories, subcontracting, etc. – must be looked at carefully in order to uncover the workings behind geographic patterns of economic activity, and their expansion,

contraction and upheaval.<sup>12</sup> Cronon, by contrast, sees transportation as the defining aspect of the space-economy, in the manner of traditional location theory, rather than itself a dynamic sector interacting with the geography of resources, manufacturing, city-building and agriculture.<sup>13</sup>

Industry demands technology, or the knowledge and tools appropriate to the job of cutting, hewing, slaughtering or milling. Despite his fine attention to the physicality of environmental despoilation, Cronon only grazes lightly over the industrial technology of exploitation. One cannot deal forcefully with resource extraction and material flows without grasping firmly the technical foundations of modern economies. Oddly, Cronon completely overlooks a whole school of thought in American economic history concerned with resource-intensive industrialization.<sup>14</sup> Crucial to the whole story of Chicago and the Midwest is the concurrent evolution of resource-extraction, processing and utilization technologies. With the evolution of industrial technique came rapidly increasing productivity of labor and machinery, the rising ability to tear resources from the land, and the huge appetite of Chicago's factories for more materials and its people for more consumer goods. Cronon hits the nail on the head with regard to the genius of the balloon frame building and the demand for lumber, but fails to replicate this tale dozens of times, as he should have; instead he repeatedly falls back on merchant, trade and market as the key links in every resource story.

This is not to say that extraction, processing or transportation are not industries (Sayer and Walker 1992). Nonetheless, Cronon treats processing as secondary to extraction, in the manner of export-base theory of the 1950s,<sup>15</sup> repeating the failure of every conventional interpretation of US industrial history to take resource processing industries seriously enough. Processing industries such as grain milling, lumber milling, brewing, distilling, and meat-packing experienced wave after wave of technical and organizational improvements while spreading machine-based mass production practices throughout the nation during the 19th century. In fact, these sectors formed the heart of the American industrial revolution before the Civil War and for some time thereafter.<sup>16</sup> US capitalism did not just conquer the natural abundance of a continent, but used it as a lever to development and built it right into the whole industrial system and way of life of the country.

Cronon's emphasis on the pillage of nature also has the disturbing effect of relegating human labor and its exploitation to the background. The active involvement of human labor is necessary to the whole gamut of resource-appropriation, from lead mining to water-wheels.<sup>17</sup> While Cronon notes several essential qualities of work in resource extraction and processing – in the woodlands, packing houses, etc. – he never takes on Chicago's role as a working city directly. Yet Chicago by 1900 had become home to what was probably the largest proletarian concentration on earth.<sup>18</sup> This was the human foundation of Chicago's indus-

trialization, as eloquently portrayed by the likes of Upton Sinclair and Theodore Dreiser. Our point is not that Cronon should have written a labor history, but that his failure to tie labor into the constellation of the metropolis is consistent with the economic theory he espouses: a rather conservative market-centered model without industrial production or human labor as its underpinning.

And where, too, are all the people in the farmlands of the Midwest? Cronon tends to leapfrog over this middle landscape, with its (apparent) absence of drama, in favor of the great centripetal hub and the vast centrifugal frontier. Despite its appeal to the unity of town and country, Cronon's story merely inverts Turner to produce a one-sided account of a city driving a passive countryside.<sup>19</sup> This story omits the vital middle ground of agricultural production and the importance of rising productivity in the countryside through the symbiotic relation of city and country. Farmers were mining the black prairie soils and coaxing wealth out of the land as surely as lumbermen were carving up the forests. Grain and livestock did not simply gush from the countryside in response to transport and trade however; behind the steady increase in agricultural output stood definite social and technical relations.

Unlike their European counterparts, midwestern farmers were able to gain title to land in large numbers and at relatively low cost. These small-scale but independent farms were highly commercialized from a very early date. They were integrated into the wider economy as part of the settlement process during the early and mid-1800s, driven into production for the market via land acquisition within a speculative system of land disposal. Farmers were eager to expand family income and land-holdings, making them close cousins in outlook to capitalist producers. These tillers of the soil were compelled to be improvers by the logic of the market: rising productivity and total output created strong downward pressure on prices, propelling them further into trade (and debt) to secure better equipment and breeding stock.

Farmers sold their produce to processors and city markets, invested in farm inputs such as plows and tools, and purchased household goods such as pots, stoves and furniture. In this way, farms were tied closely to the rise of modern industry and its outpourings of tools, machines, fertilizers and household wares. Although on-farm social relations remained, strictly speaking, non-capitalist, prosperous farmers served as the hub of a rapidly expanding division of labor surrounding resource extraction. Farm produce fueled the processing industries while farm prosperity created markets for a great range of manufactured goods. The modest family-labor farm thus acted as the pivot of Midwestern development. Chicago and its hinterland were joined together by more than trade in resource commodities; they were enmeshed in a mutually sustaining dynamic of rising productivity on the farm and in the factory.

This broad synergistic process of "agro-industrialization" was the

foundation of regional growth during the 19th century (Post 1982; Page and Walker 1991). Agro-industrialization wove "urban" and "rural" space into a unified territorial fabric characterized by distinctive (but overlapping) spatial divisions of labor, each based upon a resource commodity such as grain, lumber or meat. Within each of these production chains, mercantile agency and innovation were crucial, but the story of the traders needs to be placed in the context of a broad process of industrialization which provided the propulsive force for regional expansion.

There were cities in the hinterlands, too, though you would hardly know it from *Nature's Metropolis*. The Midwest was characterized by a dense city-system well filled at the lower ranks, including a large number of vigorous small and medium-sized towns dotted across the rural landscape. Alas, Cronon replicates the big city bias found in nearly every analysis of 19th century urbanization – wherein large urban centers are held to have increasingly gathered economic activity unto themselves as the century progressed (cf. Pred, 1966). The Midwest's many smaller cities were not the lower-order central places of Christaller's trade model, but were important sites of manufacturing. Their vitality can only be explained in terms of the distribution of production within the region's agro-industrial complex. City and countryside thus supported each other not only at the broad regional scale of metropole and region, but also at this intermediate scale of small city and surrounding farmland or woodland, and through an immensely thick web of cross-cutting production and trade relationships (Pred, 1980).

Finally, capitalist growth turns on capital. Cronon's treatment of capital is consistent with his essentially neo-classical theory of economics and quite at odds with the Marxian view (and classical political economy generally).<sup>20</sup> Cronon has done some clever research on the geography of debt relations between Chicago and its hinterlands, but the data only confirm that city's lock on the commercial life of the Midwest and Plains states by the late 1800s. He misses the essential force of capital in the life of the metropolis and its dominions. Capital does not consist only of loanable funds; it is surplus value reinvested to make further profit. And as such, it moves mountains: the drive to accumulate capital undergirds the whole system of trade, production and plunder. With the wealth of nature draining into Chicago came a parallel flow of profit, which only whetted the appetite of merchants, landowners, and adventurers for more. With the increase of productivity in industry came greater profits, which were furiously plowed back into new machinery and new factories in order to turn the trick again (Harvey, 1982).

Capital accumulation was the prime mover of the whole booming, bustling, burgeoning system which Chicago stood astride. The city was less a gateway than a Grand Coulee of capitalism, storing the reservoirs

of surplus value, spilling mighty rivers of investment, and generating megawatts of economic power throughout the Great West. Cronon misses this entirely, providing nary a clue as to what forces actually drove the mad rush across the continent. It certainly was not the indigenous people's natural proclivity to truck, barter and trade. What drives the market? This conventional economics cannot answer.<sup>21</sup>

Cronon never escapes Turner and his closing of the frontier, in the end, because his trade theory leaves nowhere to go. There are no new frontiers beyond the extensive plunder of a continent. In keeping with this conception of a dead end, Cronon asserts that one would not think to call another city "nature's metropolis" today – a formulation that safely confines the rape of nature by American capitalism to all our yesteryears. In fact, the 20th century ushered in some of the greatest gold rushes and resource plunderings in US history, including petroleum strikes, massive water projects, and chemical agriculture, which the newer metropolises such as Los Angeles, Houston and Miami thrived on.<sup>22</sup>

So Turner, Von Thunen and Christaller, and their long-dead ideas about trade, cities and the American west, still roam the plains like the phantoms of warriors cut down by the US Cavalry. William Cronon's book is deeply compromised by the decaying intellectual framework of economic history it is built on. What looks at first blush like the life-giving work geography needs to guide it out of the hinterlands, turns out on closer inspection to be the ghost-dance of conventional history and economics, the last gasp of an analytically outmoded and morally unacceptable approach that has been decisively defeated by a new generation of geographic thinking guided by a recovery of political economy. Cronon represents environmental history appropriate to the Reagan era of market ideology triumphant, and a diversion from the full-on critique of capitalism, industrialism and conquest necessary to a radical environmentalism that might put an end to the madness.

## Notes

1. Not just cultural history, as prevails in so much of historical geography today.
2. In a nice twist, Cronon draws on the writings of obscure western boosters to make the case against the famous professor Turner. The boosters, he shows, had an implicit theory of urban hierarchy and commercial expansion in which cities played the key role.
3. Another way in which Turner must be read backwards (but is not by Cronon) is to see that California, the Great Basin, the Rockies, and the Northwest up to Alaska were settled from *west to east*, with San Francisco as "Nature's Metropolis" of the Pacific Basin. This story will be told in a forthcoming book by Gray Brechin, Department of Geography, University of California, Berkeley.



4. For a review of the various traditions in American regional development theory, see Page and Walker (1991).
5. Both men are devotees of Canadian Harold Innis. Cronon provides a good antidote to Alfred Chandler (1965), whose tale of the rise of the modern corporation (via the railroads) completely misses the correlate story of improvements in market mechanisms (cf. Sayer and Walker 1992). His discussion of commerce can be set alongside Porter and Livesey's (1971) classic on the heyday of American merchants or Pred's (1966, 1973) intensive studies of urban systems and the circulation of information and innovation – to which he pays (amazingly) little attention.
6. Cronon's work is part of a larger reinvigoration of western and environmental history by Donald Worster, Patricia Limerick and others.
7. "The discovery of gold and silver in America, the extirpation, enslavement and entombment in mines of the aboriginal population, the beginning of the conquest and looting of the East Indies, the turning of Africa into a warren for the commercial hunting of black-skins, signaled the rosy dawn of the era of capitalist production. These idyllic proceedings are the chief momenta of primitive accumulation." Marx (1967), v. I, p. 751.
8. Not that he is oblivious of the extirpation of the native peoples along with the bison and forests, but he shields himself by means of light irony from the degree of moral anger which this ought to conjure up, confining himself to a few swipes at the western booster ideology that commerce could build a nation of prosperity and democracy without exploitation, inequality or colonialism (pp. 44ff). For less tempered versions of European annihilation of native peoples in North America, see Horsman (1981) and Jaimes (1992).
9. Marx (1967), v. II, p. 356.
10. This lacuna is discussed in detail in Page and Walker (1991). Classical political economy from Smith to Marx took production seriously, but this lesson was undone by the neo-classical counter-revolution and its obsession with the functioning of prices and markets. The latter carried the day in the fields of industrial location and regional growth for a century and defined their dominant models.
11. For an overview see Storper and Walker (1989), who coin the term "geographical industrialization" in place of regional trade or industrial location. For a case study, see Page (1993).
12. Cronon implicitly makes two major concessions to geographical industrialization in Midwest development. The first comes in the discussion of the rise of Minneapolis to the largest milling center in the world by the 1890s; this shift took place because of the specifics of red (hard) wheat and a new rolling technology perfected in Minneapolis (brought from eastern Europe!). The second comes in the admission that Chicago did not lose out to its challengers as thoroughly as it had eclipsed its predecessors such as Buffalo and Cincinnati, because it had moved on to new levels of industrialization by the late 19th century (such as steel and machinery).
13. After Alfred Weber (1909) (who Cronon mistakenly identifies as a central place theorist). See, by way of contrast, Fishlow's (1965) famous critique of the pure railroad theory of growth and Pudup's (1983) treatment of railroads in Chicago.
14. Paul David's (1975) argument that cheap resources skewed the path of economic and technical development; Nathan Rosenberg's (1976, pp. 9–31) resource-based explanation of rapid American mechanization; and Gavin Wright's (1990) analysis of the resource-intensity of US foreign trade.
15. Principally, Douglas North's (1955) version of staple theory. Cronon seems not to have heard of North.

16. Underestimating the importance of these sectors is a premise for the grotesque misrepresentation of US economic history by Mich  l Aglietta (1979) and the Regulation School as moving from an "extensive" to an "intensive" epoch of industrialization at the beginning of the 20th century. Cf. Brenner and Glick (1991).
17. This does not mean that there is a one-to-one relation between the exploitation of labor and the exploitation of nature.
18. Cronon may be fooled by the smallish sounding figures on manufacturing labor alone, cited on p. 311.
19. He acknowledges the oversight in the last chapter with a discussion of urban-rural antagonisms, arguing that they were largely false. But he never pins down the basis of mutuality, other than the almighty ribbon of commerce running around and through Chicago and the Great West.
20. Cronon makes passing reference to Marxist geographer David Harvey (p. 450, n. 24) but there's no evidence that he has taken any of the latter's ideas on board.
21. Admittedly capital accumulation does not explain everything about the European and American conquests and expansion (nor are capitalist economies the only expansionist systems in history); nationalism, state formation, militarism, racism, population pressure, human greed (and more) play their part. But Cronon simply does not address the problem or the historical debates. For comparison, see e.g. Brenner (1986) and Blaut (1992).
22. Recent work in geography and related fields on these cities is conspicuously absent from Cronon's reading list, and we are left with the old chestnut that L.A. is simply the auto-city extraordinaire: "Not until a new set of transportation technologies produced a new metropolis on the west coast – Los Angeles – would Chicago fall from its number two position as an American population center." (p. 378) In fact, LA did it by means of oranges, oil and industry, a combination not so very different from Chicago. See e.g. Fogelson (1967), Feagin (1988), and Worster (1985).

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