Markets as Interactions of Producers and Consumers:

The American and French Bicycle Markets, 1890-1910

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With the failure of state socialism, almost all societies have begun to organize their economies around market principles. Different societies are taking different paths to do this, with varying results. The difficulties encountered in Eastern Europe, and especially in Russia, contrast with the success of Chinese "market socialism," and illuminate what many think is the asocial, "one-size-fits-all" character of the advice economists are giving Eastern European governments; their abstract models do not take into account qualitative differences between societies (Gray 1997; Brinton and Nee 1998). Even some economists are beginning to admit that the economy cannot be abstracted from society, and a few are resurrecting the tradition of institutionalism, though some versions (e.g., Hodgson 1996) are more social than others (Williamson 1985; North 1990). An important wing of economic sociology argues this point about qualitative difference (e.g., Orrù, Biggart, and Hamilton 1997; Gereffi 1994), and such differences must be taken into account as "the market" is introduced into post-socialist societies (Nee and Cao 1999).

In this effort, studying both market economies and markets for single products is important. The old institutionalism and economic sociology take culture—a crucial and contested aspect of societies—into account far more than does the new institutionalism, and consequently find separating these two levels problematic. As Granovetter (1985) put it, economic actors are "embedded" in society; that is, analytically separating economic behavior from social behavior, as economists do, distorts the analysis and reduces understanding. The analysis of market economies or "capitalism" is a long and well-developed tradition in sociology, as is the study of "consumer society," but research on the sociology of individual markets is newer and is somewhat fragmented; specific aspects of markets, such as production, exchange, and consumption, are studied separately. Yet buyers and sellers do not merely interact with and affect each other; they both exist within a

social context. Products are made and used socially, and the acts of production and of use—consumption— affect the act of sale. Therefore, to understand markets, we should analyze how production and consumption interact over time. I suggest a redefinition of a market as an exchange relationship between groups of producers and groups of consumers about a product. The shift in definition from "buyers and sellers" to "producers and consumers" embeds the activities of buying and selling in their larger social context. The focus on relationship makes this a dynamic model, in contrast to static neoclassical models (North 1990).

In this paper, I will review the theoretical literature on markets to show that each existing model ignores a crucial aspect of markets. I will then discuss the implications of a complete model of markets. I will then apply this model to two historical cases of markets in formation by comparing the development of the French and American national bicycle markets from 1890 to 1910. In the conclusion, I will evaluate the application of this model to these cases in light of what it tells us about markets. Narrowing the application of the model to the introductory period for a product can highlight the social factors of specific markets in market economies that often remain invisible in the operation of established markets. And the formation of a market for a new good is a crucial aspect of social change, since goods can affect human welfare (Bresnahan and Gordon 1997).

Although the market is one of the central organizing principles of the discipline of economics, "the concept of the market remains, at best, vaguely defined in most works of economic theory" (*International Encyclopedia of Economics* 1997, 930). Mainstream economists use abstract, mathematical models of markets resting on restrictive assumptions. In these models, sellers compete with each other to sell their products to buyers with fixed preferences. Products are homogeneous,

and all market actors have complete information and attempt to optimize the use of their resources in relation to prices, not in relation to others' actions (Baker 1991, 86; Frenzen, Hirsch, and Zerrillo 1994, 413; Rawski et al. 1996, 60-61). Exchange occurs only in "equilibrium"—when buyers and sellers agree on a price and a volume. Economists continually modify this abstract picture to apply it empirically, adding concepts such as imperfect competition, bounded rationality, and incomplete information, yet their models habitually and explicitly assume away social influences.

Economic sociologists have proposed alternative market models that take into account social interaction, but these tend to be production-centered, following a bias in economics (Frenzen, Zerrillo, and Hirsch 1994), and therefore one-sided. White (1981, 1988) argues that producers watch each other in a market to find a market niche by producing a specific volume of goods at a specific price. White admits that consumers collectively have great force, but producers, not consumers, make the decisions on shipping volumes and prices, while consumers "*react*: They do not act" (White 1988, 237, original emphasis). Fligstein (1996) examines the larger institutional environment of markets. In his view, markets are created as part of the state-building process, and politics within firms reflect this political struggle: "the social structures of markets and the internal organization of firms are best viewed as attempts to mitigate the effects of competition with other firms" (Fligstein 1996, 657). Baker (1981) looks at markets as networks, while Abolafia and Biggart (1991) emphasize the institutional rules of competition between firms.

Scholars of consumption look at the end usage of goods, but not where they come from and how they get to particular groups. Economists do study how consumption decisions affect production, and vice-versa, but again in a generally abstract manner with materialist and asocial assumptions about economic actors. They shun the question of why people want goods (Douglas

and Isherwood 1979, 15), and consequently know little about how preferences change (North 1990, 84). Anthropologists examine the symbolic and ritual aspects of objects, arguing that they are communication devices; what the objects "say" are culturally determined (Douglas and Isherwood 1979). Furthermore, objects usually operate in tandem with other objects, and are restricted in how they can be combined (McCracken 1990). Sociologists tend to examine the symbolic use of goods to maintain inequality. Veblen (1953 [1899]) theorized that elites use conspicuous leisure and the conspicuous consumption of complex, ornate, and expensive goods to maintain class boundaries. Bourdieu (1984) expanded this argument by claiming one must continually demonstrate the appropriate and seemingly instinctive use of a wide array of objects to maintain class position, "appropriate" being defined by the dominant classes. This knowledge is learned during childhood or at school. Going beyond Bourdieu, objects can symbolize membership in or exclusion from any group, including racial, age-based, gendered, or geographic groups. The necessary bodies of knowledge and the symbolic interpretation of objects vary cross-culturally (Liebes and Katz 1990).

As Frenzen, Zerrillo and Hirsch argue, to understand economic activity we must examine the "processual linking" of production and consumption (1994:410). Without production, there is no product to consume, and without consumption, nobody will buy products. Marketing theorists seem to understand this, and define "the market" as the group of consumers that may buy a producer's product. Most reject the abstract assumptions of economics, accepting imperfect information and changeable consumer preferences (Baker 1991), and many have borrowed from psychology or sociology (Lawson 1995:155) studying consumption directly. Yet many marketers are trained as economists, and echo that producer-oriented viewpoint. Their primary motivation is to induce consumers to buy producers' products, not to understand how markets work.

Some sociologists do relate production and consumption. Scholars of the social construction of technology have done case studies of such interaction about specific products (Cowan 1987; Fischer 1992; Marvin 1989). Another group postulates cyclic activity between producers and consumers, focusing on advertising, design, and market research in "cultural" products such as books or music (Hirsch 1972; Gottdiener 1985; Johnson 1986-87). A third tradition in economic sociology studies cases of producer-consumer interaction, such as Brown (1999) on the guitar industry, Abolafia (1998) in financial markets, and Zelizer (1979, 1985) in insurance markets. All three groups do not question the fact that producers and consumers are embedded in a market economy.

Clearly, current theories treat markets in a fragmentary manner. This theoretical division of the market into production (and distribution) and consumption, or between social and "purely" economic aspects of the market, distorts our understanding of what is clearly a complex and interactive phenomenon. Production and consumption are inextricably linked by the act of purchase; they are outside of that act but they obviously affect it and are affected by it. Studying them together as a market is the next logical step. Consequently, I propose this definition of markets: "Markets are groups of consumers in ongoing relationship with groups of producers. Producers repeatedly sell goods or services to those consumers in exchange for money." The shift in definition from "buyers and sellers" to "producers and consumers" brings in previously excluded social aspects of markets, but does not exclude buying and selling, which are still central activities. This definition is a simple model which can eventually be developed into a theory, and constitutes something of a synthesis of the literature reviewed above.

Although simply stated, this model implies a complex, multifactor analysis. The major implied elements of this model are traditional economic efficiency concerns (maximizing resources

and minimizing costs), the role of culture and institutions, the dynamic nature of markets, intermediaries between producers and consumers, and the role of the state in the market. Much of economics is about the relationship between prices and resources (e.g., income, wealth), and prices certainly operate in markets, so it would be foolish to ignore their role. Yet despite economists' assumptions, other factors also influence markets. Conceptual frameworks, and the behavioral patterns which embody them, operate on both sides of the market, although they are often called "institutions" on the production side and "culture" on the consumption side. These shared understandings (Becker 1982) are often unconscious, can be expressed symbolically (Geertz 1973), and sometimes operate as a "toolkit" from which to draw rather than as a guide to all behavior (Swidler 1986). The definition of institutions as self-reproducing, "organized, established procedure[s]" (Jepperson 1992, 143, 145) embodied in political regimes, formal organizations, and informal conventions is similar. Taken-for-granted assumptions guide the definitions of products, the organization of the production and exchange processes, and how products are used and combined. They also constrain behavior (North 1990) because they limit what is intellectually available to groups—with certain assumed definitions, some behaviors are literally inconceivable. Relations between producers and consumers are dynamic—always subject to change and often in flux—and culture limits possible responses to new situations (Swidler 1986) although innovation can occur through group negotiation (Becker 1982), and minor changes can accumulate into major shifts (North 1990). Producers and consumers often relate through intermediaries, such as advertisers, distributors, and retailers, which are often (but not always) controlled or owned by producers. The state affects all aspects of markets; its effects on producers are much-studied, but

the state influences consumption by limiting certain public behaviors and legitimizing others, and by providing infrastructural support for certain objects.

Since markets are such a vast subject, and this complex model is theoretically ambitious, it is wise to limit the scope of its application—studying "markets" in general is too much to do all at once. The theory of the product life cycle from marketing (Leavitt 1965) suggests that markets for products work differently at different stages of the product's "life." By focusing on the introduction of a new product, the taken-for-granted or "invisible" social features of markets become obvious. Furthermore, it enables us to see what factors make markets viable or not. The theory of the product life cycle has many critics (Lambkin and Day 1989; Mercer 1993), and studying market formation might ultimately help us construct a more complete model of markets.

This model helps us understand the formative period in the American and French national bicycle markets from 1890 to 1910. Low European wages, expensive gasoline, and scarce land seem to explain why Europeans have used bicycles for urban transportation for so long, while high American wages, cheap gasoline, and abundant land supposedly led Americans to develop an almost monolithic car culture. Actually, the decisive divergence between the two markets occurred about twenty years before either the French or U.S. working classes could afford automobiles, and resulted from socioeconomic and cultural factors. A "variation-finding" strategy (Tilly 1984) shows that consumption and production were similar during the "bicycle boom" of the 1890s, but that a few key differences led the American bicycle market to collapse around 1900, while the French bicycle market continued to expand to the First World War. The potential for a new market in the United States existed but remained unrealized in the same period. The key differences were the American productive techniques, which were cheaper than French techniques; differing interclass relations in

the two countries; the differing road systems; and the failure of the American producers to recognize a marketing opportunity. The following narrative will alternate between what producers and what consumers did in these markets in this period.

Nineteenth century Europeans and Americans, who invented so many transformative technologies, also developed self-propelled vehicles. Baron Karl Freidrich Drais von Sauerbronn of Germany invented the predecessor of the bicycle, the "draisienne" or hobby-horse, in 1817. The rider straddled a frame on two wheels, steered by a front wheel on a rotating axis, and propelled it by walking or kicking (Ritchie 1975, 18; Dodge 1996, 11, 14). In the early 1860s, a French manufacturer, Pierre Michaux, added rotating pedals to the front wheel of the hobby-horse and called it a "velocipede" or "fast foot" (Ritchie 1975, 54-55, although Dodge 1996, 31-33 mentions other inventors' claims). To increase speed, mechanics and inventors enlarged the front wheel in the early 1870s, increasing the amount of distance covered with each rotation of the pedals. The rear wheel was shrunk to save weight, and the addition of rubber tires and tensioned spokes created a comfortable and fast machine. These self-propelled, one- (or two-) person carriages—tricycles and quadricycles—were pedaled by the (usually) adult rider.

Problems on the consumption side severely limited the markets for every one of these vehicles throughout the century. First, they were expensive; price limited the market to the wealthy. Second, straddling the machine like a horse limited the market by half; dresses with skirts to the floor were, by custom, mandatory for women in this period, and skirts made riding bicycles far too dangerous. Women rode tricycles, which accommodated skirts and were more "dignified" (Dodge 1996, 73-74; Ritchie 1975, 151-155; Smith 1972, 98). Finally, the draisienne, the velocipede, and

the high-wheeled bicycle were difficult and dangerous, the high-wheeler most of all. Learning to balance on two wheels was difficult for adults; both the draisienne and the velocipede were stiff and uncomfortable to ride; and braking systems were primitive. The rider's position nearly atop the high-wheeler's center of gravity was very unstable. Falls were common and often fatal (Dodge 1996, 66), though many riders learned to fall properly (Ritchie 1975, 82). Because of these limitations, when the draisienne appeared in the late 1810s, and when the velocipede was invented in the 1860s, only upper-class young men enjoyed the resulting fads in the German states, in France, in Britain, and in the United States (Dodge 1996, 20). A few women rode velocipedes in French races (Dodge 1996, 50), but women and older people almost never rode high-wheeled bicycles. Nevertheless, the high-wheeler became a potentially permanent tradition. It was still limited mostly to upper-class young men, but cycling clubs and industries continued to grow throughout the West until 1890.

Industries appeared—and disappeared—with the draisienne and velocipede "crazes" in the 1810s and 1860s in the West. The English velocipede industry, centered in Coventry, provided the talented mechanics who created the high-wheeled bicycle. The tiny French velocipede industry was destroyed in the Franco-Prussian war of 1870-1871, but manufacturing started again in the 1870s. Competition with English exports kept the French industry—which included Adolphe Clement and the Peugeot brothers—small into the 1890s. The two centers of production were northeast Paris and the town of Saint-Etienne, southwest of Lyons; the latter had a long history of expertise in metallurgy and firearm parts, which supported the transition to bicycle production (Laux 1976, 7, 13, 18, 40-43, 66). An American businessman, Albert A. Pope, started the American high-wheeler market in the late 1870s by importing bicycles and then manufacturing them through the Weed Sewing Machine Company in Hartford. Production reached 1,200 bicycles per month by 1881. Pope introduced a

variety of marketing techniques such as industry magazines, industry trade shows, innovative advertising, and support for cycling clubs. After his patents started to expire in 1886, the four or five other American manufacturers started serious competition (Hounshell 1984, 190-200).

The danger associated with the high-wheeler spurred English manufacturers to create a "safety" bicycle. First, the pedals were separated from the front wheel, and were linked to the non-pivoting rear wheel by a continuous chain (Ritchie 1975, 124-125). Second, Dunlop's invention of the air-filled tire in 1889 allowed the new safety bicycle to be faster and more comfortable than the high-wheeler (Dodge 1996, 109-111). These two changes allowed designers to place riders much lower, between the two wheels, and on an efficient, diamond-shaped frame. As Bijker (1992) has argued, the male-dominated cycling community accepted this new "safety" bicycle only after racers found it faster than the high-wheeled "ordinary." By 1890 most bicycles sold in North America or Western Europe were safeties, not ordinaries (Dunham 1956, 426; Ritchie 1975, 132).

The development of the safety bicycle sparked a large-scale bicycle "craze" throughout the Western world during the 1890s. Many people rode bicycles for the individual freedom they offered, and the fact that they symbolized industrial and cultural "progress" (Weber 1986, 195; Harmond 1974, 241). Nevertheless, the courses of the American and French markets diverged after 1900. Although statistics from the period have problems, the trend is clear: the American market collapsed, while the French expansion continued.

French statistics come from the proceeds of an annual tax on each bicycle "in circulation." Bicycles owned but not regularly ridden were not taxed (Cavaillès 1908,43). It was originally conceived of as a luxury tax in 1893. Prices dropped and purchases, and therefore ridership, expanded, so the tax was dropped from twelve francs to six, and finally to three francs in 1906

(Cavaillès 1908, 32). As the market grew, relatively poorer people bought bicycles, and more and more sought to avoid the tax. Officials tried to estimate the amount of tax fraud committed in this period. In 1897, a cycling survey estimated the amount of fraud at 40 percent overall, and up to two-thirds of riders in big towns (Holt 1985, 128). The government compiled and published ownership statistics based on the tax revenues. Since the tax proceeds would probably have been audited, French statistics are a good minimum estimate of ridership. They show a very steady rise in the absolute number of owners. Plotted against the population, the trend is even clearer: more and more of the French population owned bicycles over this period. Considering the problem of tax fraud, ownership may have risen above 10% of the population by 1910.

Table 1. French Bicycle Ownership as a Percentage of the Population, 1893-1914

Year	Bicycles "in circulation" (in thousands)	Population (thousands)	Bicycle Ownership Percentage of Population
1893	151	38,380	0.39
1894	203	38,420	0.53
1895	256	38,460	0.67
1896	329	38,520	0.85
1897	408	38,600	1.06
1898	483	38,800	1.24
1899	836	38,900	2.15
1900	981	38,900	2.52
1901	1,101	38,980	2.82
1902	1,197	39,055	3.06
1903	1,315	39,124	3.36
1904	1,526	39,190	3.89
1905	1,658	39,222	4.23
1906	1,795	39,267	4.57
1907	2,060	39,269	5.25
1908	2,245	39,368	5.70
1909	2,471	39,430	6.27
1910	2,697	39,541	6.82

Source: *Annuaire Statistique de la France*, 1893-1910.

The American case offers a stark contrast. Dewing (1914), who lived through the bicycle fad, described the course of the American market: "The use of bicycles became so extended from 1892

to 1895 that it could be called a craze. The craze reached its height in 1897. It was maintained with but slightly lessened intensity to 1900, when it ceased even more suddenly than it had arisen" (Dewing 1914, 249). The U.S. government kept no records on the number of riders to confirm this account. It published sales figures sporadically, as industry organizations did, so the statistics below have been compiled from a variety of sources.

Table 2. U.S. Bicycle Sales and Sales as a Percentage of the Population, 1890-1914

Year	Dunham estimates	Schwinn statistics	Sears statistics	*Bicycling World* Statistics	United States Population (Thousands)	Sales as Percent of Population*
1890	40,000					
1891						
1892	150,000					
1893	200,000					
1894	300,000					
1895	500,000	800,000			69580	1.15
1896	1,200,000				70885	1.70
1897	800,000	2,000,000			71189	2.81
1898	500,000				73494	?
1899	1,113,000	1,182,621			74799	1.58
1900	1,208,801	1,182,850			76094	1.55
1901			400,000		77585	.52
1902				540,000	79160	.68
1903				210,000	80632	.25
1904		250,487			82165	.30
1905		252,923			83820	.30
....						
1909		233,707			90492	.26

Sources: Dunham 1956, 468; testimony by Arnold, Schwinn, and Co., U.S. Congress 1975, 173-174; Sears, Roebuck, and Co. *Catalogue*, 1902; and *Bicycling World and Motorcycling Review*, May 30, 1903, 735, and February 20, 1904, 587.
* Based on Schwinn statistics, except for Dunham's numbers for 1896, and the Sears and *Bicycling World* numbers for 1901-1903.

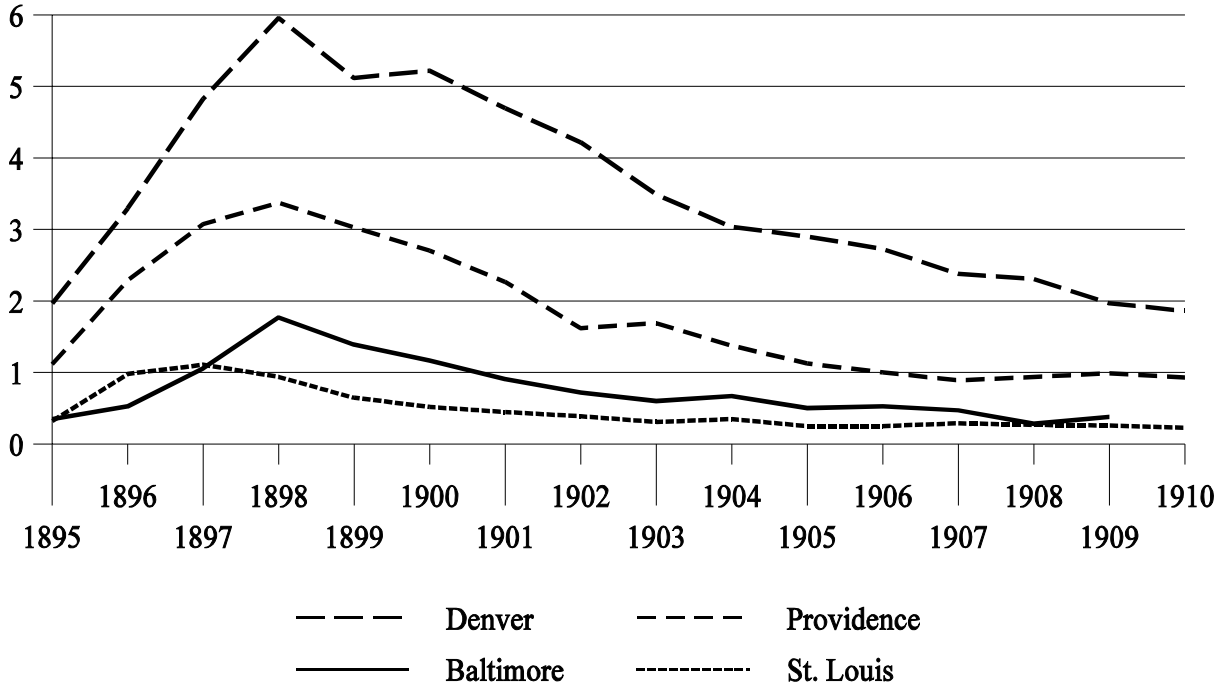
Overall, the numbers confirm Dewing's account. The combination of statistics from Schwinn, Sears, and *Bicycling World*, especially the 1900-1903 drop in sales—discussed more below—closely follow

Dewing's description of the market's trajectory closely. Dunham's estimates seem of variable quality, but fill in gaps in the other figures.

Indirect statistics also confirm Dewing's account. City directories, the precursors of telephone books, have existed for more than 200 years in the United States. Most bicycle shops of the time, as today, both sold and repaired bicycles, and the number of retailers selling and especially repairing bicycles can serve as a rough proxy for bicycle usage. The U.S. population was growing rapidly in this period, and the chart below shows the statistics plotted against population. It traces even more clearly the peak years of the bicycle boom.

Figure 1. Number of Bicycle Shops per 10,000 Population

Selected U.S. Cities, 1895-1910



Sources: City directories of Providence, RI, Denver, CO, Baltimore, MD, and St. Louis, MO, 1895-1910. Note: Duplications between categories (e.g., dealers or repairers) have been eliminated.

Each year of increasing sales would suggest that the market was worth entering the following year, so the peak year for the number of retailers would logically follow the peak year for sales. Since the peak year for bicycle establishments in almost every city is 1898, this evidence indicates a peak sales year of 1897, independently supporting the Schwinn figures and Dewing's description. Although all three sets of evidence agree on the peak year, the first two sources indicate a precipitous collapse, while the usage proxy shows a slow, steady decline; the first two sources indicate sales, while the third suggests usage, which trailed off slowly (see below).

The contrast between the courses of the two national markets is stark. The French market expanded slowly and steadily, and by 1910 included up to ten percent of the population. Considering cumulative sales over the 1890s, the American market might have equaled this number, but did so much more quickly, and this share shrank slowly but surely as the French market expanded. To understand how this divergence developed, we must look at the overall similarity before it.

Three factors limited the expansion of the market in the early 1890s market. First, women had been effectively excluded from the market, and now faced resistance when they tried to enter it. The existence of female tricyclists indicated a potential market. With the invention of the safety bicycle, manufacturers designed a bicycle for women by lowering the down tube to accommodate skirts, and by adding a mesh screen over part of the rear wheel, keeping skirts out of the rear spokes. After these changes, women started riding in numbers after 1890. Still, heavy skirts and constraining corsets left women breathless and hot during rides. These problems led upper- and middle-class women to try "rational dress": to stop using corsets (accelerating previously existing trends [Smith 1989, 326]), to try bloomers (suggested decades before), or to modify their skirts in some fashion (Harmond 1971-1972, 244).

Many people found the clothing shockingly immodest. In the early 1890s, women cyclists were attacked in the press, from the pulpit, and occasionally on the streets, mostly on the grounds of clothing, in the United States (Smith 1972, 99-105), in England (Ritchie 1975, 155-160), and in France (Thompson 1997, 184-188). Yet clothing symbolized a much larger social issue. In the Victorian era, the separate spheres doctrine asserted that women's "natural" place was in the home, while men's place was at work. In the late 1800s, a New Woman movement started in the West, in which women increasingly resisted social restrictions on public behavior. They started entering universities, taking jobs, and most important, questioning marriage and children—about half of American female college graduates in this era did not marry, and many who did never had children (D'Emilio and Freedman 1988, 189-190). The fear that bicycles would enable women to leave their "natural" place as wives and mothers and to engage in sexual immorality appeared on both sides of the Atlantic (Smith 1972, 76; Thompson 1997, 172-182), a fear even more intense in France because of the drop in the French birth rate. Despite the resistance, women took up cycling enthusiastically, and eventually comprised 25 to 30 percent of the bicycle market in the United States (Smith 1972, 35). The debate lasted longer in France but shifted to how much, not whether, women should ride (Thompson 1997, 172-182). The fact that women did not eventually make up 50 percent of the market suggests that many women continued to adhere to social restrictions.

Second, the bicycle's slightly disreputable status and dangerous reputation also continued. Young men of the American elite, mostly British-descended and almost exclusively Protestant, still formed the mass of riders in the early 1890s, though increasing numbers of women rode, and older people less concerned with respectability. However, in late 1894, "society" people—the top elite—started riding (Dunham 1956, 447; Harmond 1971-1972, 240). The number of riders was

already so large that this was an acknowledgment of a fact, not a dramatic shift. Nevertheless, the developing American middle class, in new professions such as teaching, sales, engineering, and clerical work, insecure about its position, and concerned with propriety and respectability in behavior and consumption, seems to have taken elite ridership as a signal, and bicycle purchases accelerated, creating a "boom" or a "craze" in 1895. The French middle class, also composed of people in the same new professions and occupations as the American middle class (Spielvogel 1994), may have taken its cues from the French bourgeoisie, and it may have occurred even earlier in France. Elite women met to ride on the Bois de Boulogne in "society races" as early as July 1893 (Thompson 1997 114-115).

The third limitation on expanding the consumer base was also removed over the 1890s. Both high-wheelers and early safeties cost between $135 and $150 in the United States (Smith 1972, 13, 25). Middle-class professionals could afford them; in 1888, Woodrow Wilson, then a professor at Wesleyan, rented a large house and employed two servants on $2,500 a year (Garraty 1998, 521). The average manufacturing worker made less than two dollars a day (Long 1960, 14), which works out to less than $700 per year, so a $150 bicycle represented around three months' wages (though Smith 1972, 25 says it was four months). As the market expanded, prices dropped to around $100 in 1895 (Smith 1972, 25). By the end of 1897, the height of the boom, bicycle prices were below $50 (Smith 1972, 36-37). Wages were historically higher in the United States than in France, and French bicycle prices dropped more slowly. Until the 1890s, a bicycle cost around 500 francs, or three months' pay for a teacher. By the late 1890s, Hirondelle's least expensive model cost 185 francs, making it available to clerks and artisans (Thompson 1997, 38).

Bicycle prices in both countries seem to have fallen for a relatively straightforward economic reason: increasing competition within the industry. American manufacturers made high profits in the early 1890s, and enjoyed "inordinate" profits in 1895 (Dewing 1914, 250). High profits attracted additional competitors; up to 1897, the peak year of the boom, the number of American bicycle producers increased every year (Dowell and Swaminathan 2000), although in 1896 and 1897, profits fell. The steadily increasing competition continually forced prices down. It is likely that prices fell in France under the same pressure of competition: in 1874, there were 75 manufacturers in France, but 300 in 1894 (Thompson 1997, 34-35).

Despite similar growth trends, the production process was not so straightforwardly economic. The two countries' economies were structured rather differently, and the bicycle industries reflected these differences. The term "bicycle manufacturer" must be understood loosely, since parts can be produced in one place and assembled into bicycles in another, or production and assembly can occur under one roof. It seems that this latter method dominated in the United States. Assembly-only shops were small, usually repair shops, and "undoubtedly manufactured a considerable [but unknown] number of bicycles" (U.S. Department of Commerce and Labor 1907, 30). Pope started manufacturing high-wheelers in a sewing machine factory, but later split off to form his own factory. The bicycle industry in the 1890s continued this tradition, with manufacturers of sewing machines, firearms, clocks, and cutlery producing bicycles (Hounshell 1984, 202). There were 27 manufacturers in 1890, 566 in 1897, and 312 in 1900 (U.S. Department of Commerce and Labor 1907, 29; Dunham 1956, 468). Production was centered, along with the bulk of the population, in New England, in the Mid-Atlantic states, and in the Great Lakes region. New York and Illinois had the most producers, but Ohio, Massachusetts, Connecticut, Pennsylvania, and Wisconsin had

substantial numbers of manufacturers, and twelve other states each had a few (U.S. Department of Commerce and Labor 1907, 30).

Empty, and therefore cheap, land to the west meant that workers could always escape factory work, so wages had long been high in the United States relative to Europe. (Economic histories of the United States tend to ignore the centuries-long political effort to empty the land of its original inhabitants by force.) American industries developed capital-intensive methods to cut labor costs such as the assembly line and interchangeable parts, which enabled high production rates, further lowering prices. By 1890, most factories used steam to power machines, increasing productivity more (Bruchey 1990, 45-51, 184-185).

In France, Paris and Saint-Etienne were the two major bicycle production centers, with additional production scattered throughout the country. Artisanal shops producing parts dominated the Saint-Etienne region. By the First World War, out of 31 establishments in the town's cycling makers association, only eight were "constructeurs," or assemblers (producing under one roof), so 23 members were probably parts producers (Vant 1993, 30-31). In contrast, the Paris sector of the industry was composed mostly of capital-intensive "constructeurs" producing in large factories, such as the Peugeot brothers or Adolphe Clement. These two major bicycle-producing regions competed with each other from the late 1890s, fighting about tariffs for parts or about access to national trade shows (Vant 1993 37, 39).

In contrast to the dynamism of American growth, which "took off" after 1830, French industry grew gradually, with many periods of accelerated growth (Price 1981, 96). The French bicycle industry, divided between crafts shops and factories, mirrored the structure of the economy. The nineteenth-century French economy has often been described as having a dual structure—slowly

growing capital-intensive industries and slowly shrinking traditional artisanal production. These craft traditions kept costs high, and over the century artisans maintained their traditional focus on high-quality goods (Caron 1979, 145-146), although they were in decline by this period (Magraw 1992, 6, 11-12). Various structural factors kept capital-intensive growth slow (Price 1981, 95), and artisans clung to their identity as independent craftsmen by adjusting to their changing markets.

Despite the regional focus of manufacturing, much marketing and distribution was national. The expansion of railway and telegraph networks throughout both countries during the nineteenth century provided the infrastructure for cheap national distribution of products, thus creating national markets (Price 1981, 136, 141; Bruchey 1990, 268-270, 311). The bicycle industry followed standard American practice in using jobbers, who bought "job lots" from a number of manufacturers and sold to many retailers. Bicycle manufacturers also distributed their products directly; many companies had representatives in cities all around the country (*Bicycling World*, 14 January 1905, 367). Little is known of the organization of French bicycle distribution structures.

Marketing and retail traditions in the two countries were surprisingly similar in this period, and bicycle marketing was quite innovative. "[T]he bicycle was the first expensive, durable luxury item to be mass marketed throughout the United States" (Petty 1995). During the boom, bicycle ads dominated the magazines and newspapers, which "carried more bicycle business than anything else" (Petty 1995). American advertisers hired renowned artists like Maxfield Parrish to draw large advertising posters. Many riders reported feeling like they were flying while riding, and posters often portrayed bicycles with wings and in flight. They also used scantily clad or nude women in posters to sell bicycles, a common practice of the time (Laird 1998, 94). More sedately dressed women were portrayed as riding fast with little effort. Bicycle manufacturers also obtained

endorsements from famous people, sponsored racing teams, held annual trade shows in Chicago and New York, and superficially altered models annually, using techniques of planned obsolescence. Manufacturers sold bicycles at a wide range of price points, segmenting the market by gender, age, and class (Petty 1995). French bicycle marketing is still not well known, although French manufacturers used techniques similar to those the Americans used, such as mail-order, elaborate posters, newspaper and magazine advertising, market segmentation, and racing sponsorships (Thompson 1997, 37-38, 40; Weber 1986, 210-212; *Le Manufrance du Collectionneur* 1996, II:8-19). In fact, the Tour de France was started by the sports newspaper *L'Auto* in a circulation battle with rival *Le Vélo*. It worked: *L'Auto* put *Le Velo* out of business and the Tour became a national tradition. Advertising worked in both countries. American sales clearly increased with more advertising (Petty 1995).

A wide variety of retail outlets sold American bicycles: bicycle shops, department stores, and sporting goods stores, but also hardware, music, furniture, and sewing machine stores; and even drugstores, clothing stores, cigar stores, and saloons (Smith 1972, 31). The retail outlets seem unusual, but American retail was in a state of flux (Strasser 1989). The two main mail-order houses, Sears, Roebuck and Montgomery Ward, advertised and sold bicycles in their catalogs, which were aimed mostly at the rural market. The retail scope for bicycles was similar in France but possibly narrower. Bicycles were sold through mail-order shops, including Manufrance, based in Saint-Etienne, which sold a wide variety of articles from the town's factories, not just bicycles. They were also sold throughout France in shops that sold machines, such as "cars, motorcycles, tri-cars, and sewing machines, as well as spare parts for all these machines" (Thompson 1997, 40).

Two retail practices further expanded these national bicycle markets. Many upper- and middle-class American riders bought new bicycles each year, trading in the old one for a price reduction on the new one. Retailers then sold the used bicycles at a reduced but still profitable price. Late in the boom used bikes sold for as little as five dollars (*Bicycling World* 15 November 1900, 141; 18 July 1901, 343; 1 August 1901, 375; 14 August 1902, 523). The schoolteacher in the Norman countryside who bought a used bicycle in 1898 (Weber 1986, 204) indicates the existence of a used French market; such bicycles cost as little as 50 francs (Thompson 1997, 38). Credit also extended the market. Installment sales were common, because most retailers knew their clients personally (Strasser 1989, 67-69). Bicycle trade journals originally attacked the practice (*Sporting Goods Dealer* August 1900, 4; *Cycle Age* 1 Feb 1900, 477), but later approved of it (*Cycle Age* 8 March 1900, 632; *Bicycling World* 11 April 1901, 41). Installments were often set at one or two dollars a week (*Cycle Age* 1 Feb 1900, 477). French bicycles were sold on credit (Weber 1986, 204), but there is no indication of how widespread this practice was.

The customers to whom these retailers sold were overwhelmingly middle-class, and consumption was broadly similar in France and in the United States: cyclists rode primarily for leisure. To begin learning to ride, many of the well-to-do in both countries explicitly adapted the idea of the equestrian academy, long a practice of the leisured classes. They set up bicycle academies, called *manèges* in France. The academies brought middle-class beginners through the often clumsy process of learning to ride out of public view. In the United States, there were exclusive, "discriminating" schools, and those which "admitted any person who could . . . lay down his fifty cents for a half-hour lesson" (Smith 1972, 27). French schools, however, affirmed the exclusivity of the bourgeoisie as a distinct class by fostering a "respectable" type of riding, again

equestrian in origin, which included the proper dress (for both sexes), an upright posture, and moderate speed (Thomspon 1997, 120-123).

Once riding, the neophyte was faced with the question of riding conventions, only partially solved by learning in a school Despite the lowered wind resistance and increased speed when one leaned forward, French bourgeois riders cyclists opined that only an upright position displayed elegance. Such riders were attempting to distance themselves in comportment from the *vélocipédard*, the uncouth working-class cyclist (Thompson 1997, 129). Likewise, wealthy and especially older Americans frowned on "scorching," that is, riding very fast or racing in pubic, which often caused accidents (Smith 1972, 195). And even sedate riding raised legal issues: were bicycles street or sidewalk vehicles? In 1897, New York city passed the first traffic code in the nation for bicycles, labeling them street vehicles, a code which cyclists fruitlessly protested (Smith 1972, 185, 198). Ministers fulminated from pulpits against Sunday riding, but tolerant—or shrewd—ministers set up bicycle racks in their churchyards, thus encouraging riding to church (Smith 1972, 72-75).

Riding in the United States did occur on city streets, especially on well-paved, low-traffic side streets, but many streets were in less than ideal condition from traffic, construction, or lack of pavement. Cyclists turned to paths in parks, or specially built ones in wealthy areas (Smith 1972, 195, 211. In France city riding was probably easier, but cities were growing and developing the problems typical of industrialization, such as pollution and crowding. French and American cyclists often fled cities for the countryside. In 1894, American railroads carried 430,000 bicycles, along with their riders (Tobin 1974, 842-843). Bicyclists touring the countryside were "served by a complex system of aids." Magazines, newspapers, and the League of American Wheelmen (L.A.W.) published maps and tour guides. The maps showed not only roads, but hills and rough pavement

(Tobin 1974, 842). The League also posted signs on well-traveled routes, and the tour guides rated the quality of rural inns. Although well-to-do city dwellers wanted to experience rural life, these institutions ensured that they would encounter "the same degree of urban comfort" they experienced at home (Tobin 1974, 845). Cycling clubs grew dramatically in number and in membership. Some organized races, others sponsored tours, and some existed only to promote centuries—rides of 100 miles or more—which were very popular, often all-day affairs. L.A.W. membership reached more than one million in the 1890s (Smith 1972, 206).

The similar practice of "cyclotourism" in France grew in the 1890s among the bourgeoisie. The American cycling clubs, the use of rail to reach the countryside, and the guides and maps all had their French counterparts (Weber 1986, 203). French cities were also experiencing problems such as traffic congestion, lack of sewerage, and increased air pollution, and the countryside, previously seen as primitive and barbaric, was now considered idyllic and peaceful. During their rural outings, the traveling bourgeoisie subjected the peasantry to an arrogant ethnography. Groups of cyclotourists would "observe and interrogate the inhabitants" of villages about their lifeways and customs (Holt 1985, 133). The arrogance evoked a predictable response. Peasants pelted cyclists with eggs and stones, set dogs on them, and put stones in roadways to knock the unsuspecting riders off their bikes (Holt 1985, 134). By 1900 the countryside was safer to ride in (Holt 1985, 138), and cyclotourism became an entrenched practice in middle-class France.

The French road system was the best in the world at the time, and supported cyclotourism. Started in the Middle Ages, systematized under Louis XIV, and institutionalized in the the Corps, and Ecole, des Ponts et Chaussées under Louis XV, the road system primarily supported military movement. Napoleon Bonaparte expanded the system, and the July Monarchy and the Second

Empire made further improvements (*Les Routes de France* 1959, 60-64; 70-77; 114-118; 132-133). The 1881 Freycinet plan instituted a general building program that constructed long-planned local networks (Weber 1976, 209-210). By 1891 the road system consisted of 525,000 km. of roads (Studeny 1995, 261), or roughly 328,000 miles. These were not dirt roads, but surfaced (Weber 1976, 204-205), mostly with gravel (Laux 1976, 7) but sometimes with stone.

The American road system compared badly with French roads. The Jefferson administration proposed a national system of roads, part of which was built, but construction ended in the Jackson administration on constitutional and sectional grounds. By default, states built local roads, producing a patchwork system (Goodrich 1960, chs. 2-3). As late as 1904, only 153,664 miles, or seven percent, of the more than 2,151,570 miles of rural roads in the United States were surfaced. The rest were dirt roads (*Bicycling World*, 12 October 1907, 81). The centralized French system thus provided four times as many miles per capita of surfaced road as the uncoordinated, patchwork American system did. In response, a "Good Roads" social movement started in the 1880s, making explicit comparison to French roads, and expanded dramatically in the 1890s. The movement included professionals, engineers, businessmen, bicyclists, and the cycling industry (Campbell 1980, 2) who lobbied state governments to build better roads. The movement encountered stiff, occasionally violent, opposition from farmers, who resented rich dandies scaring their horses. The movement also threatened their spring roadwork (done in lieu of taxes), which were often pleasant social occasions, and farmers argued against paying for roads that only rich city folk would use (Campbell 1980, 2, 8). In response, the League of American Wheelmen (L.A.W.) started wooing farmers, emphasizing what they, too, would gain from good roads (Campbell 1980, 9), such as an

improved social life and cheaper, easier transport of farm goods. Yet the movement only made very slow progress on improving rural American roads.

The American market had expanded very quickly, and the leisure-oriented market had probably become saturated by 1900. That year, the American population was 76 million. Around 45 million lived in rural areas, and most farmers had little time to ride, especially on the terrible rural roads. Even though many bicycles were sold late in the boom in small towns and rural areas (*Bicycling World*, 22 June 1899; *Cycle Age*, 15 March 1900), the urban and suburban middle classes, the primary market, constituted only a third of the 30 million in and around cities (Thernstrom 1973, 50). Since the very young, the very old, and about half of women did not ride, the likely market was much less than ten million people, and since at least 8.5 million bicycles had been sold since 1890 (see statistical section above), most people who were likely to buy bicycles—at least for leisure-riding—already had bought one. If consumption trends had remained steady, sales would eventually have fallen to a level of mere replacement.

On the production side, further competition forced prices down, and drove production levels higher. In 1895 and 1896, demand was still higher than supply, but in 1897, the situation reversed; manufacturers previously unable to fill orders at the end of the year now had overstocks they could not sell (Dewing 1914, 251). Bicycle prices continued to fall, production continued to rise, and more manufacturers entered the industry. "By 1897 net earnings were less than half what they had been in 1896" (Fielding and Miller 1998, 46). Manufacturers increasingly exported production instead of selling it domestically (Harmond 1974, 250). The mail-order houses, Sears and Ward, sold the cheapest bicycles in the country. Ordering through the mail eliminated jobbers and retailers and their costs, so mail-order prices were often half of retail prices. Furthermore, Richard Sears relentlessly

cut costs to undercut his rival, Aaron Ward (Hoge 1988, 34-35). The Sears *Catalog* illustrates price trends. In 1894, the lowest price for Sears' men's bicycles was $55.95; a year later, $39.90; in 1897, $29.90; in 1898, $17.85; and prices bottomed out in 1902 at $9.75, rising slowly from there (Sears, Roebuck and Co., 1895-1905). The mail-order houses sold mainly to the rural market, but still helped force urban prices down. In 1898, bicycle sales decreased for the first time, shocking many in the industry; over the next few years producer exits exceeded entries, reversing previous trends (Dowell and Swaminathan 2000), while end-of-year inventory continued to rise (Dewing 1914, 251). The lavish advertising, outlined above, also drove costs up as overstocks increased and competition intensified. Profits therefore continued to fall. A saturated market and vicious competition produced what might only have been a serious shakeout. But additional factors created a catastrophic crash.

In 1895, automobiles entered American consumers' consciousness. The American press extensively covered the Paris-Bordeaux-Paris race that year, and two automobile industry periodicals were founded later that same year (Flink 1970, 21). The Chicago *Times-Herald* and *Cosmopolitan* magazine sponsored auto races in the United States; the two cars that finished the *Time-Herald* race in deep snow, in below-freezing temperatures, impressed the reading public (Flink 1970, 23). Trips in 1897 and 1899 from Cleveland to New York resulted in more favorable publicity (Flink 1988, 30). Automobiles soon became commercially viable, offering new opportunities for exclusivity.

The search for exclusivity on bicycles continued late into the boom. In 1900, for instance, the wealthy favored the new chainless bicycles, "because they are the highest priced and therefore the most exclusive" (*Cycle Age*, 12 April 1900, 787). Later that same year, however, *Bicycling World* reported (13 September 1900, 465) that the wealthy had given up cycling. Instead, they started driving. Both the timing and the style of consumption were illustrated in *Outing*, "one of the

most important sporting publications ever published in the United States" (Smith 1972, 9). *Outing* catered to upper- and upper-middle-class males, who read about cycling, fishing, football, golf, hunting, tennis, rowing, yachting, and other pastimes in the magazine. *S*uccessive *Outing* tables of contents illustrate the elite shift from bicycles to automobiles. As a pastime, and even as a sport, elite cycling was replaced by driving by the spring of 1902.

Table 5. Number of Articles on Cycling and Automobiles, *Outing* Magazine, 1899-1903

		Number of Articles on	
Volume	Period	Cycling	Automobiles
35	October 1899-March 1900	4	0
36	April 1900-September 1900	7	2
37	October 1900-March 1901	0	5
38	April 1901-September 1901	5	4
39	October 1901-March 1902	1	3
40	April 1902-September 1902	0	2
41	October 102-March 1903	0	3
42	April 1903-September 1903	0	4

In these early years, driving was a leisure activity usually accomplished with a chaffeur, not primarily a means of transportation (McShane 1994, 126-127). *Outing* ran articles on touring, racing, and camping with automobiles, as well as on automotive transportation and repair. They had difficult mechanical problems: hand-cranking, short tire life, and shifting, steering, and braking that required "considerable physical strength," as well as frequent rollovers on primitive roads, frequent collisions with pedestrians, and winter weather which prevented driving until spring (McShane 1994, 126-127). Exclusivity also had its due. "As early as 1899 . . . newspaper stories were reporting how the primitive vehicles were being used for ostentatious display" (McShane 1994, 127), and such stories continued through 1905. Before this year, only physicians used them for practical reasons, by expanding the geographic range of their house calls (Flink 1970, 71). Automobiles effectively replaced bicycles as an exclusive leisure activity.

They did this because autos were becoming commercially available. In the late 1890s, the larger, better-capitalized bicycle manufacturers had started producing automobiles. For instance, Albert Pope began auto production in 1897, and "[b]y the end of the year [he] had made some 500 electric and 40 gasoline automobiles" (Flink 1988, 9). Other bicycle producers followed suit, although carriage makers also started manufacturing automobiles. Much production was experimental, and gasoline-powered "horseless carriages" competed with electrics and steam-powered cars (Flink 1988, 22-25). The decisive shift occurred relatively quickly after that, as illustrated in *Cycle Age and Trade Review*, a competitor of *Bicycling World and Motorcycling Review*. In January 1901, the magazine covered only cycling. Then it introduced an automotive section; soon this section expanded. Then automotive issues moved to a related journal, *Motor Age*. Soon *Motor Age* stopped, and *Cycle Age* reintroduced automotive issues. Finally, automotive topics were placed literally at the front, and cycling became a secondary topic. By 1902, cycling articles had completely disappeared. (From that point on, *Bicycling World and Motorcycling Review* was the only bicycle industry journal until 1915.)

A few years before, the larger bicycle manufacturers also consolidated, ostensibly to reduce competition. "Trust" was the popular name (and, in the 1880s, the legal instrument) for many companies consolidated into one large company to reduce competition. In the 1890s, the holding company, a company which owned other companies, was the preferred method of consolidation. In response to the depression that started in 1893, companies increasingly merged, a movement that peaked between 1895 and 1904 (Lamoreaux 1985). The American Bicycle Company (A.B.C.), formed in 1899, was popularly known as the "bicycle trust." According to George Pope, Albert's cousin, "[c]ompetition was of the cut-throat order" before the trust was formed (U.S. Congress 1901,

689). Dewing claimed the trust "controlled upwards of 65% of the country's entire output of bicycles" (1914, 252) but *Cycle Age*, antagonistic to the combine, said its production was less than 50% of industry output (8 June 1899, 137-138).

The bicycle trust moved quickly to cut costs. It ended patent litigation between trust members; it carried smaller parts inventories, and reduced administrative costs. The company closed eight plants in its first year of production, and converted two to automobile production. Supposedly, it also reduced advertising (Smith 1972, 243), but this is questionable (U.S. Congress 1901, 690). The A.B.C. turned a profit for its first two years, but by 1902 it could not meet its dividend payments, and ended up in receivership. Albert Pope, as one of the receivers, reorganized the A.B.C. into the Pope Manufacturing Company (*Bicycling World*, 2 May 1903, 157).

It is possible that there was another reason behind the bicycle trust: the trust organizers may never have intended to control the entire industry (say, as Standard Oil did in petroleum), but only wanted to gain a large enough share to provide a financial base for auto manufacture. The trust established four subsidiaries, three producing automobiles or parts, only one producing bicycles. This subsidiary did not coordinate production between its factories. When the eight bicycle factories were closed and sold, they transferred sale proceeds to the auto subsidiaries. Months before the collapse, trust managers transferred all assets to the subsidiaries, so when the A.B.C. failed, it was an empty shell with no attachable assets, protecting the operating companies from seizure during the receivership (Fielding and Miller 1998).

The formation of and financial manipulations of the bicycle trust suggests the possibility that manufacturers had given up on cycling even before the market crashed—indeed, that they saw this crash coming (Fielding and Miller 1998). Yet this is unlikely. The auto market was oriented to a

small elite for some years. Had the much larger middle class continued riding, the industry would probably have faced a shakeout due to saturation, but it would have recovered and remained profitable. This did not happen. Instead, when wealthy people stopped riding, middle-class riders, who formed the bulk of the bicycle market, also gave up cycling *en masse*. The real reason the market collapsed so completely was that middle-class leisure riding almost entirely ceased, a development the trust-makers could not have foreseen.

Why did this happen? First, middle-class people wanted automobiles. The upper-class market was saturated by 1907 (Flink 1970, 50). The upper-middle classes, for instance those who owned their own homes, were buying small autos as early as 1903 (Flink 1970, 72). Yet as late as 1910 middle-class families were having difficulty affording automobiles; they took second mortgages, had fewer children, did not send their children to college, and reduced savings (McShane 1994, 133-134) in order to buy autos. It is very doubtful that the middle- and lower-middle classes—teachers, clerks, and small businesspeople—could afford automobiles in the earliest era, yet they clearly dropped bicycles in this period.

Second, and more importantly, middle-class riding seemed to decline in response to the increase in working-class riding. The shift toward workers started before the nineteenth century ended. *Cycle Age* reported in 1898 that bicycle commuting nearly tripled between 1896 and 1898 (22 September 1898, 602). In 1900, one observer in St. Louis claimed, "when [cycling] gets common the smart set leave it and the medium closs [sic] do the same" (*Bicycling World*, 13 September 1900, 465). In the same article, a Kansas City man reported, "In former years we had a good trade among business and professional men. This season it is almost entirely missing." In 1901, *Bicycling World* stated, "'Society' withdrew its favor, and the various strata below it followed

its example" (7 March 1901, 643), and that pleasure riding had almost stopped completely (29 August 01, 441), a point it made repeatedly (11 September 1902, 604). On Christmas day of 1902, the magazine complained, "Many now are inclined to regard the bicycle as a machine of utility for the toiling classes . . . and hold it to be beneath their dignity" (25 December 1902, 382). *Bicycling World* repeatedly confirmed the working-class character of this new practice (7 and 28 March 1901, 643 and 727; 26 March, 1904, 737; and 27 May, 1905, 225).The trend is clear: when workers took up transportational cycling, the middle-class stopped leisure riding.

That this was an accidental correlation is doubtful. When Southern blacks started bicycle riding—again, very likely through the used market—white Southerners stopped bicycle riding immediately, because bicycles were tainted by association (*Cycle Age*, 23 November 1899). Something similar probably happened in the North. The American working class was fragmented ethnically in every city. The middle classes were most British, Dutch, or French, and almost all Protestant, while massive contemporary immigration brought in mostly Catholics or Jews from eastern and southern Europe, groups who were considered to be different, and inferior, races (Altschuler 1982, 43-44). More than 75 percent of American workers in this period were immigrants or the children of immigrants (Gutman 1987, 385). Although the second generation spoke perfect English, they lived in ethnic enclaves, and continued consumption patterns of the home country in dress, food, decoration, and leisure pursuits. Middle class people found immigrants threatening, and they supported efforts to impose Protestant norms and English on their children in school and to restrict further immigration (Altschuler 1982, 46-47). They also segregated themselves from immigrants by moving to suburbs. These factors suggest that the American middle class stopped cycling because it acquired an association with "ethnic" workers.

The final reason the middle class quit cycling was probably the state of American roads. By 1900-1902, the Good Roads movement had only a few successes; the road situation was still terrible. In fact, consumers and manufacturers continued the Good Roads movement to benefit automotive travel, with long-term success. And it is significant that during and after the bicycle boom, bicycle racing was very popular in the United States, but only on velodromes (Nye 1988)*, in contrast to the European tradition of road racing. Middle-class riders probably realized that leisure rides on the poor American rural roads were not, in fact, all that leisurely; when workers started riding, the middle classes were perhaps ready to stop.

With one exception, the transformations that occurred in the American bicycle market around 1900 also occurred in France. Falling prices meant that bicycles "ceased to count as objects of conspicuous consumption" (Weber 1986, 204). With the increasing mechanical viability of automobiles, most upper- and upper-middle-class people stopped riding bicycles and turned to automobiles. The automobile "captured" the French elite, and it was "an indispensable mark of distinction" in Paris among wealthy doctors, merchants, and businessmen (Studeny 1995, 306). By 1898, "Paris had . . . entered a feverish automobile boom" (Laux 1976, 40). The same general conditions of leisure driving, wealth display, danger, and mechanical difficulty obtained in France as they did in the United States, as did the practical use physicians made of autos (Studeny 1995, 306-309). This was not in addition to bicycle ownership, but a replacement for it; in 1903, *Bicycling World*'s French correspondent reported that bicycling was "now wholly confined to the middle class" (22 August 1903, 608). French bicycle manufacturers responded to this new demand for autos and to a similar slump in the late 1890s (Laux 1976, 74), possibly because of competition with American

* Nye never states this outright, but he writes only about track races, never about road races.

exports, by starting to manufacture automobiles. The Peugeot brothers began auto manufacture in 1895. Adolphe Clement did the same a bit later, and Alexandre Darracq started financially successful production in 1900. Some manufacturers switched completely over to automobiles, but many continued to manufacture bicycles along with autos (Laux 1976, 40-43, 133-135).

Practical bicycle traffic also increased, probably from bicycle commuting. The need certainly existed: "[T]he trajectory between home and work had been lengthening since the mid-nineteenth century in Paris" (Berlanstein 1984, 123). A *Bicycling World* article on Paris (7 October 1905, 26) emphasized the "utilitarian" aspects of Parisian cycling, and said that the streets were almost as filled with cyclists as London was. An observer in 1912 noted that workers and clerks used it for commuting, but that it was also still used for leisure (Studeny 1995, 304).

And this is the key difference between the two national markets: the bicycle retained its role as a middle-class leisure item in France. Cycling clubs continued to be founded and to expand well after 1900. There were 800 cycling clubs in France in 1910, an increase over previous periods (Thompson 1997, 137). Their main function was to organize leisure-oriented events such as races or country tours. They were usually composed of petty bourgeois, white-collar employees, and skilled artisans. "Factory workers and farmers were disproportionately absent," and the clubs usually were headed by high bourgeois (Thompson 1997, 139). The presence of the upper-middle class in leadership positions in these clubs suggests that cycling, especially cyclotourism, did not lose any middle-class respectability after 1900.

Why did the French middle classes not abandon bicycles as more and more workers started riding? The expansion of the petty bourgeois and working-class bicycle markets relied on lower prices, but "the wholesale adoption of the bicycle by the working population should not be put at too

early a date" (Holt 1985, 129). That is, it moved slowly down the social scale because prices dropped slowly. Around 1910, a cheap bicycle cost the equivalent of 333 hours' worth of wages for a provincial factory worker (Fourastié 1963, 299, as cited in Gaboriau 1995, 140)*. Skilled artisans may have been able to afford bicycles, but most workers probably bought bicycles on the second-hand market, which would have continued to expand as middle-class riding continued. This probably occurred because craft production was more expensive than machined, mass production. Little is known about the replacement of craft methods with machines in the French bicycle industry in this period, but as Vant (1993) shows, the Saint-Etienne region specialized in craft production, and craft traditions were also slow to die in Paris (Berlanstein 1984, 78). The slowness of the price drop allowed cycling to become institutionalized in the petty bourgeoisie's way of life before workers started riding.

It also allowed manufacturers time to recognize that a new, working-class market was forming, and to advertise to this new market. The Manufrance catalog of 1900 advertised a model called "Outil," and the 1901 catalog advertised tricycles with delivery boxes between the two front wheels (*Le Manufrance de Collectionneur* 1996, III:2). Middle-class riders were not repelled probably because there was more local cultural homogeneity in France than in the United States at the time. France's regional cultures remained solidly entrenched well into the late nineteenth century. Peasants continued to speak Breton, Languedoc, and Occitan, not French. And it was not as if the classes lived in harmony; the bourgeoisie feared and tried to control workers (Thompson 1997, 129). Nevertheless, the national education system, compulsory from the 1880s onward, forced children to learn only in French. White-collar workers of Paris, such as clerks and salespeople,

* Holt, Weber, and Thompson all cite this source. Thompson suggests that this price is too high (37, footnote 51), and that it was more available to workers than Holt or Weber think.

associated relatively freely with both workers and bourgeois, and borrowed values and consumption patterns from both groups (Berlanstein 1984, 30-35), unlike the American middle classes, who fled to suburbs to avoid alien "races." And most importantly, peasants, proletarians, and bourgeois in any given region shared something of a common culture, at least a common language. In contrast, the mostly British-descended U.S. middle classes they faced a contentious mix of alien working-class groups in all cities. The slow price drop, providing time for manufacturers to recognize a new market, relative local cultural homogeneity, and a good road system came together to support the continued expansion of the French bicycle market to the First World War.

The course of the French bicycle market suggests a possibility for the American market, but one that never occurred. Given the collapse in leisure riding in the United States, a short-term drop in sales was inevitable, but developing a new market was possible. In fact, the shift to transportation should have occurred more quickly and more thoroughly here than in France, because American wages were higher, and American productive capacity was larger. The number of bicycle dealers and repair shops per city declined slowly over the first decade of the twentieth century, not nearly as quickly as annual sales had dropped, so people were still riding. In fact, Minneapolis traffic surveys of 1906 showed four bicycles for every one automobile on city streets, even in frigid December (Monkkonen 1988, 172-174). However, "[b]icycles virtually disappeared in all American cities" between 1907 and 1909 (McShane 1994, 189). Since the American population was expanding, wages were high, bicycles were affordable to many in the working class, and people were actually riding them for at least five years after the bust, there was a potentially large market after 1900. Why did it continue to decline to 1910? A number of economic explanations can be offered: competition with trolleys, lack of a need for bicycles, and urban paving problems. However, these

consumption-side explanations seem unconvincing; instead, the presently available evidence indicates that manufacturers did not adjust their marketing strategies to follow the consumption shifts already outlined.

As transportation, bicycles competed with alternative forms of transport; the main competitor was the electric trolley (Smith 1972, 243; Dunham 1956, 484). The rapid diffusion of electric trolley systems to many cities after their invention in 1888 (Goddard 1994, 66-68), replacing slow, horse-drawn (and therefore filthy) omnibuses, provided a clear alternative. *Bicycling World* repeatedly argued that trolleys had spelled the end of the bicycle (25 July 1901, 363; 15 August 1901, 407; 6 May 1905). And trolleys and bicycles did compete; the *Sporting Goods Dealer* reported increased bicycle sales and usage during a trolley strike in St. Louis (May 1900, 14; June 1900, 19). Nevertheless, the trolley hypothesis is doubtful. First of all, the cost of purchasing and maintaining a new bicycle for three years was one-third the cost of taking the trolley over the same period (*Bicycling World*, 24 March 1906, 581). One could take the trolley in bad weather and still save money over time. Widely available credit and the existence of the second-hand market opened the general bicycle market even further. Second, bicycles were faster and more flexible than trolleys, which stopped frequently and ran on a rigid route. Third, people of the time hated trolley systems (Tobin 1974, 841; Monkkonen 1988, 161). "Accidents and breakdowns were commonplace . . . trolleys were dirty, noisy, and overcrowded" (McShane 1994, 115). Finally, the French bicycle market expanded exactly when many French cities were constructing trolley systems. At least 40 French cities and towns had initiated trolley service by 1900, and more were under construction (Robert 1974, 87). The amount of trackage in the U.S. was far higher than in France (Hugill 1993, 191), but French cities, on the other hand, were far denser and less spread-out than American cities

were (Teaford 1984, 220, 227), so they needed smaller trolleys systems, and the French population was smaller. The idea that trolleys ended the U.S. bicycle era is therefore unconvincing.

Another possibility is that the layout of French and American cities differed so much that American workers did not need bicycles. American cities were less dense than European ones, because they never built heavy walls around cities (Monkkonen 1988, 53-58). European cities had faced potential enemies for many centuries, and city walls lasted well into the nineteenth century in France and Germany (Sutcliffe 1981, 3-4). American settlement had benefitted from indigenous demographic catastrophe and American military superiority; American cities therefore needed no walls. In Europe, land costs were uniformly high inside city walls, while they were low in the unprotected area right outside. Industrial suburbs and working-class neighborhoods developed outside these walls, while more prosperous groups stayed in the city center (Sutcliffe 1981, 141-142; Berlanstein 1984 3-4, 9-11). As industrial suburbs developed, Parisian workers' commutes—accomplished only on foot—increased over the late nineteenth century. Some workers' commutes were several *hours* long (Thompson 1997, 130). In unwalled American cities, land costs dropped steadily from the city center. Buildings were set farther from each other than in Europe, and streets were wider. Elites fled crowded city centers for cheaper suburbs, supported by horse-drawn, and then electric, trolley systems, while working-class ethnic enclaves stayed near the city centers. Perhaps workers lived so close to industrial employment that they didn't need bicycles.

This is doubtful. No other French city was as large as Paris, and the number of workers who had to walk so far is not known. Most American workers did not take trolleys, but also walked everywhere (Monkkonen 1988, 160-161), so in this spread-out, low-density environment, even heavy bicycles would have reduced commute times. In Detroit, workers lived in residential districts

separated from industrial districts, and their walk varied from under a mile to more than two miles one way. In Philadelphia, workers' average commutes had risen from a half-mile to a mile between 1850 and 1880 (Monkkonen 1988, 161), and American cities continued to grow tremendously after 1880. Workers changed employment often in this period, and would therefore have had varying commutes. Family members often worked in different sections of the city for employment (Zunz 1982, 178-185), so a family bicycle would have given each household more flexibility in employment and lower commute times. American workers would likely have benefitted from bicycles.

A third possibility is that workers might have needed bicycles, but could not use them without paved streets. In 1900 about half the streets in major cities were paved (McShane 1979, 280), and large cities could presumably afford more paving than small cities and towns could. Furthermore, paving varied with class; the "ethnic," working-class eastern side of Detroit received far fewer infrastructural improvements—including paving (and repaving cobbled streets)—than the WASP, middle-class west side in this era (Zunz 1982, 114, 123). If most working-class city districts were poorly paved, as in Detroit, the bulk of the population in the United States, both rural and urban, had little access to paved streets. Comparable statistics on French street paving have not yet been published. Fragmentary indications from secondary sources suggest that "American cities had notoriously poor-quality streets, particularly in comparison to those in Europe" (Monkkonen 1988, 167). The pavement itself was less well-maintained, and American cities were much dirtier (Teaford 1984, 228). And paving long, wide American streets was costly. American cities had many more square yards of pavement than German cities, on average (Teaford 1984, 227-228).

On the other hand, the United States was wealthier than Europe in this period, and may have been able to afford equal paving; perhaps the percentage of streets paved was similar. At least around Paris, working-class suburbs did not belong within the jurisdiction of the city of Paris, and thus had minimal infrastructure; sewers and the water supply were of poor quality, new building was unregulated, and public amenities were few (Sutcliffe 1981, 141). Presumably paving was also poor in these districts, yet working-class riding increased. And bicycles would still have been useful to American workers on dirt streets, when they were dry. Since they were walking anyway, when streets were wet and muddy, people could have walked their bicycles to the paved main streets and thus saved at least some time.

Utilitarian consumption-side explanations are thus not convincing. Instead, based on the evidence presently available, the American working-class bicycle transportation market declined after 1900 because American bicycle manufacturers missed a marketing opportunity. They never seriously marketed bicycles to the working class. Again, this may have occurred on "economic" or profit-seeking grounds. Manufacturers remaining after the painful crash after 1900 may simply have preferred to keep prices and profit margins high and allow the market to remain limited. Around 1900, *Bicycling World* and *Cycling Age* (before its 1901 automotive reincarnation) attacked the mail-order houses, arguing that they lowered profit margins to "infinitesimal" levels (*Cycle Age*, 26 July 1900, 322). *Bicycling World* attacked Sears, Roebuck by name (30 May 1901, 213), and repeated these attacks with regularity over 1901 and 1902. Sears's sales allegedly dropped 80% in 1902, much to *Bicycling World*'s delight (12 June 1902, 309). Articles on "the decline of cheapness" then appeared, asserting that sales of low-price bicycles were down while high-priced bicycles were

selling well, within the newly shrunken market (*Bicycling World*, 26 February 1903, 642). And *Bicycling World*'s editors explicitly supported high profit margins (26 March 1903, 765, 766).

But the argument that the entire industry consciously pursued a high-margin, low-volume basis is insufficient. The opposite strategy—high volume and low margins—might have worked, considering that the working class was expanding quickly and commuting was already occurring. Price and weight were inversely proportional; a redesigned, heavy, but sturdy (i.e., "high quality") bicycle might have been inexpensive to produce—it might even have had decent profit margins—and would have sold in the millions. This did not happen. A far better explanation than high margins is that the industry as a whole suffered from what Leavitt (1960) called "marketing myopia."

In this period (1890-1910), most marketing and advertising in all American industries was approved by owner-manufacturers themselves. Businessmen usually ran ads that mirrored their own class status. They judged advertising according to their own tastes, assumed that others' reactions paralleled their own, and therefore projected their own interests onto the world. They did not learn how others lived or how others felt about or used their products (Laird 1998, 91-94, 97-98, 127). In its inability to see the new, working-class market, members of the bicycle industry seem trapped inside their own view of the world, unable to adjust to new conditions and a new set of consumers.

Most people in the industry clearly wanted to expand the bicycle market. Throughout the decade 1901-1910, *Bicycling World* repeatedly ran articles suggesting how to increase "the trade" in bicycles, and letters to the editor repeatedly responded to them. The only mention of the possibility of a "utility" market appeared at the end of a 1901 page-long article on "why the trade collapsed." This last paragraph suggested that the subject of practical riding "[was] a much vaster one . . . whose consideration is deferred until another time" (*Bicycling World*, 29 August 1901, 441).

The promised article never appeared. Despite ads containing police bicycle squads (1 September 1906, 642), despite continuing accounts of working-class ridership (28 March 1901, 727), and despite explicit admission of the size of the utilitarian market (2 January 1904, 377), every single editorial on expanding the national bicycle market (one in 1903, three in 1904, three in 1906, and four in 1907) implied or explicitly stated that promoting leisure riding was the best strategy. It seems that the industry clearly understood that the market had shifted from middle-class leisure to working-class transportation, but just as clearly, they did not understand that this shift was permanent.

Albert Pope, long the leader of the industry, had bought the remnants of the American Bicycle Company, reorganizing it into the Pope Manufacturing Company. He had owned *Bicycling World and Motorcycle Review* (the major source of information at present) since its inception (without the mention of motorcycles) in the 1880s. Anything in *Bicycling World* was likely to reflect Pope's world-view, and *Bicycling World* was the only industry journal from 1901 to 1915. Because of the crash, the ABC/Pope Manufacturing may still have controlled over 50% of industry production. It is possible that other manufacturers did not want to cross Pope, they followed his lead because of his early success in starting the U.S. bicycle industry, or they themselves thought the way he did. This last is most likely, because *Bicycling World*'s attacks on the mail-order houses demonstrates that the magazine covered everything of note in the industry, even if negatively. Had other manufacturers tried some innovative marketing to the working class, *Bicycling World* would probably have mentioned it, even if to criticize it.

Therefore, what is missing from the pages of *Bicycling World* shows the manufacturers' cultural myopia even more clearly. In the early 1890s, manufacturers had worked hard to lighten

bicycles (Harmond 1971-72, 238), and cost and weight were inversely proportional. After attacks on the mail-order houses died down, there was no discussion of producing a cheap, heavy, sturdy bicycle, suitable for commuting on rough streets. In other words, "quality" was not redefined for the needs of a different set of customers. There was no discussion of how to sell bicycles to an ethnically fragmented market. Retailers wrote many letters to the editors, but not about language problems or cultural misunderstandings with immigrant customers. And despite the tantalizing suggestion that the potential "utility" market was "vaster" than the leisure market, no editorial ever suggested purposely marketing to the working class. In short, most or all of the industry seems to have been trapped with a culturally and temporally determined definition of their product—bicycle as leisure item. They focused on outdated consumption practices instead of redefining their product for a new market; they did not redesign it for that new market's needs, and they did not attempt to reach these new consumers. As a consequence, the U.S. bicycle market declined steadily until 1910.

The French bicycle market continued to expand into the 1940s, with interruptions in the First World War and the Great Depression. Cyclotourism remained popular, and most workers and peasants rode bicycles for transportation. Bicycle racing, and especially the Tour de France, an annual tradition with almost religious overtones (Sansot 1989), remained popular in Europe to the present. In the 1950s and 1960s, however, French workers were finally able to afford automobiles, and started buying them; bicycle sales and ownership dropped. In contrast, the American bicycle market always remained middle-class and recreational. *Bicycling World and Motorcycling Review* shifted its emphasis from bicycles to motorcycles after 1910. In 1915, a leisure-driven bicycle "boomlet" developed for a few years; a new magazine, *Bicycling News*, was even published for a while. After the brief post-war depression (1920-1921), sales fell to their lowest since the early

1890s. With the dramatic expansion of the American automobile market in the 1920s, middle-class children became the primary market for bicycles. From the 1930s to the 1970s, this children's bicycle market expanded steadily, both absolutely and as a percentage of population, probably mostly in the suburbs. The adult market enjoyed another "boom" in the 1970s, and bicycle racing and touring finally became popular in the United States. Americans even started winning the Tour de France. But to this day few Americans commute by bicycle.

This story of how the American and French bicycle markets started so similarly in the 1890s and diverged so clearly after 1900 supports the model of markets presented above: "Markets are groups of consumers in ongoing relationship with groups of producers. Producers repeatedly sell goods or services to those consumers in exchange for money." A "purely economic" analysis of these two cases—focusing exclusively on wages, prices, and resource availability (such as petroleum for gasoline)—proves to be an incomplete analysis. By tracing how both social and economic factors led producers and consumers to interact with each other about this product in unpredictable ways over time, we gain a much clearer picture of how these two cases diverged.

The market started with strange inventions which had only tiny markets. The development of the safety expanded the market tremendously, but manufacturers had to develop a women's bicycle, and women had to fight social prejudice and custom in order to respond—and not all responded. Elite approval removed any ill reputation bicycles had, helping further expand the market, and manufacturers entered this burgeoning market in droves. Prices dropped, even further expanding the market. Still, the primary market was for leisure, not transportation. Expansion in the number of producers caused a shakeout in both countries, a development exacerbated in the

United States by interclass ethnic conflict and lack of infrastructural support—the middle classes here stopped riding when bicycles started to symbolize not leisure but danger from alien groups. Manufacturers did not respond to this development, trapped within their own definition of the product. Greater cultural homogeneity, strong infrastructural support, and perhaps wide-awake marketers helped the French bicycle market to continue to expand for decades.

This case study suggests some hypotheses about the process of how markets form. It almost seems like a process of move and countermove in a game, though the game is more like "keep-it-up" than chess. It is a game played unequally—each side has different powers. As White (1981, 1988) asserted, producers, not consumers, decide what to offer; this can be called an opening move. Consumers do not need to make countermoves to producers' moves—they can let the ball drop—but if they do respond, producers can make a profit. If consumers continue to respond to continued production and sale, the producers will continue to produce and sell products, and the product, and the entire market, may become institutionalized. Consumers may stop purchasing; producers must respond to this by addressing actual consumption practices, not just "demand" as presented by sales (or lack of them), and perhaps send the ball to different consumers, or they might fail completely.

Each side responds not only to the other side of the market, but to a host of factors outside this relationship. Both producers and consumers respond to the relationship between their available incomes and the prices offered for products (or for factors of production), and lower prices do expand consumer bases. But both sides also respond to direct and indirect actions of the state, to traditional methods of doing thing (making or using things), to conflicts or cultural affinities between social groups, and to understandings of gender. In other words, factors which economists like to claim are exogenous are in fact endogenous—they make markets possible or impossible, and prices

and incomes operate within these influences. When products are introduced into market economies, they are introduced into societies. The way these societies are structured affects whether products succeed or fail.

This argument seems to apply narrowly, as merely another criticism of product life cycle theory. Yet as mentioned near the beginning, it also points to a large gap in the economic sociology literature. At least in the formation of markets, many factors on both sides of the market must be attended to in order to understand how the market forms. Perhaps theories of how established markets function may eventually address how producers and consumers interact.

Addendum:

Additional Hypotheses Suggested or Generated

Since the Completion of the Paper

July 26, 2001

Since the era of technological innovation in the late 1880s and early 1890s was probably rich in interactions between producers and consumers, I plan to extend the time scale of the study back to around 1885, Indeed, for the "safety" bicycle to evolve, manufacturers would have to have a keen awareness of their market. For example, manufacturers created a women's bike; how did they know women were interested? They created a "safety" bicycle—how did they know the high-wheeler was dangerous? They used the pneumatic tire as soon as it was invented—how did they know it was more comfortable, and that riders wanted it? Through such questions I will address the larger question: how did they know what their consumers wanted? How did they define "their" consumers?

Likewise, the dramatic expansion of the women's market after 1890 suggests a strong but latent interest among women before that date. I will therefore look at female interest in cycling in the 1880s. I will also look at class distinctions between riders in the United States and France; the observation that bicycles, in particular, had a certain *déclassé* reputation may only apply to England. Class dynamics were probably different in the U.S. and French markets before, as well as after, 1890.

I will also research these additional production-side hypotheses:

- Did national market structure create higher barriers to entry in France than in the United States? Someone suggested to me that the bicycle market in France was truly national, that all producers competed nationally, while producers in the United States mostly competed regionally, and only a few national producers existed.
- I will also look at the commodity chain (Gereffi 1994). Is the role of distributors important? Is it different in each country? Were retail traditions dramatically different also?
- Someone else suggested that American manufacturers failed to recognize the existence of a working-class market for bicycles after 1900 because they were embedded in networks of luxury goods producers, especially sporting goods producers, while the French manufacturers were embedded in different and, as yet, unspecified networks.
- I will continue to address the influence of the American Bicycle Company, the "bicycle trust," to see if the formation of this trust affected the market.
- I will continue to be open to differences in marketing between the two sets of national manufacturers that I do not see now.

Additional consumption-side hypotheses:

- Someone suggested the hypothesis that the end of U.S. leisure bicycle was not about local cultural homogeneity, but about a much looser and less defined class system than the French class system. Within an ill-defined hierarchy, every object obtains a strong symbolic content. In a rigidly defined class system, each object is less important; instead, the overall package is what counts. If the usage of each object is symbolically important, then when groups lower in the hierarchy use the object, it becomes symbolically tainted.

- I will look at the role of gender in the collapse of U.S. leisure riding. In this period, women were more responsible for maintaining class boundaries than men were. Did middle-class women lead the exodus from bicycle riding?
- Although, as mentioned above, I will continue to research the role of marketing, right now my strongest hypothesis about the end of the U.S. bicycle market by 1910 is a consumption-side, not a production-side, argument—not marketing, but traffic patterns. Basically, differing street systems created the differences. Recent bicycle research has shown that, cross-culturally, bicycles and automobiles cannot co-exist on the same street surfaces; sharing the same space is simply too dangerous for bicyclists.
    - U.S. cities were laid out on a square grid. Every street was connected to every other, so all streets were available to all vehicles.
    - European, and especially French, cities were laid out in a looser and less connected way. They were patchwork systems built up over centuries, with many culs-de-sacs and interconnecting narrow alleys. Whole neighborhoods were closed to carriage, then auto, traffic.
    - The expansion in automobile usage doomed bicycles on wide, interconnected U.S. streets; automobiles literally drove bicycles off the streets. The structure, the layout, of French cities created safe spaces for cyclists in France.
    - Streets were much wider in the United States than in Europe, primarily because of economic reasons (lower land costs), but this should actually have made streets safer for cyclists, because there would have been more room for error.

- Finally, European autos were larger than U.S. autos. Was this exclusively due to production-side factors, costs of production, etc., or was there a cultural preference among the bourgeoisie for larger automobiles?

Bibliography

Abolafia, Mitchel Y. 1998. Markets as Cultures: An Ethnographic Approach. In *The Laws of the Markets*, ed. Michel Callon, 69-85. Malden, MA: Sociological Review.

Abolafia, Mitchel Y. and Nicole Woolsey Biggart. 1991. Competition and Markets: An Institutional Perspective. In Amitai Etzioni and Paul Lawrence, eds., *Perspectives on Socio-Economics*. Armonk, NY: M.E. Sharpe.

Altschuler, Glenn C. 1982. *Race, Ethnicity and Class in American Social Thought, 1865-1919.*

Baker, Michael J. 1991. *Marketing: An Introductory Text*. 5th ed. London: Macmillan Education Ltd.

Baker, Wayne. 1981. Markets as networks: a multimethod study of trading networks in a securities market. Ph.D. diss., Northwestern University.

Ballenger & Richards Denver City Directory. 1895-1910. Series title: Genealogy & local history. [Denver, Colo.]: Ballenger & Richards.

Baltimore City Directory. 1895-1915. Compiled and arranged by B.R. Sheriff. [Baltimore] : R.L. Polk & Co.

Becker, Howard. 1982. Culture: A Sociological View. *The Yale Review*, 71 (July):513-527.

Berlanstein, Lenard. 1984. *The Working People of Paris, 1871-1914*. Baltimore : Johns Hopkins University Press.

Bicycling World and Motorcycling Review. 1897-1910. New York, N.Y. : [Bicycling World Co.].

Bijker, Wiebe E. 1995. *Of Bicycles, Bakelites, and Bulbs : Toward a Theory of Sociotechnical Change.* Cambridge, Mass.: MIT Press. Series title: Inside technology.

Board of Public Works. 1895. *Annual Report of the Board of Public Works to the Common Council of the City of Grand Rapids*. Board of Public Works: Grand Rapids, Michigan.

Bourdieu, Pierre. 1984. *Distinction: A Social Critique of the Judgment of Taste*. Translated by Richard Nice. Cambridge, MA: Harvard University Press.

Bresnahan, Timothy F. and Robert J. Gordon, eds. 1997. *The Economics of New Goods*. Chicago: The University of Chicago Press.

Brinton, Mary and Victor Nee, eds. 1998. *The New Institutionalism in Sociology*. New York : Russell Sage Foundation.

Brown, Thomas Ford. 1999. Consumer Demand and the Social Construction of Industry. Working Paper #22: http://www.soc.jhu.edu/pcid/archive/papers/22.htm.

Bruchey, Stuart. 1990. *Enterprise: The Dynamic Economy of a Free People*. Cambridge, MA: Harvard University Press.

Campbell, Ballard. 1980. The Good Roads Movement in Wisconsin, 1880-1911. Wisconsin: State Historical Society of Wisconsin. Originally appeared in *Wisconsin Magazine of History*, 49 (Summer 1966), 273-293.

Caron, François. 1979. *An Economic History of Modern France*. The Columbia Economic History of the Modern World. Stuart Bruchey, editor. New York: Columbia University Press.

Cavaillès, Robert. 1908. *Taxe Sur les Vélocipèdes: Thèse Pour le Doctorat en Droit*. Université de Toulouse, Faculté de Droit. Toulouse: Imprimerie Ch. Marquès.

Cowan, Ruth Schwartz. 1987. The Consumption Junction. *The Social Construction of Technology*. Ed. W.E. Bijker, T.P. Hughes, and T. Pinch, 261-280. Cambridge, MA: The MIT Press.

D'Emilio, John, and Estelle B. Freedman. 1988. *Intimate Matters: A History of Sexuality in America*. New York: Harper & Row.

Dewing, Arthur. 1924. *Corporate Promotion and Reorganizations*. Cambridge: Harvard University Press.

Dodge, Pryor. 1996. *The Bicycle*. Paris and New York: Flammarion.

Douglas, Mary and Baron Isherwood. 1982. *The World of Goods: Toward an Anthropology of Consumption*. New York: Norton.

Dowell, Glen and Anand Swaminathan. 2000. Racing and Back-pedalling into the Future: New Product Introduction and Organizational Mortality in the US Bicycle Industry, 1880-1918. *Organization Studies*, 21(2): 405-431.

Dunham, Norman. 1956. The bicycle era in American history. Ph.D. diss., Harvard University.

Ewen, Stuart. 1988. *All-Consuming Images: The Politics of Style in Contemporary Culture*. New York: Basic Books.

Fielding, Lawrence W., and Lori K. Miller. 1998. The ABC Trust: A Chapter in the History of Capitalism in the Sporting Goods Industry. *Sport History Review*, 29:44-58.

Fischer, Claude S. 1992. *America Calling: A Social History of the Telephone to 1940.* Berkeley and Los Angeles: Oxford University Press.

Fligstein, Neil. 1996. Markets as Politics: A Political-Cultural Approach to Market Institutions. *American Sociological Review*. 61 (August): 656-673.

Flink, James J. 1988. *The Automobile Age*. Cambridge, Massachusetts: The MIT Press.

Flink, James J. 1970. *America Adopts the Automobile, 1895-1910*. Cambridge, Massachusetts: The MIT Press.

Fourastié, Jean. 1963. *Le Grand Espoir du Xxe Siècle*. Paris: Gallimard.

Frenzen, Jonathan, Paul M. Hirsch, and Phillip C. Zerrillo, 1994. Consumption, Preferences, and Changing Lifestyles. In *Handbook of Economic Sociology*, ed. Neil J. Smelser and Richard Swedberg, 403-422. Princeton: Princeton University Press; New York: Russell Sage Foundation.

Gaboriau, Philippe. 1995. *Le Tour De France et Le Vélo: Histoire Sociale D'une Épopée Contemporaine*. Paris: Éditions L'Harmattan.

Garraty, John A. 1995. *The American Nation*. Eighth ed. New York, NY: HarperCollins College Publishers.

Geertz, Clifford. 1973. *The Interpretation of Cultures*. New York: Basic.

Gereffi, Gary. 1994. Introduction. *Commodity Chains and Global Capitalism*, ed. Gary Gereffi and Miguel Korzeniewicz. Westport, CT: Greenwood Press.

Goodrich, Carter. 1960. *Government Promotion of American Canals and Railroads, 1800-1890*. New York, Columbia University Press.

Goddard, Stephen B. 1994. *Getting There: The Epic Struggle Between Road and Rail in the American Century*. New York: Basic Books.

Gottdiener, Mark. 1985. Hegemony and Mass Culture: A Semiotic Approach. *American Journal of Sociology*, 90:979-1001.

Gould's St. Louis (Missouri) City Directory. 1895-1910. St. Louis, Mo.: Polk-Gould Directory Co.

Granovetter, Mark. 1985. Economic Action and Social Structure: The Problem of Embeddedness. *American Journal of Sociology*, 91:3 (Nov), 481-510.

Gray, John. 1997. *False Dawn: The Delusions of Global Capitalism.* New York : New Press : Distributed by W.W. Norton.

Gutman, Herbert G. *Power & Culture: Essays on the American Working Class*. Edited by Ira Berlin. New York: Pantheon Books, 1987.

Harmond, Richard. 1971-1972. Progress and Flight: An Interpretation of the American Cycle Craze of the 1890s. *Journal of Social History*, 5 (Winter): 235-257.

Hirsch, Paul M. 1972. Processing Fads And Fashions: An Organization-Set Analysis of Cultural Industry Systems. *American Journal of Sociology*, 77 (January):639-659.

Hodgson, Geoffrey. Varieties of Capitalism and Varieties of Economic Theory. *Review of International Political Economy*, 3, (Autumn): 380-433.

Hoge, Cecil C., Sr. 1988. *The First Hundred Years Are the Toughest: What We Can Learn from the Century of Competition between Sears and Wards*. Berkeley, California: Ten Speed Press.

Holt, Richard. 1985. The Bicycle, the Bourgeoisie, and the Discovery of Rural France, 1880-1914. *British Journal of Sports History*, 2 (September): 127-139.

Hounshell, David. 1984. *From the American System to Mass Production, 1800-1932: The Development of Manufacturing Technology in the United States*. Baltimore and London: The Johns Hopkins University Press.

International Encyclopedia of Economics. 1997. Ed. Frank N. Magill. London; Chicago: Fitzroy Dearborn Publishers.

Jepperson, Ronald L. 1991. Institutions, Institutional Effects, and Institutionalism. In *The New Institutionalism in Organizational Analysis*, ed. Walter W. Powell and Paul DiMaggio, 143-163. Chicago: University of Chicago Press.

Johnson, Richard. 1986-87. What is Cultural Studies, Anyway? *Social Text*, 16 (winter):38-80.

Lambkin, Mary, and George S. Day. 1989. Evolutionary Processes in Competitive Markets: Beyond the Product Life Cycle. *Journal of Marketing*, 53 (July), 4-20.

Laird, Pamela Walker. 1998. *Advertising Progress: American Business and the Rise of Consumer Marketing*. Baltimore: The Johns Hopkins University Press.

Lamoreaux, Naomi R. 1985. *The Great Merger Movement in American Business, 1895-1904*. New York: Cambridge University Press.

Laux, James M. 1976. *In First Gear: The French Automobile Industry to 1914*. Montreal: McGill-Queen's University Press.

Lawson, R.W. 1995. Consumer Behavior. In *Companion Encyclopedia of Marketing*. Ed. Michael J. Baker. London and New York: Routledge.

Leavitt, Theodore. 1965. Exploit the Product Life Cycle. *Harvard Business Review*. 46 (November-December), p.81.

Leavitt, Theodore. 1960. Marketing Myopia. *Harvard Business Review*. 41 (July-August), p. 45.

Le Manufrance du Collectionneur. Titre IV: Les Cycles et Motocycles. 1996. Saint-Etienne: Manufrance.

Les Routes de France Depuis Les Origines Jusqu'à Nos Jours. 1959. Colloques: Cahiers de Civilisation. Paris: Association pour la Diffusion de la Pense Française.

Liebes, Tamar and Elihu Katz. 1990. *The Export of Meaning: Cross-Cultural Readings of Dallas*. Oxford: Oxford University Press.

Long, Clarence D. 1960. *Wages and Earnings in the United States, 1860-1890*. A Study by the National Bureau of Economic Research, New York. Princeton: Princeton University Press.

Magraw, Roger. 1992. *A History of the French Working Class. Volume 2: Workers and the Bourgeois Republic*. Cambridge, Massachusetts: Blackwell.

Marvin, Carolyn. 1989. *When Old Technologies Were New: Thinking About Electric Communication in the Late Nineteenth Century*. New York: Oxford University Press.

McCracken, Grant. 1990. *Culture and Consumption: New Approaches to the Symbolic Character of Consumer Goods and Activities*. Bloomington and Indianapolis: Indiana University Press.

McShane, Clay. 1979. Transforming the Use of Urban Space: A Look at the Revolution in Street Pavements, 1880-1924. *Journal of Urban History*, 5 (May): 279-307.

McShane, Clay. 1994. *Down the Asphalt Path: The Automobile and the American City*. New York: Columbia University Press.

Mercer, D. 1993. Research Note: A Two-Decade Test of Product Life Cycle Theory. *British Journal of Management*, 4:4 (December):269-274.

Ministère du Commerce, de l'Industrie, des Postes et des Télégraphes. 1893-1950. *Annuaire Statistique de la France*. Paris: Imprimerie Nationale.

Monkkonen, Eric. 1988. *America Becomes Urban: the Development of U.S. Cities & Towns, 1780-1980*. Berkeley: University of California Press.

Nee, Victor and Yang Cao. 1999. Path Dependent Societal Transformation: Stratification in Hybrid Mixed Economies. *Theory and Society*, 28:6 (Dec), 799-834.

North, Douglass C. 1990. *Institutions, Institutional Change and Economic Performance*. New York: Cambridge University Press.

Nye, Peter. 1988. *Hearts of Lions: The History of American Bicycle Racing*. New York: W.W. Norton.

Orrù, Marco, Nicole Woolsey Biggart, and Gary Hamilton. 1997. *The Economic Organization of East Asian Capitalism*. Thousand Oaks, California: Sage Publications.

Outing. 1899-1905. Deposit, N.Y. : Outing Pub. Co.

Petty, Ross D. 1995. Peddling the Bicycle in the 1890s: Mass Marketing Shifts into High Gear. *Journal of Macromarketing*, 15 (Spring), 32-46.

Polk's Cranston (Providence County, Rhode Island) City Directory. 1895-1910. Boston, Mass. : R.L. Polk & Co.

Price, Roger. 1981. *An Economic History of Modern France, 1730-1914*. Revised edition. London and Basingstoke: The Macmillan Press, Ltd.

Rawski, Thomas, et al. 1996. *Economics and the Historian*. Berkeley and Los Angeles, California: University of California Press.

Ritchie, Andrew. 1975. *King of the Road: An Illustrated History of Cycling*. Berkeley: Ten-Speed Press.

Robert, Jean. 1974. *Histoire des Transports Dans les Villes de France*. Préface de Pierre Giraudet. Neuilly-sur-Seine: Distribué par l'auteur, J. Robert.

Sansot, Pierre. 1989. Le Tour de France: Une Forme de Liturgie Nationale. *Cahiers Internationaux de Sociologie*, 86: 91-105.

Sears, Roebuck, and Company. 1895-1905. *Catalog*. Chicago: Sears, Roebuck, and Company.

Smith, Bonnie G. 1989. *Changing Lives: Women in European History Since 1700*. Lexington, Massachusetts: D.C. Heath and Company.

Smith, Roger. 1972. *A Social History of the Bicycle: Its Early Life and Times in America*. New York: American Heritage Press.

Spielvogel, Jackson J. 1994. *Western Civilization: Volume C: Since 1789*. Second edition. San Francisco: West Publishing Company.

Sporting Goods Dealer. 1899-1900. St. Louis : Sporting News Pub. Co.

Strasser, Susan. 1989. *Satisfaction Guaranteed: The Making of the American Mass Market*. New York: Pantheon Books.

Studeny, Christophe. 1995. *L'Invention de la Vitesse: France, XVIIIe-XXe Siècle*. [Paris]: Gallimard.

Sutcliffe, Anthony. 1981. *Towards the Planned City: Germany, Britain, the United States and France, 1780-1914.* New York: St. Martin's Press.

Swidler, Ann. 1986. Culture in Action: Symbols and Strategies. *American Sociological Review*, 51 (April):273-286.

Teaford, Jon C. 1984. *The Unheralded Triumph: City Government in America, 1870-1900*. Baltimore and London: The Johns Hopkins University Press.

The Cycle Age and Trade Review, 1897-1901. Chicago : [s.n.]

Thernstrom, Stephan. *The Other Bostonians: Poverty and Progress in the American Metropolis, 1880-1970.* Cambridge, Massachusetts: Harvard University Press, 1973.

Thompson, Christopher S. 1997. The Third Republic on Wheels: A Social, Cultural, and Political History of Bicycling in France from the Nineteenth Century to World War II. Ph.D. diss., New York University.

Tilly, Charles. 1984. *Big Structures, Large Processes, Huge Comparisons*. New York: Russell Sage Foundation.

Tobin, Gary Allan. 1974. The Bicycle Boom of the 1890s: the Development of Private Transportation and the Birth of the Modern Tourist. *Journal of Popular Culture*, 7(4): 838-849.

U.S. Department of Commerce and Labor. 1907. Bureau of the Census, S. N. D. North, director. *Census of Manufactures: 1905. Automobiles and Bicycles and Tricycles*. Washington: Government Printing Office.

U.S. Congress. House of Representatives. 1901. *Report of the Industrial Commission on Trusts and Industrial Combinations*. Volume 2. 57th Cong., 1st sess. Washington: Government Printing Office.

U.S. Congress. House of Representatives. Committee on the Judiciary. Subcommittee on Monopolies and Commercial Law. 1975. *Fair Trade Repeal: Hearings Before the Subcommittee on Monopolies and Commercial Law of the Committee on the Judiciary*. 94th Cong., 1st sess., 25 March and 10 April. Washington: U.S. Government Printing Office.

Vant, André. 1993. *L'industrie du Cycle Dans La Région Stéphanoise*. Lyon : Editions lyonnaises d'art et d'histoire.

Veblen, Thorstein. 1953 (1899). *Theory of the Leisure Class*. With an introduction by C. Wright Mills. New York: The New American Library.

Weber, Eugen. 1976. *Peasants Into Frenchmen: The Modernization of Rural France, 1870-1914*. Stanford, California: Stanford University Press.

Weber, Eugen. 1986. *France: Fin de Siècle*. Cambridge, Massachusetts: Belknap Press.

White, Harrison C. 1981. Where Do Markets Come From? *American Journal of Sociology* 87 (November):517-547.

White, Harrison C. 1988. Varieties of Markets. In Wellman and Berkowitz, eds. *Social Structures: A Network Approach*. New York: Cambridge University Press.

Williamson, Oliver E. 1985. *The Economic Institutions of Capitalism : Firms, Markets, Relational Contracting*. New York: Free Press.

Zelizer, Viviana A. Rotman. 1979. *Morals and Markets*. New York and London: Columbia University Press.

Zelizer, Viviana. 1985. *Pricing the Priceless Child : the Changing Social Value of Children*. New York : Basic Books.

Zunz, Oliver. 1982. *The Changing Face of Inequality: Urbanization, Industrial Development, and Immigrants in Detroit, 1880-1920*. Chicago: The University of Chicago Press.