THE SUBSISTENCE FARMING PERIOD IN PENNSYLVANIA AGRICULTURE, 1640-1840

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FOR a century and a half, Pennsylvania was the "bread basket of America." This preëminence was due, not only to our strategical location, and to favorable conditions of soil and climate, but to the diverse racial origin of our farmers. The Dutch, Swedes, Finns, English, Welsh, German, Scotch-Irish and Connecticut Yankee elements of our colonial settlement each brought to their new home the varying farm practices of their native lands. This was a source of agricultural strength.

Practically all of Penn's domain, except the sites of a few Indian villages and limited areas that the Indians had burned over in hunting, was in forest. The slow and laborious process of clearing the land required the almost undivided attention of the settlers for years. Most farms were small, as compared with the great plantations of the southern colonies. The Penns created a number of "manors," and "baronies" of 5,000 or more acres, but these curious survivals of feudal medieval Europe never functioned as such. The first patents usually were for 300 to 500-acre farms, most of which remained in forest. These were soon divided; by 1840 the average size of farms in Berks County was 75 acres.

Thus the "family-size farm," that great bulwark of the American way of life, has characterized Pennsylvania agriculture from the beginning. Unlike the New England pioneers, who lived in villages and had, for a time at least, a semi-communal type of agriculture, Pennsylvania farmers always have lived in the open country, on their individual holdings. This, as well as the charter of civil and religious liberty granted to them by Penn, is the root of their self-reliance, their love of liberty, and their impatience with undue governmental regulation.

Pioneer farming in Pennsylvania was necessarily of the subsistence type. Practically all the needs of the family, both food and clothing, were supplied by the farm, the forest and the streams.

Each farm was self-sufficient save for a few necessities, as salt, iron, glass and spices; these were secured by barter. About a half acre of flax and the wool of a half dozen sheep were required to clothe a pioneer family of seven.

All-Grain Farming

Until after 1775, grain dominated Pennsylvania agriculture. For over a century the economy of the Province and state was founded on wheat. There was no planned rotation of crops. Wheat was likely to follow wheat, or some other small grain, until the tortured land rebelled; then it would be "turned out to rest," usually to be fallowed for a few years in weeds. This prodigal husbandry was followed by the pioneers as they pressed westward. "The practice of the early settlers of York County," says Glossbrenner, "was to clear a new field every season. Wheat was uniformly the first crop, of which the yield was 18 to 20 bushels per acre. The second crop was rye, then corn, then oats. After going through this course it was left fallow a year or two and then the course was begun again. This was continued until the soil would produce nothing, when more new ground was cleared."[1] Land was cheap; this was considered economical farming at the time.

The livestock of early colonial days was, for the most part, under-nourished and poorly sheltered. Usually it foraged in the woods and fields for a scanty living. The animals were without definite breed characteristics, and of low production. Even as late as 1791 Richard Peters reported, "A good cow should give an average of 2 pounds of butter a week, or 104 pounds per year." Cattle were valued more for their hides and tallow, than for their milk and meat. Razorback hogs, roaming wild in the woods, could outrun the average horse and could be captured only with a gun. A law passed in 1687 required that every animal be banded or earmarked, and that this mark be recorded in the county court. As a result of undernourishment and promiscuous breeding, colonial livestock degenerated. The stock of German farmers, however, was a marked exception in this respect. About 1750, the valley of Conestoga River, Lancaster County, began to be famous for its powerful draft horses; these "Conestoga horses" were the result of good

[1] A. J. Glossbrenner and W. C. Carter, *History of York County* (York, Pa., 1854), p. 14.

care as well as good breeding. They were a general type, not a fixed breed; probably they were mainly of Belgian blood.

Most colonial farmers except the Germans considered manure a nuisance, even the small amount that could be saved when stock mostly ran at large. According to Lorain, "The dung has accumulated around some barns in such great quantities as to render access to them so difficult that the barns have been burned, and new ones built."[2]

Shortage of farm labor was as acute then as now. It was easy for a young man to acquire a farm of his own at slight expense, so why work for another man? Most farmers solved the labor problem by raising large families. Ten to twelve children were not uncommon. Every baby boy was welcomed as an additional farm hand; every baby girl as another spinster and dairymaid. Since schooling was restricted to a few months a year for only three or four years, it did not seriously interfere with the labor of children, who were under obligation to work for their parents until twenty-one. Any farm help needed beyond what the family could give was secured by exchanging work with neighbors, or by the use of indentured servants, either "redemptioners," who worked out the cost of their passage from Europe, or debtors, who were bound out by the courts to work off their debts. There were also many apprentices, mostly children of the poor, but comparatively few Negro slaves.

While farming in colonial days was primarily of the subsistence type, there was a steadily increasing surplus to barter or sell. Some of the surplus was exported, mainly to the West Indies. The great export commodity of Virginia was tobacco; of South Carolina, rice; of Pennsylvania, wheat. In 1775, Pennsylvania exported 350,000 bbls. of flour and 100,000 bushels of wheat. Rural flour mills were among the first industries of Pennsylvania.

Whiskey as a Farm Commodity

For nearly a century a large proportion of the corn and rye of Pennsylvania farms was marketed as whiskey. That fiery beverage was legal tender and the generally accepted standard of value on the frontier, since hard money was practically non-existent. It was

[2] John Lorain, *Nature and Reason Harmonized in the Practice of Husbandry*, p. 334.

the almost universal beverage of men, women and children. There was then no moral or religious sentiment against it. Subscriptions to the minister's salary often were paid in whiskey. On the frontier a still was considered as necessary as a grist mill; about every fourth or fifth farm had a neighborhood coöperative still.

Before the coming of turnpikes, about 1800, whiskey was the only farm product that it would pay to carry on pack horses from western Pennsylvania, over the Alleghenies, to Philadelphia and Baltimore. A pack horse could carry twenty-four bushels of rye in the form of whiskey, but only four bushels as grain. That was why the farmers of western Pennsylvania bitterly resented the excise tax of seven cents a gallon imposed on whiskey by the federal government, which led to the Whiskey Rebellion of 1794.

Southwestern Pennsylvania, however, was by no means the only part of the state in which whiskey was a major farm commodity. Even as late as 1832, the chief exports of York County were 125,000 barrels of flour, 500,000 bushels of grain, and 2,700,000 gallons of whiskey.[3] "From 1810 to 1840," says Gibson, "nearly one-fifth of the farmers of York County owned a copper still, by which they distilled their own cereals into whiskey and hauled it to Baltimore."[4] This proportion between solid and liquid sustenance was true in most of the counties west of the Susquehanna.

The superstition of Pennsylvania farmers in colonial days was deep and devious. Many farmed by the phases of the moon, which told them when to sow, when to reap, when to shingle their barns, and the best time for practically all other farm and home operations. The "Farmers' Almanack" was second only to the Bible as a source of authority. Witness the sage advice of a Lancaster County farmer, in 1760: "When rats become very numerous and consume the grain, we write a letter to them and push it in a rat hole, commanding them to vacate the premises and suggesting that they move to the farm of a certain neighbor. If the letter is found chewed to pieces the next morning this shows that the rats received it. On the next moonlight night all the rats can be seen marching away in a long line to their new abode."

At the beginning of the Revolution, and for a decade after, the economic status of the Pennsylvania farmer was not good. Soil

[3] T. F. Gordon, *A Gazetteer of the State of Pennsylvania* (Philadelphia, 1832), p. 499.
[4] John Gibson, *History of York County* (Chicago, 1886), p. 351.

depletion had begun to reduce yields in the older counties, and the market for surplus produce was limited. In 1774 a discouraged Franklin County farmer wrote, "We scarcely think it worth while to cultivate larger farms, since we get little or nothing for what we raise."

Pennsylvania farmers played a decisive part in the American Revolution. The province was about equally divided in allegiance; the Tories and conscientious objectors were mostly in the southeastern counties and the remainder of the province was strongly patriot. It is doubtful if independence could have been achieved without the support of rural Pennsylvania in both men and provisions. It was rightly called "the granary of the Revolution." The German sectarians of Lancaster and adjacent counties, though prevented by religious convictions from fighting, contributed effectively to the cause by supplying the army with vast stores of wheat, cattle, horses and other provisions.

The Great Awakening

The twenty-five year period between 1795 and 1820 marked the turning point in Pennsylvania agriculture. America then cut loose from the mother country agriculturally as well as politically. After 1790, slavish copying of English methods of farming largely ceased and we began to develop a program of our own.

The organization of the Philadelphia Society for Promoting Agriculture, in 1785, the first agricultural society in America that endured, was a sign of the new era. Its members were bankers, statesmen, doctors, lawyers and business men. George Washington was a member. "Dirt farmers" were inclined to scoff at "scientific farming" as impractical; "they talk politics and publish nonsense," said one horny-handed son of the soil. Nevertheless, "gentlemen farmers" were responsible for a number of epoch-making improvements in Pennsylvania agriculture.

First of these was the introduction of gypsum, or land plaster. In 1770, Richard Peters of Philadelphia observed the marked beneficial effects of gypsum on a small field of red clover grown by a German immigrant, Jacob Barge, who had heard of it in Germany. During the next twenty years Judge Peters experimented with "plaister" and distributed it for trial among his friends. In 1795, while president of the Society, he began to advocate its use,

particularly on red clover, with great zeal and with immediate success.[5] "Clover and plaister husbandry," as it was called, soon swept the state.

About 1820, however, it was found that gypsum is a soil stimulant, rather than a "manure," as had been supposed. Sharply declining yields led farmers to use lime instead. This had been applied to a limited number of Pennsylvania farms, with beneficial results, almost from the first settlements. About 1820, anthracite coal became available for use in kilns, and lime could be produced more easily and more cheaply than it had been previously with wood fuel. Lime soon became the corner-stone of the "New Husbandry."

Crop Rotations

Another important contribution of the "gentlemen farmers" of the Philadelphia Society for Promoting Agriculture was the introduction of crop rotations. By 1750, farmers of the three original counties, Philadelphia, Bucks and Chester, were beginning to complain about low yields. In 1791, Richard Peters reported: "About 8 bushels of wheat per acre is a full allowance for the better kinds of farms in these parts." There was wide-spread discouragement among farmers.

In 1785, the first year of its existence, the Society offered a substantial premium for "the best experiment made of a course of crops."[6] The prevailing crop sequence of that time was wheat two years, oats, and fallow; or wheat and fallow alternating. Two of the Society's members, John Beale Bordley and George Logan, accepted the challenge. Both had previously begun to experiment on various modifications of the "Norfolk System," of England, as developed by Townshend, in an endeavor to adapt it to American conditions. Both reached the same conclusions. As expressed by Logan, in 1789: "Soil fertility can be maintained best by giving the ground a full dressing of 20 large cartloads of good stable manure to the acre every seven or eight years, and by adopting a rotation of crops, in which clover is absolutely necessary."

Judge Bordley has been called "The Father of Crop Rotations in

[5] Philadelphia Society for Promoting Agriculture, *Memoirs* I (1808), 158-160.

[6] *An Address from the Philadelphia Society for Promoting Agriculture* (Philadelphia, 1785), p. 11.

America." His famous *Essays and Notes on Husbandry,* published in 1799, but delivered before the Society several years previous, carried the farm gospel of crop rotations, livestock husbandry, and the paramount value of manures as a means of maintaining soil fertility, to all parts of the country. One of the present standard rotations of Pennsylvania—corn, oats, wheat two years, grass and clover two years—came into general use soon after 1800 as a result of the experiments of these two men.

One of the most significant developments of the early post-Revolutionary period was the rise of grassland farming. Until gypsum and lime came into general use, grass was a minor feature of Pennsylvania agriculture. Livestock foraged mostly on the uncertain supply of native grasses, which were chiefly annual, and on woods browse. There were some permanent pastures, and the more fortunate farmers had highly prized irrigated meadows, where a stream could be diverted over the turf. The use of gypsum and lime made it possible to grow grass and clover on upland fields, without irrigation. By 1801 Judge Bordley was able to report: "The irrigated and bottom meadow lands are now thought lightly of, in comparison with the very high estimation they were in before clover came into field culture. So sure and plentiful are upland clover and grass crops now, that Pennsylvania farmers are least solicitous about meadows."

Livestock Husbandry

The next and final step toward the establishment of a permanent agriculture in Pennsylvania, after liming, crop rotations, and the production of more grass and clover, was a marked increase in the number and quality of livestock. At first the emphasis was on beef cattle. From 1810 to 1840, Chester County was the center of the beef cattle industry of America. Bucks, Montgomery and Lancaster were not far behind. Feeder cattle were purchased from the interior counties and either fattened on pasture alone, or by a combination of stall feeding and grazing. So prosperous was this type of farming that in 1819 good grazing land in Chester County sold for $300 an acre. "Gentlemen farmers" vied with each other in producing aged beef cattle of gigantic size, for show purposes, regardless of cost. "An ox was killed last winter in Philadelphia," wrote William Cobbett in 1818, "the quarters of which weighed

over 2200 pounds. He was sold to the butcher for $1300. I believe this to have been the fattest ox that was ever killed in the world."[7]

The golden age of the drover was from 1815 to 1840. Great herds of cattle, sheep and swine, were driven across the Alleghenies to Philadelphia and Baltimore. After 1840, railroads began to bring fat cattle from the cheap grazing lands of Ohio, Indiana and Illinois; then beef production in southeastern Pennsylvania, by grazing, was forced to give way, and the dairy cow began to emerge as the main key to agricultural prosperity in this state. Stall feeding, however, continued to be profitable, especially in Lancaster County.

One of the most spectacular features of Pennsylvania agriculture near the turn of the nineteenth century was sheep husbandry. Previously only a few sheep had been kept, just enough to clothe the farm family; town folks mostly bought their woolens from England. After 1807, foreign woolens were largely excluded, first by embargo, then by the War of 1812, and later by tariff barriers. From 1810 to 1840, Pennsylvania sheep husbandry was at its zenith. Shipments from the West were not yet large enough to cause serious concern. In 1840, Chester County had 56,000 sheep, Lancaster and Washington Counties 41,000 each.

Then occurred the greatest speculative mania in the history of Pennsylvania agriculture, not excepting the silk worm craze of 1826 to 1839. Fine wool Merino sheep were first imported from Spain in 1802, but the big importations were a decade later. Prices of both sheep and wool jumped skyward. In 1810, four pure bred Merino rams were sold to a fevered Pennsylvania farmer for $1,000 each; when the fever subsided these same sheep sold for $5.00 to $10.00 each. In January, 1816, Merino wool sold for $7.06 a pound. The bubble burst in 1819. The price of Merino wool dropped to 57 cents a pound. Pennsylvania farmers, sadder and possibly wiser men, then turned to the English mutton breeds.

The period from 1810 to 1840 witnessed a remarkable improvement in Pennsylvania livestock. The nondescript livestock of colonial days, of no definite breed characteristics, began to be displaced by the improved breeds. These were mostly imported from England, and were the fruit of pioneer work in animal breeding by Bakewell a half century earlier.

[7] William Cobbett. *A Year's Residence in the United States of America,* 1817-1818 (New York, 1819), p. 196.

First to come to Pennsylvania were the Shorthorns, in 1818, although they had been introduced into Virginia and Maryland as early as 1783. John Hare Powel, of Philadelphia, was a pioneer importer and breeder of Shorthorns in this state. In 1818, Ruben Haines of Germantown imported cattle from the Alderney Island; these may have been Guernseys, but the first definite importation of that breed into this state was in 1833. Herefords were introduced in 1817 and Ayrshires in 1820. A few "Dutch cattle" had been brought into the colony by the early settlers, but pure bred Holsteins did not appear until about 1800. The first importation of Percheron horses into Pennsylvania was in 1839, but the breed did not get well established here until after 1851, when the celebrated stallion "Louis Napoleon" came to our shores.

Berkshire hogs, which were first imported into this state about 1830, were the object of a speculative mania known as the "Berkshire fever," which left its victims weak and disillusioned. Most of these importations of superior livestock were by wealthy "gentlemen farmers;" it was many years before pure bred stock was found on any considerable number of Pennsylvania farms. In 1809, there was organized in Philadelphia the first livestock improvement association in America, the "Society for Improving the Breed of Cattle." This society held several shows and stimulated interest in cattle breeding by offering substantial premiums. Chester White swine originated in Chester County about 1820, by crossing imported and native stock.

The great fluid milk industry of Pennsylvania had its beginning about 1840 on farms near Philadelphia, supplanting the farm manufacture of butter and cheese, and beef production in that area. Farmers having forty or more cows did their own peddling in the city; small farmers sold their milk to dealers. Even at that early date there were herds of 200 to 300 cows. The average annual milk production per cow increased from about 1,000 quarts in 1800 to 1,500 quarts in 1840.

Most farm work still was done by hand. There was comparatively little improvement in the equipment of Pennsylvania farms, except the plow, until after 1840. The grain cradle was introduced about 1800 but it displaced the sickle very slowly; as late as 1830 two-thirds of the small grain in most parts of the state were cut with the sickle. The McCormick reaper was first used in 1840, by Judge Frederick Watts of Carlisle. His skeptical farmer neigh-

bors, with characteristic conservatism, dubbed it "Watts' Folly." Grain still was threshed with a flail, or trodden out with horses or oxen, although there were a few crude horse-power threshers.

About 1806, the clumsy and inefficient wooden plows of colonial days, shod with strips of iron or tin, began to give way to cast iron plows. Many farmers objected to these at first, saying that they poisoned the soil and encouraged the growth of weeds. The natal day of the modern plow usually is set at September 1, 1819, when Jethro Wood, of New York, was granted a patent on his cast iron plow; but two Pennsylvania farmers, Charles Neubold of Philadelphia and Joseph Smith of Buckingham, had previously developed cast iron plows of superior design. The Neubold patent was issued in 1797 and the Smith patent in 1800. Thousands of these plows were used in Pennsylvania.

The Rise of Commercial Farming

Commercial agriculture as we know it today, in which crops and livestock are raised mainly to sell rather than for the use of the farm family, could not have developed without means of transporting farm produce to market quickly and cheaply. This did not occur until the advent of the railroad, about 1840. The dug-out canoes, arks, flatboats, keel-boats and pack horses of early days gave way, in succession, to the turnpike and Conestoga wagon, the canal, and the railroad. Each of these developments was viewed with deep misgiving by the vested interests of the then prevailing form of transportation. Farmers particularly resented the shift from the Conestoga wagon to the railroad, for this hurt the market for their horses. In 1834 a super-heated patriot rose in the general assembly and thundered, "Is the House aware of the smoke and the noise, the hiss and the whirl, which locomotives make travelling at the breakneck speed of ten miles an hour? Even the cattle plowing in the fields or grazing on the meadows view them with dismay. The railroad is an unmitigated nuisance, and should be suppressed." But the railroad refused to be suppressed.

There was a marked increase in the industrial and urban population of the state between 1790 and 1840. Manufactures were beginning to be transferred from farm homes and the shops of local craftsmen to factories, thus creating the excellent city markets for farm produce which characterize Pennsylvania agricul-

ture to this day. The population of Philadelphia increased from 55,000 in 1790 to 258,000 in 1840; that of the state from 430,000 to 1,700,000. The industrial revolution had begun.

The year 1840 may be taken not only as marking the end of the era when farming in Pennsylvania was predominantly of the subsistence type, but also as the close of the long period when agriculture dominated the economy of the state. Farming still was the occupation of sixty per cent of the people, but this proportion was to be reversed within a few years. Farmers still had a major voice in public affairs—51 of the 136 members of the State Constitutional Convention of 1837 were farmers and 41 were lawyers—but lawyers soon took the lead. Count the farmers in the general assembly today!

After 1840, Pennsylvania ceased to be the "bread basket of America." The era of specialized commercial farming had begun. The dairy cow, not the wheat shock, became the cornerstone of Pennsylvania agriculture. The Pennsylvania farmer was to meet constantly increasing competition, first from the West, then from the world. His manual labor was to be lightened by power machinery. He was to be the beneficiary of remarkable developments in the application of science to farming. He was to hear the roar of trucks and the whirr of planes. But that is another story.