

THE LOCATION OF THE SHOE INDUSTRY IN THE UNITED STATES¹

SUMMARY

The theory of industrial location, 254.— Preliminary deductions in the case of the shoe industry, 255.— History of the distribution of the industry. Period 1630–1760: non-localized hand work, 257.— Period 1760–1860: localization of the hand industry, relation of railroads to factors of transportation and labor cost, 259.— Period 1860–1900: effect of mechanization, shifts in the tanning industry, changes in financing; equalization of regional advantages, 264.— Period since 1900: rapid style changes, foreign markets, labor organization, 269.— Outlook for the future, 273.— The theory in the light of experience in the shoe industry, 274.

THE formulation of Alfred Weber's theory of the location of industries and its subsequent elaboration at the hands of other economists² have given a much-needed impetus to the investigation of concrete locational phenomena. For now that a theoretical structure, however imperfect, has been supplied, the student of a particular industry finds it possible to fit his results to the generalizations already arrived at, and perhaps to qualify those generalizations for their own good.

The theory of location is almost completely a German product, and it is not surprising that out of Germany have come most of the monographs interpreting the locational

1. In this article are summed up the conclusions of a thesis presented for the doctorate at Harvard University in 1932. I am particularly grateful for aid given by Professor E. F. Gay, under whose direction the thesis was written, and by Mrs. George W. (Blanche Hazard) Sprague of Brockton. Acknowledgement is due also to the officials of the Regal, Keith and Douglas firms, and to Professors Derwent Whitlesey and Edward S. Mason and Mr. H. S. Kemp of Harvard University.

2. An excellent presentation of Weber's theory and of subsequent developments is given by Hans Ritschl in "Reine und historische Dynamik des Standortes der Erzeugungsweige," in Schmoller's *Jahrbuch*, 1927, pp. 813–870. See also W. Krzyzanowski, "Review of the Literature of the Location of Industries," in the *Journal of Political Economy*, April, 1927.

histories of particular industries. Under Alfred Weber's personal direction eight of his students have written such monographs dealing with important German branches of production³; and Andreas Predöhl, the most important contributor to the subject after Weber, has investigated with significant results the geographical distribution of the cotton textile, paper, and iron and steel industries of the United States.⁴

Weber's theory shows to best advantage in the case of those industries where the chief locating factors are expressible in terms of transport costs: that is, in which location is determined with chief reference to proximity of markets or sources of materials or power or of some combination of these.⁵ The fact that transportation costs are only very roughly proportional to distance in a country where there are competing forms of transport, different classes of rates, and a non-mileage rate structure, of course, makes even such cases as these far from simple; but the difficulties involved are as nothing compared with those presented by industries whose distribution is determined with reference, say, to availability of cheap or specially trained labor, to acquired reputation of particular producing centers, or, as in all too many cases, to what we can as yet only call chance.

The shoe industry belongs in the category of those in which location is not completely explained by the Weberian theory. There is a large residue of "chance" factors remaining after exhaustion of all available clues; given the measurable preëxisting advantages of different locations, and with the theory as at present developed, no one could reconstruct in any detail the actual distribution of shoe manufacturing.

3. These have appeared as Hefte 1-8 of Weber's *Ueber den Standort der Industrien*, Teil II.

4. Three articles in *Weltwirtschaftliches Archiv*, entitled: "Die Südwanderung der amerikanischen Baumwollindustrie" (1929, pp. 106-159), "Die Wanderungen der amerikanisch-kanadischen Papierindustrie" (1929, pp. 285-330), and "Die örtliche Verteilung der amerikanischen Eisen- und Stahlindustrie" (1928, pp. 239-292).

5. Examples would be the manufacture of iron and steel, flour, paper, furniture, and cement.

For this reason the shoe industry furnishes a significant illustration of the way in which locational theory may be applied in practice, and of the limitations of the application. Its history should show us where the present theoretical apparatus is strong and, still more important, where it is weak and needs attention.

Starting first with such basic facts as the relative quantities of materials, power, and labor that go into the making of shoes, we are enabled by Weber's formulation to reach certain conclusions about the way in which the shoe industry is likely to behave with respect to location. This is not the proper place for an exposition of the methods employed and the theory behind them, which is ably summarized in an article by Dr. Andreas Predöhl.⁶ I shall spare the reader by presenting here only the conclusions, as follows:

I. The cost of transportation of the finished product, shoes, is more important than that of transportation of materials, partly because of the relation of the actual quantities involved and partly because shoes are more expensive to transport per unit of weight than are any of the important raw materials. On account of this higher cost of transporting the finished product, the location of the market will have a greater influence on the distribution of factories than will the location of supplies of materials.⁷

II. Due to the importance of labor costs in shoe manufacture, the industry will tend to be attracted to places with low labor costs even when these are far from materials or market.⁸

6. "The Theory of Location and General Economics," in the *Journal of Political Economy*, June, 1928; see particularly pp. 374-379.

7. In a detailed investigation undertaken by the writer, it was estimated that the relative importance of nearness to markets, leather supply, and fuel supply was in 1927, on this theoretical basis, 6+, 4, and 2-.

8. On the basis of present conditions it may be estimated that a place offering the inducement of a 10 per cent saving in labor costs would theoretically justify the locating of a plant as far as one thousand miles from the point of cheapest access to materials, fuel, and markets. Such computations as are referred to in this and the preceding footnote are obviously without claim to any quantitative accuracy; but I believe they are sufficient to show that the two most important deducible

III. The cheapening of transportation, of course, tends to lessen the influence upon location exerted by the factors involving transport costs (*i.e.*, distance from materials, fuel or power, and markets), and therefore to increase the attracting power of locations with low labor costs. But the evolution from the hand to the factory industry, with labor-saving machinery, has the contrary effect: that of decreasing the proportion of wages to total costs and therefore of reducing the locational importance of places where labor is cheap. Historically, we have both the cheapening of transportation and the mechanization of processes, and only historical investigation can show which has been the more important at each period.

IV. It can be deduced, from the fact that even yet shoemaking labor is of a fairly high level of skill, that the importance of industrial training would make especially attractive as locations for shoe factories those cities or districts where the industry for any reason became early established. A tendency to cluster is, then, to be expected.

V. The fact that shoes are an article of dress, which must not only fit the individual but be fashionable, would be likely to reinforce the importance of the factor of easy access to the chief markets.

It appears to the present writer that the history of the shoe industry can be divided into four periods, in each of which a different set of locating influences was dominant. It is impossible, of course, to fix exact dates for the beginning and end of these periods, and the chronological mileposts which I shall set up must be regarded as nothing more than convenient approximations.

First period (1630-1760). In this period, which we might call that of non-localized hand shoemaking, each village and neighborhood community produced its own supply of shoes, using local materials.⁹ In such circumstances there was factors of location for the shoe industry are labor costs and nearness to the market, and that of these the former is the more important.

9. In the early part of this period, and in remoter regions, this was even true of the individual *household*.

obviously no question of alternative location of industry involved. The manufacture of shoes was distributed in the same pattern as population.

Almost from the beginning there was in the towns an elementary division of labor. Local craftsmen, first itinerant and later settled in their own shops, made shoes for the rest of the community. The knack of shoemaking soon ceased to be common property in the more settled regions.

In this handicraft organization there was, however, no change in the location of the industry with respect to population. Each pair of shoes had to be made to measure, which meant that the dominant factor of location was the market. Shoemakers sought their customers. Since leather was still produced practically everywhere, almost no transportation of either materials or products was involved in the making of shoes.

We see very early the beginnings of the next stage, that of localization of the hand industry. In certain districts along the Atlantic seaboard, principally eastern Massachusetts and around Philadelphia and New York City, population soon exceeded the limits of agricultural saturation. Commercial advantages, and in New England the poverty of the soil and the difficulty of gradual migration westward by land, accounted for the fact that for the populations of these districts, and especially of eastern Massachusetts, agriculture was of less relative importance than anywhere else on the coast or in the interior. There was a concentration of population in the coast towns, which were engaged in trading, shipping, fishing, and shipbuilding, and also in the tributary farming territory. This meant a concentrated market, a condition favorable for the development of manufacturing industry. The shipping services which these shore districts possessed were, in those days before the railroads, of great potential advantage in getting an adequate supply of materials and in reaching remote markets as soon as industry became more than a local affair.

Division of labor in any line of manufacture, as determined by the extent of the market, obviously had freer rein in

eastern Massachusetts and the New York-New Jersey-Philadelphia district than anywhere else in the country. The access to a large and concentrated market was more fundamental than advantages in labor supply which could be utilized only because the size of the market made advanced division of labor possible and profitable.

Second period (1760-1860). The initial specialization, consisting in the setting-up of the individual handicraftsman in the place of family manufacture, was first realized in the three districts we have named; and so likewise was the next stage, which consisted in the division of the process of shoemaking into operations, with workmen specializing in one or more of these parts of the trade.

It is easier to learn to make part of a shoe than a whole shoe, and accordingly this division of labor permitted either a lowering of the standards of labor skill or a raising of the standards of workmanship. Both took place. A differentiation arose between the making of good shoes, better than ever before, for individual measure, and the making of cheaper shoes for stock. The two branches of the industry thus separated pursued divergent paths. The custom manufacture followed the old lines, and its geographical distribution continued to be determined by the location of the markets. The making of shoes to individual order, relatively insignificant in amount, is distributed even today much as population is, except for an apparent tendency toward concentration in the largest cities.

In this custom industry there has never been much advance in technique or organization because the market is so restricted and scattered. Each pair being made to individual measure, there are no two alike, and no great amount of standardization is possible. The division of labor has accordingly proceeded only a little way. Machines are used scarcely at all, and the modern custom shoemaking establishment is very like the ones of a century ago. The clientele is practically limited to dancers, acrobats, and persons with oddly-shaped feet.

Since the location of the custom branch of the industry is

so simply determined, and also since the importance of this branch has shrunk to insignificance, let us give it no further consideration, but turn to the more complex question of the location of the other and now predominant branch of the industry which makes for wholesale order or for stock.

Once the policy of manufacture beyond individual order work had been adopted, there was no reason why shoemakers in one place could not send their product to other towns and other districts to be sold. Shoes had become an article of trade. The division of labor induced by the concentration of local market lent itself to the serving of a more extensive market and was thus itself encouraged.

I have placed the beginning of the second or localized-hand-industry period at 1760 because it was at about that time that both the eastern Massachusetts and the New York-Philadelphia districts began selling shoes elsewhere.

All of the original districts on account of their concentrated population, and Massachusetts in particular on account of the limitations of her agricultural possibilities, had a labor supply suited to the new form of organization in the shoe industry. Since machines were as yet unknown, there was no need to concentrate all the operations in a single place. The parts of shoes are light and easily carried about. Consequently we find that home workers by the thousands, in eastern Massachusetts and the three other states, were putting in their spare time in sewing uppers or performing other parts of the work. The nucleus of the production organization was a central office or shop where the materials were sorted and given out and the product collected, and where certain of the operations might conveniently be carried on. The larger part of the actual work, however, was done in private homes by complementary labor.

The specialization observable in the Massachusetts North Shore and South Shore districts dates from the early part of this period — the third quarter of the eighteenth century — and was determined by the two different types of complementary labor available in the two districts. On the North Shore the sea had always been the chief source of livelihood,

due to the many good harbors. Fishermen's and sailors' wives and daughters were the labor supply for the first localized shoe industry, and the district specialized on women's shoes because the sewing on them was better suited to female labor. On the South Shore, on the other hand, there were few good harbors; the men stayed at home and made the best of farming. They were on hand to help out with the heavy work; and consequently — especially after the Revolution, when many of the men had learned shoemaking in the army — the South Shore district specialized in men's boots and shoes.

This specialization at such an early date suggests that in our second period, 1760-1860, *labor* was one of the chief factors of location. It was certainly of great importance; but we should remember that only those places which had facilities for reaching large markets could put into practice the division of labor that made it possible to employ low-paid home workers. The concentrated local markets and the shipping connections of the seaboard districts were until the coming of the railroads the most fundamental causes of the localization of the manufacture of shoes. A few interior points were so remote from cheap transport connection with the eastern seaboard that they made their own shoes, but this applies practically only to the frontier zone. The rest of the country bought its ready-made shoes from Massachusetts, New York, New Jersey, or Pennsylvania, and made locally only the custom product.

The most important event in the period 1760-1860, for present purposes, was the coming of the railroad. It cheapened land transportation and greatly hastened the westward march of the center of population and the building-up of cities in the interior.

One effect of the new cheap form of land transport was to reduce radically the extent of the commercial advantage of the seaboard cities. No longer were they the only ones that could tap distant material sources or serve extended markets. New England in her little corner felt the turning of the tables most severely, since she had led in the coastwise shipping

trade and now found herself most remote of all from the rapidly developing centers of population to the west and south.

By means of railroads, a manufacturing plant located in any important city or town could serve national markets. The older districts' marketing advantage, which had made them the seats of the first localized shoe industry, was nearly done away with. Not completely, it is true: there was still a much higher concentration of population and markets in the northeastern region than elsewhere, and also water transport was still cheaper than rail. But if Massachusetts, New York, New Jersey, and Pennsylvania were to retain their leadership in the ready-made shoe industry it would have to be by virtue of some other advantage.

Such was that of labor supply. The newer parts of the country were preoccupied with agriculture throughout this period. Midwestern cities were commercial centers serving the surrounding farming regions. A surplus labor supply willing to sell its services cheaply to manufacturing industry was lacking. Furthermore, there was no experienced shoemaking labor at any price in the newer regions, except the local custom shoemakers. They could not compete with the eastern large-scale production of cheap shoes.¹

In the East, on the other hand, nearly a century of specialization in shoemaking was reflected in a relatively high level of competency on the part of the workers. They had not only carried on the same operations for generations, but they had lived and breathed in the atmosphere of shoemaking and were a part of an organism difficult to transplant. A still further factor tending to keep the shoe industry localized in the East even after the loss of special marketing advantages was the financial one. Shoes were sold, in the rural markets, on long credits, and correspondingly long credits were allowed the middlemen. The capital required was not as cheaply obtainable in the West as it was, for example, in Boston, the

1. In pre-Civil-War St. Louis, for example, the idea was prevalent that the city could never be anything more than a distributing center. See J. T. Scharf, *History of St. Louis City and County* (Philadelphia, 1883), vol. ii, p. 1322.

financial center of the country, or in New York, about to succeed to that position.

For the foregoing reasons the cheapening of land transport did not immediately decentralize the industry. Rather, by reducing the importance of nearness to markets, it brought into greater prominence other factors such as relative labor costs, and the localization in the original eastern districts persisted, tho on a somewhat different basis than before. Only a few outside cities went into wholesale shoemaking before 1860, and the production was almost entirely for local needs. The East had the eastern market, and most of the southern and western, all to itself.

In the latter part of the period 1760-1860, however, there are signs of a transition to a further stage. The westward spread of population made the original producing districts, and particularly New England, more and more remote from the center of the country's markets, which was a disadvantage tho not yet a decisive one. The supply of leather, too, began to be drawn from farther afield. Local eastern supplies of tanning materials had long been insufficient, and first the hides and then the tanbark had to be sought in more remote places. Tanneries were located with reference to hemlock, oak, or chestnut bark supplies, and as the bark was used up they moved southward and westward. The interior regions were also beginning to furnish an important part of the supply of hides.

Still more important, new machines were being introduced in the shoe trade at frequent intervals, and each new machine meant that one more process was consolidated in the central workshop, which gradually metamorphosed into the modern factory. The standards of labor skill were lowered by this mechanization, and in an increasing number of processes no previous training was needed. At the same time the West was developing in spots a saturation of population with respect to agriculture, and a surplus labor supply not unlike that which had helped the establishment of the original localized shoe industry on the eastern coast. With labor as well as capital becoming relatively cheaper and

more abundant in the West, and with the requirements of previous training becoming less important, it was only a question of time before the western cities likewise could develop a localized shoe industry and compete in the national markets.

Third period (1860-1900). I have dated the beginning of a third stage of location by the introduction of the McKay sewing machine, which more than any other made the central shop a genuine factory and reduced the requirements of labor skill.² By the later sixties, the factory manufacture of shoes was firmly established in such interior cities as Rochester, Cincinnati, Detroit, Chicago, St. Louis, and Milwaukee. The two first-named, farthest east, naturally led. Among all the midwestern cities the ones which by their promising prospects just previous to the Civil War had attracted a large share of the immigration from Germany were the ones to go farthest in the shoe and leather industries, since the Germans included a high proportion of village craftsmen skilled in these and other trades.³

Everywhere that there was some concentration of population and a surplus labor supply, however, it was now possible to start shoe factories. After about 1880 the Massachusetts output increased less rapidly than that of New York and the midwestern states, and after the War it suffered a serious absolute diminution. Pennsylvania and New Jersey likewise have lost in relative importance in the past half century.⁴

There was naturally a difference in quality of product, reflecting the difference in the labor available in the old and

2. Even with the machine it requires a trained workman to do McKay sewing; but the proportion of the total force engaged on that operation was very greatly lessened by the introduction of the machine.

3. In 1870 the German-born in the United States, making up 8.5 per cent of the total population, included 25.9 per cent of the boot and shoe makers. (From data in Census of 1870, vol. i, pp. 705, 711.)

4. See Table I. Examination of the figures will bear out the conclusion that the shoe industry in New Hampshire and Maine has less in common with that of Massachusetts than with that of, say, Wisconsin and Missouri. It would be misleading, therefore, to lump together the figures for the three New England shoe states, as is so often done.

TABLE I

DISTRIBUTION, BY STATES, OF WAGE EARNERS
IN BOOT AND SHOE MANUFACTURING, 1860-1929*(In percentages of total number of boot and shoe wage earners
in the United States)

	1860	1870	1880	1890	1900	1909	1919	1929
United States	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Massachusetts	50.5	55.7	55.4	50.4	41.4	40.3	38.0	26.8
New York	11.2	12.4	12.1	11.5	11.1	11.1	16.4	18.0
Missouri	0.8	1.0	1.1	1.9	4.2	8.8	8.3	12.1
Illinois	1.0	1.4	1.8	2.8	3.9	3.0	3.6	7.2
New Hampshire	3.9	3.0	4.0	5.9	8.5	7.0	5.8	7.1
Ohio	3.8	2.2	2.9	4.1	9.0	8.5	6.7	6.0
Wisconsin	0.8	1.0	1.0	1.4	1.8	2.7	3.6	5.2
Pennsylvania	10.9	9.1	7.0	5.4	6.4	5.7	6.3	5.1
Maine	2.4	2.3	3.5	4.8	4.5	3.5	4.7	4.8
New Jersey†	2.3	2.2	3.0	3.7	3.1	2.4	1.3	0.7
Other states	12.4	9.7	8.2	8.1	6.1	7.0	5.3	7.0

* Computed from data of U. S. Census of Manufactures. For 1870 and 1929, the figures cover establishments with an annual product worth \$5,000 or more, while in other years all establishments with an annual product worth \$500 or more are included. The discrepancy is quite insignificant in size. For 1880 and subsequent years, custom and repair shops are excluded.

† New Jersey is included only on account of past importance in the industry. In 1929 her proportion of the total wage earners was surpassed by all the other states in the table and also by Kentucky (1.2% of the U. S. total), Maryland (1.1%), and Tennessee (1.0%).

the new shoe districts. Where the manufacture had been long established, it had become possible by the seventies to make a shoe of good quality by machinery. The custom shoemakers still shod the wealthier and more fastidious customers, but the factory product was encroaching more and more on their domain as the last processes were mechanized and the machines improved. In Philadelphia, New York, and the shoe towns of eastern Massachusetts, New Jersey, and eastern Pennsylvania, the labor was able to turn out a better grade of shoe in the factory than was possible elsewhere, tho not yet as good as the product of the local custom shops scattered over the country. Then, too, the character of the demand was different in the West and South,⁵ so those newer producing sections began by turning out a medium-

5. This applies essentially to Maine and New Hampshire as well.

or low-grade product. Gradually, as the machines were still further improved, as labor gained in experience, and as the needs and desires of consumers changed, the western shoe manufacturers began to make a product of a quality approaching that of the eastern factories. This happened first in the cities, such as Cincinnati, Chicago, and St. Louis. It was some time, however, before they caught up with the older districts.

TABLE II

VALUE OF PRODUCT IN CHIEF SHOE MANUFACTURING CITIES,
AS PERCENTAGE OF VALUE OF PRODUCT FOR THE UNITED STATES*

	1880	1890	1900	1904	1914	1919	1923
New York†.....	5.7	3.5	3.5	3.7	4.8	5.8	8.5
Brockton.....	....	7.3	7.6	9.4	7.0	7.1	5.3
St. Louis.....	1.0	1.9	3.2	6.0	....	5.2	5.2
Haverhill.....	....	7.3	5.9	4.8	5.0	5.2	3.6
Milwaukee.....	0.4	0.7	....	1.7	....	2.6	3.5
Lynn.....	10.2	9.2	6.5	8.1	6.0	5.8	3.1
Chicago.....	1.5	3.3	2.2	1.7	2.0	1.5	2.8
Boston.....	1.2	0.6	3.6	2.0	2.6	2.4	2.6
Manchester, N. H. ....	....	....	1.6	2.1	....	2.9	2.2
Cincinnati.....	2.5	2.7	3.4	3.3	2.9	2.7	2.1
Rochester.....	2.2	3.0	2.7	2.7	2.7	3.1	2.0
Auburn, Me.....	....	....	1.6	1.3	2.0	1.8	1.8
Philadelphia.....	5.4	3.1	2.3	1.6	1.8	1.8	1.6
Marlboro, Mass. ....	....	....	2.6	2.1	....	....	....
Columbus.....	0.1	0.2	1.3	1.7	....	....	....
Portsmouth, Ohio ....	....	....	1.6	1.3	....	....	....

* Computed from data of U. S. Census of Manufactures. The figures apply to the factory industry only, excluding custom and repair shops. Blanks indicate that no data are available.

† Brooklyn was reported separately in the earlier years, but is included here with New York throughout.

During the period 1860-1900 the situation regarding materials also changed. The process of bark-leaching, finally made practicable in the decades just following the Civil War, made it no longer necessary for tanneries to locate near forests. Instead, they were free henceforth to seek the supply of hides. This meant increased development of the tanning industry in two places: first the stockyard cities of the Middle West, and second the east-coast ports which imported hides from South America and goatskins from Europe and Asia.

Since about half the material used in the tanning industry was (and is) imported, the two leather-producing districts came to be not far from equal in importance.

The western as well as the eastern shoe industry thus had its leather supply right at hand soon after the Civil War. Furthermore, the heavier cattle leathers produced in the Middle West were suited to the character of the shoe production of that region, just as the supply of lighter kid leather in the East was adapted to the character of shoe production there.

TABLE III
INDEX OF POPULATION SPECIALIZATION
IN SHOE MANUFACTURING, BY STATES*

(Proportion of boot and shoe wage earners to total population in principal shoe states, relative to the same proportion for the United States as unity.)

	1860	1870	1880	1890	1900	1904	1909	1914	1919	1925	1929
United States	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
New Hampshire.....	3.8	2.8	5.8	10.0	15.4	13.8	15.1	15.6	13.9	15.0	18.8
Massachusetts.....	13.0	10.8	15.7	14.3	11.0	11.3	11.1	11.2	10.4	7.8	7.7
Maine.....	1.2	1.3	2.7	4.7	4.9	4.4	4.4	6.2	6.5	6.8	7.5
Missouri.....	†	†	†	†	1.0	1.8	2.5	2.0	2.6	3.8	4.1
Wisconsin.....	†	†	†	†	†	†	1.1	1.2	1.5	2.1	2.2
New York.....	†	1.1	1.2	1.2	1.2	1.1	1.2	1.4	1.6	1.9	1.8
Illinois.....	†	†	†	†	†	†	†	†	†	1.1	1.2
Ohio.....	†	†	†	†	1.6	1.7	1.7	1.4	1.2	1.2	1.1
New Jersey.....	1.1	1.0	1.3	1.7	1.2	1.1	†	†	†	†	†
Pennsylvania.....	1.2	1.3	†	†	†	†	†	†	†	†	†

* Computed from data of U. S. Census. In 1860, only male labor of 15 or more years of age was included. Data for custom and repair shops are excluded in reports for 1880 and subsequent years.

† This symbol indicates an index figure of less than 1.0, meaning that in that state the shoe workers were a less important part of the population than in the United States as a whole.

It is impossible to say whether nearness to market or low labor costs was the dominant locating factor in the period 1860-1900, since this depended on the quality of shoe. For the higher qualities the skilled labor of the East was well-nigh indispensable, and transportation costs were secondary in importance; while for the lower grades more susceptible to standardized production, western labor was good enough and perhaps nearness to market was the main thing. During the last decades of the nineteenth century the westward move-

ment of shoe production hardly more than kept up with the movement in population.⁶

The McKay machine and most of those that followed it were leased, not sold, to the manufacturers, which kept down the amount of capital required to enter the business and allowed men of small resources to get a start. Undoubtedly this aided the newer districts. A still further reduction in capital requirements was the aftermath of the greenback inflation and the Panic of 1873, which led manufacturers in general to demand cash payment from retailers or jobbers. Whereas before the Civil War Boston had financed most of the shoe trade of the country, and western centers had been handicapped by high interest rates, now all sections were on the same basis.

The equalization of advantages took other forms as well. The producers of shoe machinery, who gravitated rapidly toward monopoly and finally merged in 1899, leased the machines on the same terms to manufacturers large and small. This deprived the larger ones of the advantage which their more intensive use of the equipment would otherwise have given them, and helped to keep shoe factories small. Furthermore, the Shoe Machinery Trust gave exactly the same rates and the same service to manufacturers in all parts of the country, whereas under competitive conditions those in the concentrated eastern districts might have expected to come off somewhat better than their western rivals.

In the main the period 1860-1900 was characterized by a levelling of locational advantages in the different regions. New England's advantage in marketing had passed away by 1873, and as she was crowded out of the western markets she began tardily to seek a substitute outlet in the export field. The absence of highly-trained labor had become by the seventies not a hindrance to shoe manufacturing in general, but simply a factor limiting quality of the product. The regional

6. Compare Tables I and III. When we make allowance, as in Table III, for shifts in population, we find that the shoe industry has during the past fifty years gained in Missouri, Maine, New Hampshire, Wisconsin, New York, and Illinois, and lost in Massachusetts, New Jersey, Pennsylvania, and Ohio.

specialization by grades which we have indicated was the product of the difference in age between the eastern and the western shoe industries, and as such could not be permanent. Capital was not only more nearly equally available everywhere, but also much less in requirement than before.

I am frankly at a loss where to end the period beginning in 1860; 1900 has been set down as the terminal year, but one can point to no single event to justify the demarcation. In some respects a definite change to a new state of affairs had manifested itself by 1890, or even earlier; in others it was not clear till long after 1900.

Fourth period (1900—). The two new developments that seem to justify calling the most recent decades a separate period in the location of the shoe industry are the emphasis on styles and the rise of labor unions to power. Both began half a century or more ago and rose in steady crescendo to their present great importance.

Fashions in footwear evidently could have little effect on the ready-made shoe industry before it had become possible to turn out in the factory a product of fairly high grade, approaching that of the hand shoemaker. Between 1880 and 1890, roughly, this happened; events conspired to set the wheel of fashion in rapidly accelerating motion. The factories became able to turn out good enough shoes — in fact they took prizes at international exhibitions, where styles in women's shoes were already American rather than Parisian. The tanneries at the same time had mastered new processes of treating skins, and a host of new and ornamental varieties of light upper leather began to grace the market. Public taste came to demand greater variety and more frequent alteration of patterns.

The steadily increasing importance of fashion changes in shoes has brought many problems to the shoe industry, but for our purposes here the most significant effect has been the emphasis that has been put upon speed and easy contact in marketing. Once before, nearness to market had meant low freight rates and that had been a decisive advantage. This advantage the railroads had ironed out. Now that speed

became necessary, the factor of access to areas of consumption regained importance.⁷

More elaborate styles and quicker change in them meant that the merchandising of shoes, wholesale as well as retail, must be done in a much less offhand way than before. Except in the steadily less numerous staple lines, holding of stocks became impossible. The manufacturer on the spot, who could keep his ear to the ground and give quick and almost personal service, served a territory better than some far-away establishment whose shipments might arrive too late to catch the Saturday rush.

Since New England was farthest away from the markets that were growing the fastest, she was the chief sufferer by this new importance of the factor of nearness to market. Her water transport lines were now of practically no use at all for the carrying of shoes, speed rather than low freights being the essential. Furthermore, the high degree of specialization which was the outcome of the concentration of the industry in eastern Massachusetts, in particular, began to work adversely. The rural and small-town markets of the interior wanted a general line of shoes, whereas most Massachusetts manufacturers had small factories each wholly devoted to a single specialty. Then too, they were harder hit by the seasonal fluctuations in sales which became more and more pronounced.

New England, having lost one of her special advantages by the coming of the railroads and another by the improvement of machinery, now was subjected to a positive disadvantage in reaching a growing section of the market.

In the nineties the eastern Massachusetts manufacturers began, probably as a result of the reverses suffered in the domestic market, to show an interest in export trade, neg-

7. For instance, I was told at a factory on the edge of the Chicago Loop district, producing high-grade shoes, that its location was advantageous primarily by reason of the nearness of the railroad terminals and hotels used by visiting buyers. From any other point of view a less central Chicago location would have been equally good, and for a producer of medium- or low-grade shoes there might have been a net advantage in being out of the city altogether.

lected since the Civil War. It was too late to build up a large export business on the basis of the advantage in machinery we had once possessed, since the machinery producers had been pushing their product abroad just as zealously as at home; but the eastern shoe districts of the country, and particularly the large Brockton manufacturers, made efforts which raised the total of exports to about 5 per cent of the domestic production. The principal markets were in Cuba and South Africa. During the World War, however, these and most of the other former shoe-importing countries erected tariffs and built up their own shoe industries, so that they are now self-sufficient. International trade in shoes was sharply curtailed, and at present there seems no likelihood of our exports recovering much of their former volume. Again New England (particularly Massachusetts) is the chief sufferer.⁸

The organization of labor in the shoe industry began to exert some influence on location as early as the seventies, and nearly everywhere the story was the same. In centers of concentrated shoe production where there were several thousand workers together the conflict of interest between them and their employers resulted in city-wide strikes. At first the grievance was often the allowing of "green hands" to run the machines; occasionally it was the machines themselves; but usually it had to do with wages or working conditions. Labor has always been strong in shoe manufacturing, because of its intrinsic importance in the production process and also because of the peculiar conditions that have brought it about that the representative manufacturer is a man of small resources competing savagely with his fellows. Manufac-

8. The Foreign Trade Survey of New England published by the Bureau of Foreign and Domestic Commerce in 1931 tells us (pp. 10-12) that in 1928 New England furnished 69 per cent of the national total of leather footwear exports, a percentage larger than in any other product. Since the bulk of this probably came from the Brockton district, it is plain to be seen that that district had a very much larger relative stake in export trade than any other. According to the 1927 Census of Manufactures, in that year the three New England shoe states produced 34.3 per cent of the national output by value; Massachusetts alone produced 25.1 per cent.

turers' associations exist in all the important shoe centers, to be sure, and in a few of them have effectually hamstrung the unions; but in general the employer is even more afraid of his competitors than of his workmen.

The strength of labor in the larger shoe centers raised labor costs there and caused manufacturers to move elsewhere for cheaper and more tractable labor.⁹ A good many found that the advantages of concentration — or agglomeration, as Weber calls it — were too great to be foregone, and moved back; but there was a steady trickle out into the country towns, with their cheap unorganized labor, and also to the metropolitan cities like Boston, with their unspecialized labor market and better conditions for the manufacturers. Organization followed the paths of the migration, of course. Beginning in Philadelphia, it spread rapidly in self-defence to the competing lower-cost centers in New York and New Jersey, and a little later the Massachusetts shoe towns were organized. In the Middle West, Rochester and Cincinnati became union centers comparatively early, but in Chicago, Milwaukee, and St. Louis the manufacturers at last reports still had the upper hand.

The manufacturers in already unionized shoe towns have displayed an illuminating lack of solidarity with their fellows in other localities. While striving to keep down the power of labor organizations in their own cities, they have welcomed the spread of unionism to competing centers and the consequent easing of their own competitive position.

As a locational factor, the higher costs resulting from organized labor have worked within rather than between regions. The gap between Philadelphia and Cincinnati proved much easier to bridge than that between Haverhill and Georgetown. The effect has been to check the industry's growth in the more specialized centers in each of the chief producing states, and to stimulate it in the satellite towns

9. See for instance Bulletins 384 and 483 of the Bureau of Labor Statistics: *Labor Conditions in the Shoe Industry in Massachusetts, 1920-24* (Washington, 1925), and *Conditions in the Shoe Industry in Haverhill, Mass., 1928* (Washington, 1929).

and in such towns and cities as have escaped strong unionization.¹ Philadelphia, Brockton, Lynn, Haverhill, Rochester, Cincinnati, and St. Louis have all become less important relative to their tributary territory. The cities that have gained by the movement have been those of New Hampshire and Maine, Boston, New York, and recently Chicago. In the case of the last two or perhaps three, the market factor was an added attraction, since these cities are style and distribution centers as well as leather markets. A considerable part of the shoe industry of New York City is hand work for the custom and specialty trades: a line of work which has shown an increasing tendency to centralize there. Something similar is beginning to be true of Chicago.

The movement toward decentralization has been somewhat aided by the inducements which community organizations and city and state governments have offered to new factories. These include lower taxes or exemption for a period of years, free rent, free buildings, or even cash bonuses.

Looking ahead, I see no signs of an imminent shift in the fundamental basis of location. The present importance of close contact with and speedy access to the market will certainly continue, tho chain marketing organizations may be able to simplify national distribution and equalize advantages in this regard. Foreign trade is likely to remain of small importance. Exports are dead, and willing hands will boost the tariff if imports threaten again as they did in 1929 and 1930. Labor is a relatively stable factor, particularly since mechanization of processes seems to have reached the limits allowed by the variety of styles that consumers insist upon.²

1. It is interesting to note that the moving of cotton mills from some Massachusetts towns and cities has afforded advantages, in the shape of cheap vacant factory space and cheap labor, for new industries. Lowell, for example, has become quite a respectable minor shoe center in recent years. The factor of cheap labor should not be given too much weight here, however, since the shoe industry demands a somewhat higher type of labor than that left in the wake of the textile mills.

2. The maximum efficient size of factory unit seems to be reached with a capacity of a few thousand pairs a day, or less than one tenth of one per cent of the total shoe factory capacity of the country (which, by the way, is nearly triple the average production). With few excep-

Further standardization of the actual processes of manufacture could not go much farther unless styles were to be controlled or a homogeneous substitute material, combining the virtues of rubber and leather, were to be discovered. As for labor organization, it is at present in what may be temporary eclipse, with wages and membership rosters going down everywhere. Under more normal conditions we should expect the process of expansion of organization to continue and to bring about a closer equalization of labor cost levels. If this went far enough, the trend of decentralization would be halted.

In the writer's opinion the locational history of the shoe industry in this country lends inductive support to the Weberian theory, while at the same time showing wherein the theory falls short of affording an adequate basis of explanation. The five preliminary deductions set down on pages 256-7 above are all borne out by the historical sketch. The reader will recognize that they cover much ground.

Three important defects of explanation on the basis of the Weberian theory appear in the case here examined. First there is the fact that for this industry the attraction of market and, to a lesser extent, of materials, is more than a matter of transportation costs, and much more than a matter of physical distance. Speed of delivery and contact with leather markets, shoe buyers, and style sources are in most cases more important than freight rates. The difficulty is to express these factors as money costs and as functions of distance; the complexity of the problem will readily be appreciated.

I do not mean to imply that the existence of such factors in any way invalidates the theory, which provides a perfectly consistent way of evaluating them. But this part of the theory, as is not unnatural, has been little developed. It tells us merely that it is necessary to convert differences in transportation speed or service, for example, into their equivalents in money costs and these in turn into equivalent distances according to the rate schedule measuring transportation. Larger shoe factories are found to be divided into two or more separately operating units.

costs in the restricted sense. The theoretical skeleton is there, but the process of clothing it with flesh has not gone far. It is fair to add that for other industries, where the product is bulkier or more standardized, this part of the theory is much less difficult to apply.

Secondly, there is the matter of the factors of location which make up that pair of complex tendencies, Centralization and Decentralization. And here the theory is very unsatisfactory. After all, the central purpose of a theory of location is to give us a means of expressing in common units, and thus of weighing against each other, the locating forces which everyone already recognizes as such. Weber himself gathered all the general³ factors associated with centralization and decentralization into one assumed net force of "agglomeration." By limiting himself to general factors, however, he left the way open for introducing *ad hoc* such specific locational causes as might be found to work on particular industries or in particular circumstances. Later critics have justly pointed out⁴ that there is no justification in principle for combining locational factors of widely diverse nature which may or may not have an essential connection with centralization of industry. Accordingly, they resolve Weber's "agglomerative force" back into such individual factors as auxiliary material and market transport advantages, lower labor costs, "advantages of contact," and the like.

But in so doing it is hard to avoid making the problem of the theoretical resultant of all these forces hopelessly complicated. Weber's theory, even when it dealt merely with the transport-cost factors (material and market), the attraction of low labor cost, and advantages of concentration, was

3. Weber uses the term "general" to denote "factors of location which are applicable to a greater or lesser degree in every industry," and to exclude those which "spring from the specific characteristics of particular industries; . . . which we do not recognize in advance, and can ascertain only by investigation." See Alfred Weber's *Theory of the Location of Industries*, English translation by C. J. Friedrich (Chicago, 1929), pp. 23-24.

4. See W. Sombart, "Einige Anmerkungen zur Lehre vom Standort der Industrien," in *Archiv für Sozialwissenschaft und Sozialpolitik*, May, 1910, p. 757; also Ritschl, p. 824.

already a sufficient tax on the imagination. The introduction of more and more variables makes quantitative evaluation so difficult that there is danger of the theory regressing into a listing of the different things which have a bearing on industrial location. Of this there was plenty before Weber. If the factors at work are broken down so minutely that it becomes impossible to formulate rules for their resultant effect, what we have is no more a theory than a heap of bricks is an architectural achievement.

The case of the shoe industry, where the factors of centralization and of locational inertia are strong, brings out this weakness.

Lastly, the theory leaves much to be desired in its treatment of labor costs. Here a satisfactory explanation of the distribution of quantities and qualities of labor is lacking. Given certain differentials in wages, productivity, and restriction of working conditions, we can indeed measure fairly well the labor-cost advantages of different localities, and even the effect on location. But there is no adequate theory of how those differentials themselves come into being. This is one of many questions on which economists, geographers, and census directors should coördinate their efforts.

As regards the particular case here examined, these few general observations must suffice. The last word on the relation of the shoe industry to the Weber theory at large cannot be said until other cases also have been examined and compared. I hope at a later date to present some criticisms and developments of the theory based on a wider survey.

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