

Figure 5. 1969 Distribution Map, Second Brood Corn Borer.

The first brood survey of 1968 was taken from June 4 to July 5, while the second brood survey of 1968 was from August 29 to September 2. A total of 72 fields was sampled during the first survey and 65 fields during the second survey. The reason for a decrease in the total number of fields for the second brood survey was that some of the fields were cut for silage. In compar-

ing data from the first and second broods, there was a 34.2% increase in infestation.

In comparing the data from the first brood surveys, there was a 4.1% increase of infestation from 1968 to 1969. In comparing the data from the second brood surveys, there was a 11.1% decrease in the amount of infestation from 1968 to 1969. In comparing the data, the overall survey totals indicated a 7.0% decrease from 1968 to 1969. Data from individual corn fields were compared to establish the amount of infestation within each county surveyed. The results indicated differences in the number of borers from field to field in each county. However, no correlation was made in the number of borer larvae from field to field.

CONCLUSIONS

Several possible reasons for the differences in borer population within the individual fields are: (1) planting dates, (2) use of resistant varieties of corn, (3) use of insecticides, (4) possible migration of borers, (5) tillage practices, and (6) climatic factors.

Climatological data was analyzed and correlated with the corn borer data. There was a coincidence that drought conditions occurred during the survey in July and August of 1969. This might be a possible explanation for the decrease in borers.

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THE SHOE INDUSTRY IN WEST TENNESSEE

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ABSTRACT

The shoe industry came to attractive sites in West Tennessee during a time of rapidly declining farm employment. However, the shoe industry and other low value-added and low wage industries did not off-set the slack in employment left by farm mechanization.

Numerous field surveys concerning such factors as plant size, employment, production, distribution, and foreign competition were conducted in the study area over a period of five years (1965-1970).

It is increasingly clear that West Tennessee's future industrial growth should be characterized by high value-

added and high wage industries. However, a lack of adequately skilled labor could be a hindrance of paramount significance.

INTRODUCTION

Since the time of early settlement, the major economic activity of the people of West Tennessee has been agriculture. Today, many West Tennessee counties are listed in the top agricultural producing counties of the state. However, its industrial out-put in terms of high value-added products and corresponding high wages is insignificant. For example, nearly every small urban area of West Tennessee has either a shoe, textile, garment or food processing industry which is low-wage and low-skill in character. These industries came to attractive sites in the region during a time of rapidly declining farm employment but they have not taken up the slack left by farm mechanization. Therefore, the objective of this paper is to analyze the shoe industry in a Mid-South area—West Tennessee—and show significant trends in the industry during recent years, thereby indicating the future need for more sophisticated industries.

SPATIAL DISTRIBUTION OF SHOE PLANTS

The New England area of the United States has long been the concentrated center of shoe manufacturing. In fact, it dominated the production of shoes until mechanization, the system of leasing machinery, high labor costs and difficulties with unions fostered decentralization. The movement was largely from New England into the Middle West, though not to the exclusion of the Pacific Coast, the Middle Atlantic States and the Mid-South.

Bay Bee Shoe Company. Bay Bee Shoe Company, located at Dresden, Tennessee, is native to West Tennessee and manufactures children's shoes on a contract basis for various companies. Covering an area of 100,000 square feet, the Dresden plant is the single largest shoe manufacturing establishment in West Tennessee.

Genesco. Genesco or General Shoe Company, with the home office in Nashville, Tennessee, has 15 plants in Tennessee. Most of the plants are located in Middle Tennessee. Only one plant is located in West Tennessee, at Camden in Benton County. The plant at Camden began production in 1950 and in 1963 expanded to the present size of 78,000 square feet. The plant is reported as the largest air conditioned shoe establishment in the South. Most of the Company's production goes to Sears Roebuck and Company.

Brown Shoe Company. Of the three different shoe companies operating in West Tennessee, Brown Shoe Company of St. Louis, Missouri has a total of eight plants. The Union City plant, which began production in 1923, is not only the oldest Brown Shoe plant in the area but also the oldest active plant in West Tennessee.

The plant at McKenzie, Tennessee, which began production in 1963, is the most recent Brown Shoe plant to locate in West Tennessee.

According to administrative officials of the company, the eight plants were located at various sites in West Tennessee because: (1) there was a sufficient availability of unemployed persons; (2) indications by preliminary labor survey showed the potential work force as above average in intelligence and general aptitude; (3) absence of competition with other industries for labor; and (4) location of the towns or sites on a federal highway, thus facilitating transportation of raw materials and finished products by truck.

With a total of 33 plants in the Mid-South and an average daily production of 140,000 pairs of shoes, Brown Shoe Company ranks as the largest producer of shoes in the United States. The Company also has plants located in Canada.

The distribution of shoe plants in West Tennessee is confined mainly to the eastern part of the study area. The Brown Shoe plants at Dyer, Savannah, and McKenzie manufacture women's shoes. Others at Lexington, Humboldt, Union City, and the two Selmer plants produce children's shoes. Ladies' shoes are sold under the brand names of Smartire, Air Step, Robin Hood, and Naturalizers. Children's shoes are sold under brand names of Buster Brown and Robin Hood.

All in all, ten plants are located in cities with an average population of slightly less than 6,000. These small cities provide adequate labor, water, power, transportation, and land of low value for plant location.

As previously mentioned, a Brown Shoe Company plant was the first shoe operation to locate in West

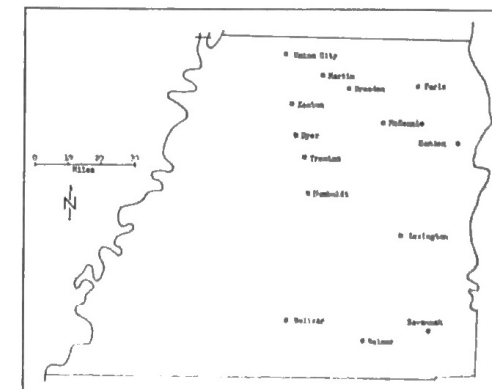


Figure 1. Location of Shoe Manufacturing in West Tennessee.

Tennessee in 1923. The next Brown Shoe plant came to Dyer in Gibson County in 1941. Between 1941 and 1963, Brown Shoe and other companies have continued

to locate plants with no more than three-year interval between plants. However, no plant has located in the area since 1963.

RELATED AUXILIARY INDUSTRIES

Manufacturing linkages between non-shoe manufacturing establishments in the study area are insignificant. This factor, in part, accounts for the lack of shoe plants within an 85-mile radius of Memphis, which is the only important industrial city in West Tennessee.

There are only three shoe-related industries operating in the area. Brown Shoe Company operates a plant at Kenton, which produces heels for shoes. The company also operates a warehouse covering 477,502 square feet, at Trenton. Throughout the Mid-South, Brown Shoe ships shoes to the Trenton warehouse for further distribution.

Armour Leather Company at Bolivar, Tennessee, accounts for the third related industry. In 1969, Armour, with home office in Kennysaw, Wisconsin, purchased the tanning factory from International Shoe Company.

The plant produces finished leather for the upper parts of shoes. Most of the leather goes to St. Louis, Nashville or Cincinnati for wholesale distribution.

RECENT TRENDS IN THE SHOE INDUSTRY

From 1965 to 1970, the shoe industry remained one of the major sources of industrial employment in West Tennessee. However, to indicate the significance of two major trends between 1965 and 1970, data were compiled concerning production and employment.

Production. Approximately 14,231,200 pairs of shoes were produced in 1965 by twelve plants in West Tennessee. During 1970, approximately 10,801,200 pairs were manufactured by ten plants. However, Brown Shoe Company increased its annual production in West Tennessee by 436,000 pairs during the same time period. Consequently the smaller companies experienced the decline in production.

Genesco production declined but the most significant decline was experienced by Bay Bee Shoe Company and Martin Shoe Company. The Dreshu Company, a branch of Bay Bee Shoe Company, in Paris, Tennessee, terminated its production in 1970 due to foreign competition. Presently, the Dreshu building is used as a warehouse for Bay Bee Shoe Company.

Between 1955 and 1968, Martin Shoe Company, located at Martin, Tennessee, was an active, native, West Tennessee company manufacturing children's shoes. It covered an area of 28,000 square feet and employed forty-five people. The Martin plant was the smallest shoe manufacturing establishment in the area. According to plant officials, production was terminated in 1968 due to inability of the company to economically compete with other establishments in the production of inexpensive shoes.

Employment. Total shoe employment has declined from 5,231 in 1965 to 4,089 in 1970. Nevertheless, shoe manufacturing is still the largest single industry in some counties and therefore employs the most people.

Brown Shoe Company has the only unionized plants. The employees are members of the Boots and Shoe Workers Union which is affiliated with AFL and CIO. Even though many plants are unionized, people are not seeking employment in the shoe industry as they formerly did. Instead, many are gravitating toward college or working in other industries that pay higher wages. For example, in 1965 there were as many men as women employed by the industry. Presently, the work force is 60 per cent women and 40 per cent men, indicating that other industries have drained some male laborers from the shoe industry.

FOREIGN SHOE IMPORTS

Shoe industries in other areas of the United States have been affected more than those of West Tennessee by foreign importation. This is due largely to the fact that the import pressure is primarily on the producers of high grade ladies' shoes and West Tennessee shoe plants manufacture children's shoes predominately.

Foreign countries produce shoes using cheap labor. For example, Taiwan pays its labor only thirty-eight cents an hour. This, in part, resulted in sixty plants in the United States terminating production. Only one of these, however, was a Brown Shoe plant and it was soon replaced by opening another plant.

CONCLUSION

West Tennessee's future industrial development should consist of those industries that are characterized by high value-added and high-wage such as the Goodyear Company at Union City, Tennessee, and the Archer Aluminum Company at Huntingdon, Tennessee. However, it is important to note that approximately half of the population in Tennessee now live in Shelby (18.4 per cent), Knox, Davidson, Hamilton, and Sullivan Counties. Therefore, it will be increasingly difficult for cities outside these industrial counties to attract heavy industry. Consequently, the shoe industry along with other low-wage industries will continue to be significant to West Tennessee but on a declining basis.

Many of the industrial characteristics of West Tennessee could be applied in general to Northern Mississippi, Eastern Arkansas, Southern Missouri, and Western Kentucky. Also, the Mid-South is going through a metamorphosis whereby many non-industrial areas are striving to attract industry. Therefore, it is the writer's opinion that additional studies should be made concerning the role of the shoe industry in the Mid-South's industrial economy.

SEASONAL PLANKTON CHANGES AND PRIMARY PRODUCTIVITY IN BEECH RESERVOIR

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ABSTRACT

The Beech River drainage basin covers 302 square miles in west Tennessee and empties into Kentucky Lake at Tennessee River Mile (TRM) 136.0. Beech Reservoir, with a shoreline of 22 miles and a pool area of 347 hectares, is one of eight reservoirs located in this drainage basin.

In this study, phytoplankton productivity studies, phytoplankton standing crop and certain chemical analyses indicated that Beech is a more productive reservoir. Primary productivity values ranged from 85 mg C/m²/day in February to 5,563 mg C/m²/day in September. The 9-month primary productivity mean was 1,619 mg C/m²/day. Chlorophyll *a* concentrations ranged from 14 mg/m² in August to 124 mg/m² in March. Phytoplankton cell counts averaged 6,961,555/l. The major ionic change was shown when total iron increased in the hypolimnion during April. Iron concentrations reached a maximum in August.

INTRODUCTION

The Beech River watershed is located in west Tennessee near Lexington about midway between Nashville and Memphis (Figure 1). The topography of the watershed is gently rolling to hilly, and is dissected by many small streams which combine to form the Beech River.



Figure 1. Beech watershed located halfway between Nashville & Memphis, indicated by star.

The river flows eastward across Henderson and Decatur counties to join the Tennessee River near Perryville, at an elevation of approximately 360 feet, at Tennessee River Mile (TRM) 136.0. The Beech River drainage

basin, about 22 miles long and 14 miles wide and lying within a 600-foot high rim, covers 302 square miles (Figure 2).

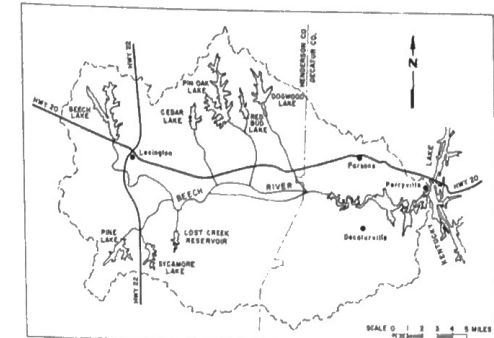


Figure 2. Beech River watershed.

Beech Reservoir (Figures 3 and 4) is the largest of eight reservoirs in the Beech River Tributary Area Development watershed project. The reservoir is situated on unconsolidated sediments of cretaceous age. Most of the basin is composed of these sediments which extend from the Mississippi River escarpment on the west to within 10 miles of the Beech-Tennessee River confluence on the east. These sediments consist of sands, clays, and marls which erode under the influence of surface waters and result in soils which are generally

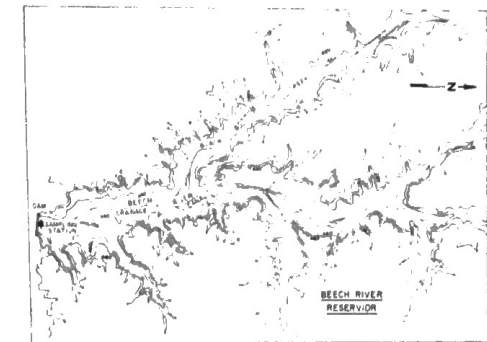


Figure 3. Location of biological sampling site in fork of drainage canal and stream directly above dam as indicated by star.