INDUSTRY COMES TO THE FRONTIER

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LANCASTER County, Pennsylvania, through a period of 130 years following the beginnings of white settlement in 1710, progressed from primitive frontier conditions to those of an advanced agricultural and industrial community with a population of more than 84,000.

It is not surprising that farming was the predominant economic interest of the people of Lancaster County throughout the period under discussion. When the pioneers penetrated the virgin forests of this area, they set foot upon some of the finest soils of the American continent. These lay in an excellent climatic latitude for cropping and were spread over a rolling plain which, once the forests were cleared, offered few obstacles to cultivation. Among the stream of immigrants which poured into southeastern Pennsylvania in the eighteenth century were large numbers of Germans, many of them from the Palatinate, a fertile and advanced agricultural region in the upper valley of the Rhine River. These "Palatines" knew the value of the rich limestone soils which they found in Lancaster County, and they applied to the cultivation of these soils the knowledge and techniques of the progressive agriculture of their homeland. As a result, they were enabled to lead the local farmers in the development of an agricultural system which, even before the close of the eighteenth century, earned for the county the highly complimentary designation, "Garden of Pennsylvania," a title retained with variations until the present day. The aptness of this early title is suggested

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1 Ernst H. Correll, *Das schweizerische Täufermennonitentum, ein soziologischer Bericht,* Chap. 6.

by the observations of Thomas Pownall who visited the Lancaster vicinity in 1754 and wrote:

These Successions of Valleys appeared to me as I rode along them the most charming of Landscapes. The Bottoms of the Vales were full of cultured Farms, with Houses, such as Yoemanry, not Tenants, live in: These were busked up with Gardens, and with Peach and Apple Orchards all round them, and with every Convenience and Enjoyment that Property and Plenty could give to Peace and Liberty. My Heart felt an Overflowing of Benevolence at the Sight of so much and such real Happiness.¹

Present day Lancaster County agriculture is especially famous for the extensive cultivation of cigar filler tobacco. It may be of interest to note in passing that the feeble beginnings of commercial tobacco planting in this area date back to the 1820's. About that time a few farmers located a short distance south of Lancaster began experimenting with the production of the leaf from Spanish seed, while small tobacco plots appeared also in the neighborhood of Ephrata. These early tobacco crops were manufactured into “segars” for the growers’ use and for local

¹ Thomas Pownall, *A Topographical Description of Such Parts of North America As Are Contained in the (Annexed) Map of the Middle British Colonies, etc., in North America*, p. 28.
No extensive progress was made in tobacco culture during the period studied, however, for the annual county production of the leaf about 1840 was less than 50,000 pounds.\(^5\)

Early Lancaster County manufacturing was greatly influenced by the agricultural environment. Grain crops were important from the beginning of settlement and provided some of the first farm surpluses. Thus there was an early incentive for the development of industries to process and consume grain. Both distilling and grain milling soon evolved into major enterprises and continued as leading industries throughout the period under consideration. Measured by dollar value of total product, they ranked first and second in size respectively among the county manufactures in the early nineteenth century. In the year reported in


\(^5\) *Compendium of the . . . Sixth Census*, p. 132.
the 1810 Census, 316 distilleries produced 1,438,484 gallons valued at more than $800,000, while 135 wheat mills produced 99,189 barrels of flour valued at more than $787,000.6 Whiskey and flour were among the first and most important of the county exports. Brewing developed also, but on a much more limited scale than distilling, for brewery products were produced primarily for a local market.

The grain-consuming industries required vast numbers of cask containers, which stimulated the rise of numerous cooperages. Other industries including textiles, oil milling, and tanning sprang up to utilize farm produce other than grain. Still another group of manufactures such as blacksmithing, coppersmithing, wagon-making, and leathermaking produced many items required by the farms or the grain-consuming industries. In these the vital relationship between agriculture and early manufacturing in Lancaster County is clearly seen. The following description of a 1760 agricultural-industrial unit strikingly illustrates this relationship and, at the same time, reflects agricultural progress during the first fifty years of settlement:

EIGHT Hundred Acres of Land, with valuable Improvements, situated in the Township of Donegall, and County of Lancaster; the Whole well watered and timbered, and in a healthy full settled Part of the Country; One Hundred Acres whereof are already cleared, and in good Repair, and 30 Acres already made into Meadow; all well watered by a gentle and constant Stream gliding through the same, and may, with Ease, be directed to any Part of it; To which may be added, occasionally, 100 or more Acres, capable of the like or better Advantages, by Water flowing through the same . . . having on the one end of the Tract a good convenient square Log Dwelling-house, a double Barn, and a young Orchard, etc. on the other a good Stone House, 40 Feet long, and 28 Feet wide, containing four Rooms on a Floor, with a convenient Cellar under Part of the same, a good double Barn, two Orchards of fine bearing Apple and Cherry Trees, a good overshot Grist-Mill, with two Pair of Stones, three boulting Cloths, and hoisting Geers, all going by Water, and in very good Order, with every

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6Tench Coxe, A Statement of the Arts and Manufactures of the United States of America for the Year 1810, pp. 58, 59, 71.
Thing necessary for Merchant and Country Work, supplied by a constant and plentiful Stream of Water throughout the Year, capable of turning out 20 Barrels of Flour every 24 Hours, with proper Attendance, or upwards of 7000 Barrels in a Year; with a good Saw-Mill, Distillery House, Cooper's Shop, and Store-House, lying in a fine Part of the Country for the Purchasing of Wheat and other grains.\(^7\)

While many of the early manufactures of Lancaster County drew heavily upon the products of local agriculture for raw materials, there were a number of conspicuous exceptions. These included such industries as brick and pottery making, the woodworking crafts, cotton manufactures, and the charcoal iron industry. Most enterprises in this group were indigenous to the area in that they found their raw materials close at hand within or near the county boundaries. In a few industries some raw materials such as cotton, tobacco, copper, and mahogany and pine lumber were imported, and eventually even grain and hides were brought in to supplement local supplies. Nevertheless, with few exceptions, the early manufactures of Lancaster County came into being under the stimulus of local supplies of raw materials. Thus the presence of abundant non-agricultural natural resources such as timber, clay, and iron ore was another important factor in the rise of the manufactures of this region.

The location of Lancaster County had great significance for the development of manufacturing. As a frontier community in the eighteenth century, the region experienced a steady increase in population which continued throughout the period studied. This provided a constantly enlarging home market for manufactures with regard to both quantity and variety of wares. The inland situation of the county at the crossroads of heavily traveled routes between the seaboard and the West provided unusual opportunities for trade, which in turn encouraged manufacturing enterprise. As the frontier advanced westward beyond Lancaster, the demands of the pioneers and western traders for articles such as saddlery and firearms continued to stimulate industries which early came into being in and about Lancaster. Thus developed the celebrated rifle industry of this locality. At least as early as 1751,

\(^7\) *Pennsylvania Gazette*, Sept. 11, 1760.
TYPICAL LATE EIGHTEENTH CENTURY LANCASTER RIFLE
made by John Demuth. Full stock of curly maple, flint lock, and brass hardware. The box with the hinged lid at the butt plate was used to carry greased loading patches.

Courtesy Old Sturbridge Village and Henry J. Kauffman

Martin Mylin rifled gun barrels in a small gunshop near Lancaster. By the early nineteenth century the fame of the rifles produced by the craftsmen of the county had spread far and wide. In 1807 a traveler who visited Lancaster wrote:

There are several private manufactories in Lancaster . . . but it is principally noted for its rifles, muskets, and pistols, the first of which are esteemed the best made in the United States.

While the frontier furnished one type of stimulus for manufacturing in Lancaster County, the proximity of large urban market centers provided another. Along the roads to Philadelphia, Wilmington, and Baltimore rumbled the great Conestoga wagons, themselves a tribute to local industrial craftsmanship, laden with products such as whiskey, flour, and iron. The inland situation of the county gave its artisans a measure of protection from imported foreign wares as well as from those produced in the port cities themselves. At the same time those cities were near enough to supply the county manufacturers with essential articles such as buhr millstones, leaf tobacco, and foreign hides when the supply of local hides became inadequate. The location of the county on the lower course of the Susquehanna River also influenced its manufacturing, for as the interior of Pennsylvania was settled the descending produce trade on the river made avail-

8 Martin Mylin Inventory, 1751, Office of Lancaster County Register of Wills.
9 Fortescue Cuming in Thwaites, Early Western Travels, 1748-1846, IV, 31.
able abundant supplementary supplies of grain and lumber for the milling, distilling, and woodworking industries.

The manufactures of this region began in the homes of the pioneers, but shop and mill industries soon appeared. Numerous local streams with excellent mill sites made possible the use of power machinery which was introduced at an early date. Thus, for example, the fulling mill appeared at least as early as 1731. As the period under study advanced, water power was used on an increasing scale and applied in many industries. Within ten miles of Lancaster in 1786 there were "eighteen grain mills, sixteen saw mills, one fulling mill, four oil mills, five hemp mills, and two boring and grinding mills for gun barrels." Water continued to be the principal source of power for the local manufacturing machinery to the end of the period studied. In the decade of the 1830's, however, forward-looking Lancaster industrialists caught a vision of things to come and began to utilize steam power in cupola foundries and machine shops. The study of the sources for that decade indicates that great industrial changes were close at hand.

Eighteenth-century manufacturing enterprises of Lancaster County were conducted by individuals and partnerships, and, except for the ironworks and Henry William Stiegel's glass works at Manheim, were on a small scale. Even during the early decades of the nineteenth century much small-scale industry persisted. Except for one cotton mill in the vicinity of Lancaster, which was operated for a time by a voluntary, unincorporated joint stock company, and then successively by two corporations, there were no changes in the forms of business organization.

Toward the close of the period, various manufacturing enterprises reached the small factory stage in terms of volume of production and number of workmen employed. This is reflected, for example, in gunsmith Henry E Leman's advertisement that he had several hundred rifles in stock, also double and single barrel shotguns, Armstrong duelling pistols, and rifle barrels.

11 Tench Coxe, A View of the United States of America, in a Series of Papers Written at Various Times between the Years 1787 and 1794, p. 313.
12 Lancaster Intelligencer, June 11, 1839.
It is indicated also by Lancaster shoemaker A. N. Breneman's announcement that he had a stock inventory of 6,000 pairs of ready-made shoes all of his own manufacture. By the close of the period, examples of the small factory were to be found also in textiles, cabinet making, and secondary iron manufactures.

Three internal improvements were of special importance for the marketing of the products of Lancaster County agriculture and manufacturing. These were the Lancaster and Philadelphia Turnpike completed in 1794, the Conestoga Slack-water Navigation completed in 1829 to link Lancaster with the Susquehanna River, and the Columbia and Philadelphia Railroad completed in 1834. The last-named stimulated manufacturing in a very direct way by creating a demand for locomotives and railroad foundry iron. In response to this demand cupola foundries and machine shops sprang up in Lancaster and along the route of the railroad, and a revolution in secondary iron manufactures gradually gained momentum.

Even before the completion of the railroad, Lancaster County inventors began to show an interest in this new field of economic enterprise, and between 1829 and 1839 no fewer than twelve patents were granted to residents of the county for inventions pertaining to railroading. Two of these are of particular interest. In 1829 James Wright of Columbia patented the beveled tread wheel. This invention, which made rigid frame locomotives and cars self-adapting on curved tracks, was an outstanding contribution to railroad development. Nine years later Samuel Truscott, George Wolf, and James Dougherty, also of Columbia, were granted a patent for the first solid railroad car wheel casting made in America. This wheel had two plates, convex on one side and concave on the other, in place of the usual arms or spokes, with the hub to receive the axle cast in the center of them and extending from one to the other. Plates, axle, and rim were cast in a single solid piece. One of the Lancaster stage companies began

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34 Prior to the decade of the 1820's, the Susquehanna River was little used for the export of Lancaster County products. *Lancaster Journal*, June 29, 1821, Nov. 25, 1825.
35 *Lists of Patents for Inventions and Designs, Issued by the United States, from 1790 to 1847* . . ., pp. 198-215.
to build railroad cars at least as early as 1832, while the first railroad locomotive made in Lancaster, the Hugh Keys, successfully completed its trial run in 1840.\textsuperscript{18}

The relation of selective immigration to the rise of early Lancaster County manufacturing is not easily determined with precision. However, it is clear that many of the German immigrants who settled in this region in such large numbers either were, or readily became, skilled craftsmen. Hence the rapid growth of manufacturing, which made this county one of the leading industrial counties of Pennsylvania before the close of the eighteenth century,\textsuperscript{19} owed much to the mechanical knowledge and aptitudes of these people. A striking example of the original element in their contribution is the transplantation of the European riflemaker's craft into the American frontier environment. This emphasis upon the German influence in early Lancaster County manufacturing should not divert attention from the fact that persons of other nationalities also played a prominent part in this field of economic endeavor.

In conclusion, it may be observed that, while farming was always the dominating economic interest of Lancaster County during the period studied, a rich and extensive system of manufacturing also developed in close integration with agriculture. The rise and nature of the manufactures of this region are to be explained largely by the generous endowments of natural environment on the one hand in interaction with the more obscure factor of selective immigration on the other.

\textsuperscript{18} Lancaster Examiner, Sept. 20, 1832; Lancaster Intelligencer and Journal, Dec. 8, 1840.

\textsuperscript{19} Tench Coxe, \textit{A View of the United States of America, in a Series of Papers, Written at Various Times between the Years 1787 and 1794}, p. 313.