Two Raw Materials Crises in American Textile History and Their Spatial Implications

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The spatial dimensions of manufacturing sectors are often revealed most sharply in crisis times. During periods of «normal» business operations, broad regional and resource-related patterns of industrial structuring may surely be documented, but structural differences *within* sectors (such as textiles) can be more readily discerned when a key raw material is withdrawn from the market and the responses of firms in the affected regions are noted. American textile history offers two significant cases in this regard. First during the Civil War consequent on the secession of eleven southern states (1861-65), the supply of cotton to the northern textile centers was suddenly curtailed. Contrasts between the responses of manufacturers in Lowell, Massachusetts and Philadelphia, two substantial fabric-manufacturing cities, expose vivid distinctions between alternative approaches to production practiced in the New England and Mid-Atlantic regions. Eighty years later, with the advent of the Second World War, supplies of raw silk, nearly all of which was then secured from Japan, became unobtainable. With this global market dimension paramount, a contrast between American and British reactions to the dearth of silk illustrates the different historical placements of two national production systems in the hosiery trades, the most prominent silk-using sector. In each case, both corporate power and the role of the state in the economy are key elements in the crisis situation.

When threats of secession followed the election of Abraham Lincoln to the American Presidency in the fall of 1860, cotton markets were soon unsettled. Business stagnated generally as hopes for compromise with southern interests waned. With the opening of armed conflict the next spring, directors of Lowell's ten major corporations, chiefly manufacturers of low-priced cotton goods, faced a crucial decision. Due to their large-scale operations (the firms averaged over a thousand workers each) and bulk purchasing policies, the firms held in stock enough raw cotton for a full year's production. If the war were

to be long and drawn out, it would be sensible to curtail production and stretch supplies across several years as the company agents scoured international markets for new cotton sources. Against this strategy however, the high overhead costs of these firms, including expensive maintenance for the elaborate waterpower system that drove the mills, would have to be met from reduced revenues. Still, anticipated increases in fabric prices might well offset these fixed costs and still leave a fair profit, given that raw materials had been secured at low, pre-war rates. On the other hand, if the war was short, a year or less in duration, the corporations could reap windfall profits by running full, or by selling their raw stock in the rapidly rising market. The early collapse of the rebel states would little deform agricultural production; normal operations could resume following harvest of the 1862 cotton crops. Sharing the opinions of many northern newspaper editors, anticipating a quick decision over the industrially-weak southern states, Lowell's directors chose this second path, suspending production entirely by the fall of 1861 and selling off their warehoused bales of raw cotton at record prices.

Reaching for these short-term profits proved a grave miscalculation. The Lowell corporations dismissed nearly ten thousand workers, for whom this single-industry city offered no alternative employment. The work-force was decimated as the city's population shrank from 36,000 to 31,000 by 1865. Worse, as the war dragged on, the glow of the 1861 speculative gains faded rapidly. By 1863, most of the firms had undertaken to re-start their frames and looms to ease the gnawing effect of fixed maintenance and interest costs. But cotton was scarce and expensive, rising toward a price of 87 cents a pound, seven times its cost in 1860 (13 1/2 cents). To deal with this obstacle, several of the firms undertook «experiments» in using wool, «abortive» efforts in which «they incurred losses, direct and indirect, exceeding the amount of their entire capital[1]. Though none of these firms went completely bankrupt, the Civil War and the cotton shortage was a catastrophe for corporate Lowell and for its displaced textile workers[2].

Meanwhile, the same stimulus produced a radically diferent reponse in industrial Philadelphia, a city wich supported some 18,000 textile workers at the outset of the War. Located in the eastern metropolitan corridor roughly halfway between New York and Washington, D.C., Philadelphia was a multi-industry city in which knitting and weaving joined with metalworking, machine-building (the Baldwin Locomotive Works), leather, boot and shoe manufacturing, printing and apparel fabrication to create a diversified productive base. No cluster of giant corporations dominated its industrial geography; instead, in textiles over four hundred propietary and family firms dotted its neighborhoods. When war neared, leading merchants with southern connections (and a few prominent millmasters who used cotton) held public meetings urging compromise over the questions of slavery and states' rights within a federal system. However, once the struggle commenced, Philadelphia textile mills soon ran day and night at a feverish pace. By 1870, the city held over 26,000 textile jobs and invested capital had more than doubled during the decade (from $9 to $22 million). Nearly two hundred new factories were erected in Philadelphia during the war, many for rapidly expanding fabric producers. One of these firms, run by mill-experienced English immigrants, alone snared nearly $1 million in war contracts for the Union Army in addition to its general market business[3]. While Lowell stagnated, textile Philadelphia prospered. The cotton crisis had been a major disaster for the nation's best known textile city; yet three hundred miles farther south, it had triggered dramatic growth in the Quaker City. How may we account for this regional difference?

The plainest answer is that textile production at the two sites followed a pair of contrasting industrial formats, one oriented toward bulk production and the other toward flexible

specialization. These were historical alternatives which characterized respectively the «big mill» system of New England cities such as Lowell, Lawrence or Manchester (New Hampshire) and the propietary system current at Philadelphia, Providence (Rhode Island) and Paterson (New Jersey). The Lowell corporations sought to generate a fairly narrow range of standard staple cotton goods, aiming at a growing national market for shirtings, sheetings, etc. Their investment and production strategy was capital-intensive and engaged the minimum of skilled labor, pioneering extensive use of young women as weavers and spinners for a routine set of fabric constructions and yarn numbers. In technological terms, the Lowell Machine Shops developed power looms which were, for their time, fast and reliable. However, these commitments carried with them an internal contradiction: as targeted as the system was on the efficient production of staples, it had but little potential for flexibility. Innovation followed the track leading to faster and cheaper production, not toward building in capacities for versatility. Hence when the raw materials crisis emerged in 1861, Lowell's corporate leadership suffered under a set of constrained options. Neither its skills nor its technology were suited to experiments at making something different. Nor were its marketing agents familiar with volatile demands for fashionable goods. Where was Lowell to hire the experienced wool sorters necessary for handling a different fiber? Thus, the price of rigidity proved high; one local historian credited the system's failings in the 1860s with «beginning the long decline of Lowell's textile industry»[4].

A relevant analogy to Lowell's experience from a later phase of American industrial history is the late 1920s disarray at the Ford Motor Company. In this case, an extremely rigid production system was articulated for creation of a single complex item, the Ford Model T, a masterpiece of standardization. While Ford's crisis was market-induced rather than derived from materials problems, the sudden decline in sales of the company's hallmark product stunned corporate leaders who had heavy investments in «dedicated» or single purpose machine tools designed solely for the Model T and incapable of being adjusted for other uses. Though introduction of the Model A Ford was accelerated, at tremendous cost, General Motor's attention to versatility and styling (what David Hounshell has called «flexible mass production») gave it a tremendous market advantage. Ford's retooling for the Model A entailed rebuilding sixteen thousand machine tools and scrappint eight thousand others, at an expense of $18 million. During the transition years, 1926-7, Ford's net losses topped $100 million, the paradoxical fruit of perfecting mass production at the expense of flexibility[5].

It was just this flexibility which proved Philadelphia's strength in the cotton «famine». The propietary system in 1860 was a network of interrelated small and midsize firms each devoted to one element in the textile manufacturing sequence: raw materials preparation, spinning, weaving or knitting, dyeing and finishing. Though tons of cotton were annually processed by these specialists, wool was also used quite generally. Cotton-wool blends were common products (e.g. cotton-warp cassimeres), and the recycling of mill waste and shredding of rags was evident in each of the mill districts. Yarn spinners were experienced in meeting variable demands for blends, quality and counts; weavers regulary switched from product to product depending on season and demand expectations. As most firms were started by skilled workers with small capitals, often on millfloors rented with or without power, the pattern of skill-intensive flexibility was established early. In the crisis, carpet weavers quickly substituted jute warps for cotton; spinners turned to rag shredders for supplies of reprocessed cotton, bleached by nearby dyers. Weavers and knitters who had seasonally shifted from cottons to wools began to experiment with light-weight worsted for summer use. Some exclusively cotton-oriented companies showed their versatility by suc-

cessfully adapting their looms to run woolen blankets for the Union Army, only to switch back of cotton products after the War. Germantown's hosiers, many of them Nottinghem and Leicester men, also turned to military production and made fortunes from federal contracts (six such firms had a total capital of $250,000 in 1860 and $822,000 in 1870)[6].

Thus the raw materials crisis highlighted an aspect of spatial differentiation in industrial development, a divergence which indicated the parallel existence of two approaches to accumulation within the dynamics of American capitalism. The Lowell format aimed at capturing economies of *scale* and mass marketing through capital-intensive production of bulk staples. Modest pre-yard margins would generate sizable profits given sufficient volume. However, the low-skill requirements that the technological vector of this pattern encompassed created opportunities for competition to develop along staple lines wherever capital and labor could be matched with power and materias supplies. Hence, the system was vulnerable to replication, first in other New England cities, then in the American South, as well as to the raw materials crisis discussed above. On the other hand, the proprietary system of interlaced flexible specialists was focused on batch production of a continually-changing variety of goods. Its demand for skill and need for an agglomeration of mutually-reinforcing firms placed powerfull locational constraints on this approach; a handful of Atlantic Coast cities were the only sites where a sufficient critical mass of the necessary components accumulated and sustained its development. High-unit profits were derived from the economies of *timing* inherent in attemps to meet fluctuating markets; conversely, errors in styling or selections of materials' quality quickly proved fatal to fledgling firms. Nonetheless, such complexes of flexible specialization were little vulnerable to outmigration or competition from the South, remote from flows of skilled immigrant labor and from the New York City market hub. Foreign competition, from similarly-structured textile centers in Yorkshire or at Lyons, was much feared however —hence the obsession of Philadelphia propietors with defending high tariff walls. State emergency spending during the Civil War crisis did much to spur accumulation for such firms, and the political force of protectionist legislation later served to secure wartime gains against products from internationally-recognized centers of design innovation in France and Britain.

From this example it is evident that conceptualizing skill-intensive small manufacturing as an early stage in the «natural» progress of a market system toward capital-intensive mass production is a dangerously reductive notion. The role of the state in accumulation plainly undermines explanations based on the invisible hand of «free» markets as the core motor of corporate success. Awareness of the diversity of market demands indicates that there should be a *variety* of optimal solutions to the puzzles of accumulations and profit, which the existence of durable and variant regional industrial formats in the United States documents. However, by the time of the Second World War, corporate domination of wide sectors of the American economy was clear. Though there is hardly room here to illustrate the process by which a self-conscious standardization of product and demand tilted the economy toward mass output of narrow product lines[7], the silk crisis of 1941 does capture a number of the key themes involved.

Whereas there are a number of basic similarities between the silk and cotton shortages eighty years apart, their differences are equally noteworthy. In both cases, warfare left industries long used to ample supplies of their main raw material without hope for alternative sources, as the producing regions were now military antagonists. In both cases, a process of adjustment. with a variety of missteps, was set in motion; and the crisis involved both state action and the futures of hundreds of firms and tens of thousands of their workers. However, silk in 1941 in no way had the same importance within the textile economy

that cotton had had in 1861. Further, silk had been for a generation under threat from a substitute fiber, rayon, for many of its uses in the American market. Finally, the state in 1941 was prepared to take command of materials in the comprehensive administration or a war economy, something neither imaginable nor feasible in the Lincoln years. Still, focusing on a major textile sector in wich silk remained the overwhelmingly dominant fiber, one in which rayon had achieved little penetration, a sector which alone employed over 90,000 workers, we may better assess the impact of the raw materials crisis and the role of the state in shaping its resolution. Thus the experience of the American hosiery industry will be reviewed, with a brief treatment of British hosiery firms' contemporaneous situation providing a comparative context.

By the 1930s, silk had lost considerable ground to rayon in the weaving trades, even at Paterson, New Jersey, long the center of specialty manufacture of broadsilks and ribbons. Improvements in the quality and dyeing properties of rayon fibers, together with a price fall from over $1.00 to c.$.55 per pound brought the shift of thousand of silk looms to rayon and the establishment of plain rayon weaving in some southern cotton-mill communities. As rayon's price was stabilizing well under a dollar, silk prices, as always, fluctuated every month at much higher levels (ranging from under $2.00 to $4.63 per pound during the depression years)[8]. However, in hosiery silk remained preeminent. Whereas in 1941, total U.S. rayon consumption neared 600 million pounds (more than ten times the volume of silk use), in hosiery silk was the base for 80% of all production, the balance divided among rayon, cotton, and wool. In the sector's flagship division, women's full-fashioned hosiery, silk constituted 95% of all fibers knitted[9]. All raw silk was imported. Hence it is in the hosiery trades that the impact of the silk cut-off was most keenly felt.

In the 1920s, roughly half the raw silk came from China and Italy, the balance from Japan. By the late 1930s, the role of the first two nations had become negligible, and Japanese exports mounted to over 90% of American purchases. The deterioration of American relations with Japan drove import prices skyward, the average New York quotations rising from $1.69 in 1938 to nearly $3.00 in 1941. As market prices for silk hosiery were resistant to upwards movements, manufacturers were already in a squeeze before President Franklin Roosevelt ordered all raw silk frozen for military use in August 1941. A few month later, war put an end to the trickling flow of spot purchases and panic spread through the hosiery industry. The ensuing scenario, orchestrated by the government's wartime Office of Price Management and featuring major chemical corporations among the players, did much to ease the crisis and determine the ultimate course of American hosiery production. Though rayon had been a disappointment in American hosiery markets, particulary in women's wear, it soon became the officially-designated substitute, as silk and duPont's novel nylon were quickly reserved for military end-uses (e.g. parachutes)[10]. Manufacturers, whose Civil War predecessors had scrambled after the main chances offered by entreprenuership in that emergency, were in this situation reduced to fringe characters struggling to stretch «allotments» of rayon and to solve technical and marketing problems consequent on its use.

State action to control prices and supplies prevented analogies to the Lowell strategy of 1861. The price of silk was fixed at $3.08 per pound with the federal authorities being the only customers for such supplies as were present, negating any dreams of speculative gains from selling raw silk. Though a huge demand shift to nylon was recorded late in 1941, with a third of full fashioned hose being all or part nylon in December, the limits of duPont's productive capacity, the high price ($3.00-3.95 per pound), and increasing military calls for the new synthetic ended hopes in that direction early in 1942. This snift

however, underscores the flexible orientation of the hosiery trades, nearly half of whose capacity lay in the mid-Atlantic region. Earlier, rising silk prices had led these firms to use rayon after 1938 for the feet and tops of stockings, reserving silk for the legs. This ready substitution of materials opened the way to a broad scale rayon transition in 1942. By the end of that year, 91% of the fullfashioned hose manufactured (2.73 of 3.00 million dozen pairs made in December) were rayon, with 7% cotton and 2% other[11].

Thus far this account shows an awkward but successful crisis shift from one raw material to another, a process utilizing the flexibility of the hosiery sector's capacity and the organizational reach of war bureaucratization. However, the rayon transition had its underside, for its effects were regionally quite different. In the older centers of hosiery manufacture, e.g. Philadelphia, the war crisis sounded a death knell; elsewhere, especially in southern states which adopted basic knitting technology during the 1920s, industrial successes bloomed. Eighty years later in a different conjuncture, Philadelphia experienced the war shock somewhat as Lowell had in the 1860s. By 1950, 55% of the 1700 full fashioned machines active in 1940 Philadelphia had been scrapped while the southern share of overall knitting capacity rose annually[12]. What had happened?

The interaction of three factors, relating to labor, raw materials, and product standardization, helped wither Philadelphia's role in hosiery manufacturing. First, the city was the national center of unionized textile labor. The Federation of Full-Fashioned Hosiery Workers was headquartered in Philadelphia and had had its greatest organizing successes in northeastern and midwestern states. Few hosiery workers in the South were paid union rates, the resulting interregional wage differential varying form 20 to 35% in the 1930s and 40s. So long as Philadelphia firms used their flexibility to respond quickly to fashion shifts, this wage gap was of only marginal importance. Ordinary staple silk hose might well be made in low-wage districts, but Philadelphia's proximity to the New York market and its considerable pool of skilled knitters meant the slightest twitch of fashion could be detected and exploited profitably. However, with the switch to rayon, much of this advantage vanished promptly. Silk yarns were made from «raws» which varied widely in quality and price, and were available from scores of «throwsters» who competed with one another for hosiery yarn sales. Shrewd proprietors who could take advantage of this competition through close observation of nearby throwing markets could save part of their higher labor costs through timely purchases of materials of just good enough quality to meet the market's demands. Rayon, in contrast, was manufactured in a fairly restricted range of counts (deniers) by a small group of giant chemical firms (Celanese, duPont, American Viscose, etc.). Their pricing was standardized, as were their products; sharp-bargaining Quaker City proprietors got no better price on rayon yarns than did their distant southern competitors, a factor which thus emphasized the labor differential's role in interregional competition. Third, product differentiation was a practice at which mid-Atlantic hosiers were long experienced. If price levels were gradually becoming more inelastic due to the practices of major retailing concerns, style conscious manufacturers could use their skill base to add a wide range of colors, a patterned effect on the heel, or some other distinctive touch to clinch a batch of orders for the new season[13]. Once the federal standardization of apparel grades radically restricted the variety if goods which could be marketed during wartime, this capacity became irrelevant. The rayon hosiery market, becoming increasingly uniform through state action not consumer preference, vaporized the advantages flexible specialist firms once held.

To the extent that a sector's production options narrow towards a small group of final goods, *one* rather than *several* optimal formats for successful accumulation becomes do-

minant, that of least-cost throughput of maximally-standardized goods. This is roughly what happened in the wake of the silk crisis, ending both the role of silk as a hosiery raw material and the vitality of a flexible alternative to mass-production in this textile sector. It is of course theoretically plausible that a radical differentiation of demande can likewise wreck the viability of a bulk production system, bringing forth an explosion of small, specialty manufacturers whose versatility is the key to their survival. Something like this has happened in Scots tweeds and specialty Italian textiles in recent years[14]. (Whether the balance of forces at present favors further development of standardization or differentiation is a subject of considerable current debate[15].)

The silk crisis had a rather different impact on the British hosiery industry during World War II, though its structure of production bore a striking resemblance to the American situation. In the 1930s, British hosiers were generally specialist firms who bought knitting yarn from independent spinners, and sent out their stockings to separate dyeing establishments. The industry was decentralizing from its core region (Leicester and Nottingham), and flexible capacity was a common feature of the production system. This entailed the use of a «large variety of yarns» by manufacturers; indeed, it was reported that «one large concern in Nottingham... ordinarily buys its yarn from 200 spinners»[16]. This capacity together with the quite different market base for British hosiery, made the silk stoppage a minor difficulty. Unlike the U.S., silk was by no means so dominant an element in the British raw materials mix. In the 1935 Census of Production, silk stockings represented only 16% of total quantity manufactured and 28% of total values, the higher latter figure reflecting the expense of the raw material. Whereas cotton and woolen hose had become a tiny fragment of American output, in Britain, the «cult of wool» continued, as these two materials accounted for above half of all hosiery sales. Moreover, rayon hosiery commanded nearly a quarter of the market in 1935[17]. Thus, the end of silk supplies was greeted with equanimity.

Nonetheless, the activities of the state in Britain pressed toward a similar standardization of product and demand through war regulations which restricted the range of colors and yarns to be used. In stockings for example, the number of shades was reduced from 200 to six. This effort, involving a dramatic narrowing, a «rationalization in the number and types of products»[18], lessened the value of flexibility while enhancing the viability of firms oriented toward bulk production. In one respect, the British government went well beyond the industrial interventions of its American counterpart. In 1941 a «scheme of concentration» was introduced which encouraged amalgamations or «marriages» of smaller firms in the context of a «regulation of demand» and «restrictions on the volume and character of production». In Leicestershire alone, some «450 hosiery firms were concentrated», about half the number active *nationally* a few years before de war. This represented another dimension of «rationalization» through non-market pressures of an industry regarded as having excess capacity. Despite the emergency nature of these mergers, one observer noted: «It will be surprising if a number of the marriages brought about under wartime concentration do not become permanent»[19].

In the United States, the dependence of the hosiery industry on silk imports exposed it fully to the wartime supply crisis. The action of the government in directing rayon substitution created a new sort of dependency for the industry, reliance on an oligopolistic corporate supply line. When nylon became again available after the war, this dependence narrowed for a time to a single supplier, duPont, for whom the fiber was a proprietary innovation. This standardization of materials' supply and price, together with the extension of simplified product lines into de post-war era, ended the utility of the production approach,

flexible specialization, which had served Philadelphia's textile enterprises so well in the 1860s crisis. On the American scene, its geographic consequences included further erosion of productive capacity in older urban, skill-using regions and a spur to continued growth of hosiery manufacturing in peripheral, low-waged districts. Silk's far less essential role in British hosiery manufacturing, more differentiated in materials choice than the American industry, meant that its unavailability proved relatively tangential to hosiery enterprises' war experience. However, the industry did not escape the impact of state direction, experiencing a parallel standardization of materials and product as well as state-managed mergers, which as in the U.S., helped transform the industrial structure toward mass production of staple hosiery and away from the diversity that characterizes flexible specialization.

Notes

(1) Charles Cowley, *Illustrated History of Lowell*, Boston, 1866, p. 48.
(2) For a full discussion, see Philip Scranton *Propietary Capitalism: The Textile Manufacture at Philadelphia, 1800-1885*, Cambridge, U.K., 1983, Chapter 2.
(3) See *Ibid.*, Chapter 8. Lowell textile employment rebounded by 1870 to 12,000, roughly its 1860 level, and grew quite slowly thereafter. In Philadelphia, textile employment soared to over 50,000 between 1870 and 1882.
(4) Fidelin Brown, «Decline and Fall», in Arthur Eno, *Cotton Was King*, Lowell, 1976, p. 141.
(5) David Hounshell, *From the American System to Mass Production*, Baltimore, 1984, chapter 7, esp. pp. 288, 295.
(6) See Scranton, *PC*, Ch. 8.
(7) These issues are at the heart of work in progress at present. The most comprehensive overview is Charles Sabel and Jonathan Zeitlin, «Historical Alternatives to Mass Production», *Past and Present*,: No. 108 (August 1985), pp. 133-176. For a first-cut formulation of my own views, see Philip Scranton *The Philadelphia System of Textile Manufacture, 1884-1984*, Philadelphia, 1984.
(8) George Taylor & Allan Dash, Jr., *Stock and Production Policies in Full Fashioned Hosiery Manufacture*, Washington, D.C., 1941, p. 3.
(9) Aaron Ellis, «A Study of the Raw Materials Problems Caused by the War in the Women's Full-Fashioned Hosiery Industry», M.B.A. Thesis, University of Pennsylvania, 1943.
(10) *Ibid.*, pp. 55-57.
(11) *Ibid.*, p. 85.
(12) John M. Roughan, «The Movement of the Full-Fashioned Hosiery Industry Out of Philadelphia», M.B.A. Thesis, Universtiy of Pennsylvania, 1950, pp. 34-37.
(13) Taylor and Dash, *op. cit.*
(14) *New York Times Magazine*, March 21, 1982, pp. 86-88, and September 8, 1985, pt II, pp. 87, 102-104.
(15) For two American views, see Robert Reich, *The Next American Frontier*, New York, 1983 and Michael J. Piore and Charles Sabel, *The Second Industrial Divide*, New York, 1984.
(16) H. A. Silverman, «The Hosiery Industry», in Idem., *Studies in Industrial Organization*, London, 1946, p. 20.
(17) *Ibid.*, p. 5.
(18) *Ibid.*, pp. 39, 45.
(19) *Ibid.*, pp, 15, 38-45.

Dues crisis de matèries primeres en la història del tèxtil americà

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Resum

Sobtades escasseses de matèries primeres clau mostren sorprenents contrastos regionals en la geografia dels tèxtils. En la història dels tèxtils als Estats Units cal remarcar dues crisis d'aquest tipus. La primera, durant la Guerra Civil, ens il·lustra la rigidesa del sistema corporatiu Lowell i la flexibilitat de la producció tèxtil en l'àrea de Filadelfia durant els anys de la fam del cotó. La interrupció dels subministres de seda durant la 2ª Guerra Mundial va commocionar el sector dels gèneres de punt, essent l'estat i els proveïdors corporats del raió com a fibra substitutiva els qui van jugar els papers més importants a l'hora d'alterar la producció. Es remarquen els diferents impactes regionals de la crisi de la seda i s'introdueix el contrast britànic per donar èmfasi a les diferències estructurals industrial i geogràfica.

Deux crises de matières premières dans l'histoire des textiles americains

Resumé

Subites manques de matières premières montren contrastes régionaux surprenantes dans la geographie des textils. Dans l'histoire des textils aux Etats Unis il-y-a deux crises rélevantes. La première pendant la Guerre Civil nous montre la rigidité du systeme corporative Lowell et la flexibilité de la production textile dans l'aire de Philadelphia pendant les annes de la famine du coton. Le coup en la provision de la soie pendant la IIème Guerre Mondiale a frappé le secteur du tricot americain, oú l'Etat et les provisioneurs du rayon comme une fibre sustitutive ont joué les roles principaux en alterant la production. Les differents impacts de la crisi sont remarqués et on introduit le contraste britanique pour donner emphase aux differences dans l'estructure industriel et la geographie.