



SEAL OF THE TWENTY-FOUR PROPRIETORS OF EAST JERSEY.

HUSBANDRY IN COLONY TIMES.*

BY EDWARD EGGLESTON.

I.

II.

NEW WAYS IN A NEW WORLD.

VISIONARY PROJECTS AND FAILURES.

WHEN Philip Carteret, the first governor of New Jersey, landed at Elizabethtown, he did not come ashore with the petty-royal pomp affected by many provincial governors, but marched from the landing-place to his capital town, which contained four families, with a hoe on his shoulder,—a bit of theatrical display by which he signified his intention of becoming a planter with the people. For by the time the English settlement of the Jerseys began, the old illusions were dead; and it had become a recognized principle that colonies could not live by mines, or by the fur trade, and that tillage was the only sure basis for a plantation. The device on the seal of East Jersey is wrought of "English corn" and "Indian corn,"—wheat and maize,—symbols of the soberer expectation at the period of the Scotch and Quaker migrations.

But in the earliest period, even the agricultural notions of the planters and projectors had the prevailing hue of romance; it was only from a few men of impertinent common sense, like Captain John Smith, that one heard of breadstuffs as profitable for colonial production. Having a new world to try in, the English emigrants were bent on trying for new, or at least for un-English, sources of wealth. It was, indeed, a sort of commercial treason to grow that which might disturb the market for the produce of English farms or looms; and hence the most child-like experiments were made upon the youthful hemisphere in husbandry, as well as in religion and government.

PERHAPS the most curious and instructive example on record of persistent effort to run counter to economic gravitation is to be found in the attempts at silk-raising in the colonies. For more than a hundred and sixty years, down to the very outbreak of the Revolution, persevering efforts were made by kings, privy councils, parliaments, governors, proprietaries, provincial councils, legislative assemblies, noblemen, philosophers, and ladies to secure the success of silk-growing in the thirteen British-American provinces. During most of this period England itself was seething with the spirit of commercial and agricultural innovation. About the time of the sailing of the Virginia argosy, an effort was making to introduce the silk-worm to the ungenial British climate, in order that the newly imported silk throwsters and weavers of Spitalfields and Moorfields might have fiber which had not paid a commercial tribute to France and Italy. Two years after the settling of Jamestown, the first mulberries were planted in England, and the king himself engaged in the silk business. The rudiments of colonization were not understood then; everything must be forced prematurely from a plantation that had no adequate roofs to shelter it, or corn enough to keep away starvation. Along with the making of potash, iron, and glass, and the growing of cotton and the vine, silk-culture was begun by men who required to be fed and clothed from England. Before the James River plantation was nine years old, Virginia sent to England silk that had, perhaps, cost more than the value of an equal bulk of gold. A little later it was ob-

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served that the wild caterpillars of America spun silk upon the native mulberries, and the flagging silk craze was revived, a French treatise on silk-growing was translated, and in 1620 a new attempt was made by skilled Frenchmen sent over for the purpose. The highest hopes were raised to be dashed by the Indian outbreak of 1622, which saved divers visionary projects from a more disgraceful failure. In 1623, before the smoke of the Indian massacre and the counter-massacres had cleared away, law was invoked to compel the planting of white mulberries and the raising of silk. This was desired not only for the sake of



SILK-WINDING. FAC-SIMILE OF A PICTURE IN EDWARD WILLIAMS'S "VIRGINIA TRULY VALUED": 1650.

the silk, but in order to supplant tobacco — tobacco being almost the only thing concerning which the Stuart kings had scruples of conscience. While yet the Indian war raged fitfully, cocoons seem to have been again produced; there is a story that Charles I., at his coronation in 1625, wore a robe of silk grown in Virginia. Having clothed a king, the silk-worms rested. Fourteen years later, new attempts were made and a considerable quantity of silk was sent to the king, but again failure was covered by an Indian massacre. Edward Digges, who was chosen governor of Virginia under the Commonwealth in 1655, produced four hundred pounds of Virginia silk in that year, and announced that he had overcome all the main difficulties; whereupon the silk fever broke out afresh and raged with unabated fury for ten years; the excitement spread also among sentimental economists in England, and silk-worms' eggs were gratuitously dispatched to the James River, along with no end of good advice. A young lady in England sent word to the colony that if the worms were only let loose upon the trees, they would feed themselves. Wild projects for raising silk from the native silk-worm were elaborated by writers who had never seen an American caterpillar or his coarse cocoon of silken homespun. Writers of more consequence announced that tobacco would soon be wholly laid aside for the light work of silk-culture, and that servants would thenceforth be little needed in the Arcadian land of Virginia. Digges went so far as to import "two Armenians out of Turkey," to show the way of feeding and winding, whereupon this poetic apostrophe to him was spun in England:

"Courage, brave Sir; since ayde from God is sent, Proceed, go on, drive forth thy great intent."

The House of Burgesses passed a law for the planting of one mulberry-tree to every ten acres of land. Rewards of many grades were offered for the production of silk. George the Armenian was paid four thousand pounds of tobacco in 1656 to induce him to stay in the country, and he received another thousand pounds of tobacco when, at length, he had actually produced ten pounds of silk. The premiums offered by the Assembly rose until, in 1658, ten thousand pounds of tobacco were promised for the raising of fifty pounds of silk. Sir William Berkeley, who in 1662 made many fair promises to the court that he would secure for England commercial independence in silk, flax, and pot-ash, was promised a liberal reward for the first ship of three hundred tons that he should send home from Virginia laden with these commodities. The chief result from all this excitement was that, in 1668, Charles II. received a present of three hundred pounds of Virginia silk, which he ordered to be wrought up for "our owne use," and to the excellence of which he gave a certificate. But Virginia silk cost too much for other than royal wear, and by this time the fourth and greatest of Virginia silk manias was on the wane; the law requiring the planting of mulberries had already been withdrawn, in 1666, as useless.

And yet the colony was in the position of a delinquent that had failed to fulfill the promise of its youth. At the coming of Huguenot refugees to the upper James River, the project was once more revived, and the French Protestants long produced silk for domestic use. In 1730, about a hundred and twenty years after the first attempt to wind silk in Virginia, raw silk was again sent thence to England, this time to the amount of three hundred pounds.

In almost every colony the same experiments were tried, with the same apparent success and with the same ultimate failure, due not to physical, but to economic causes. Huguenot refugees were sent to South Carolina at the king's expense, in 1679, to introduce the culture of wine, oil, and silk; but the eggs of the silk-worms which they brought hatched out at sea and perished for want of mulberry leaves. Sir Nathaniel Johnson, afterward governor of South Carolina, called his plantation Silkhope, and sent silk to England in 1699. Under his fostering care, by 1707, the rearing of the worms "had come into great improvement," some families producing forty or fifty pounds a year apiece. A part of this they worked up in their domestic manufacture, mixed with wool, to make what was called "druggets." Silk was produced fitfully after this time, and very small quantities occasionally appear in the table of exports. In 1750 the export reached a climax of a hundred and eighteen pounds. Some public-spirited Charleston ladies of high standing substituted the winding of silk for the tamer recreations of needle-work and the playing of the harpsichord. One of them, the mother of General Pinckney, spun and wove three dress-patterns from silk of her own production; of these, one naturally went to adorn a royal person — this time the princess-dowager of Wales; another was sent to Lord Chesterfield; and the third remains in America to this day.

But Georgia, the devoted victim of many Utopian schemes, was the principal scene of the silk folly. Next to the founding of an earthly paradise, the most cherished purpose of the Georgia trustees was the supplanting of all other countries in the production of silk. In a beautiful garden of acclimation, at Savannah, the cross-walks were planted with orange-trees, and the squares filled with white mulberries. One mulberry-tree to every ten acres had been exacted in Virginia. Georgia ordained the planting of a hundred times as many, or ten trees to every acre. Italian workmen were employed, with English girl apprentices; English gardeners were taught to care for the trees, and English joiners learned to make the machines. In 1734 the first windings of Georgia silk were carried to England, and, as a matter of course, the queen wore a dress of the new silk at the next celebration of the king's birthday. A filature was built in Savannah, and bounties were paid, by which means the price of silk was doubled. The production under this artificial stimulation grew apace. In 1762 and in each of the two following years, over fifteen thousand pounds of cocoons were bought at

the filature, and in 1766 the production had mounted to twenty thousand pounds. But, with all this apparent prosperity, a first step had not been taken toward the permanent establishment of the industry. The bounty was taken off in this year, and silk left to sell at its normal price. In three or four years the production had almost entirely ceased.

At various times, the rage for mulberry planting extended to Massachusetts and a governor of Connecticut, among others, is said to have succeeded in raising silk enough to clothe himself and his family. Silk was believed at one time to be the long-sought staple that should take away the reproach of barrenness from New England. Jared Eliot, the most eminent of New England agriculturists, thought after trial that it was as easy to make silk as linen, and he advocated the planting of mulberries with arguments of the kind in vogue at the time: the tree was good for fire-wood, bore good fruit, was equal to cedar for timber, improved the land by shading it, and lastly afforded groves for retirement; the garden of Eden, remarks the farmer-clergyman in triumphant conclusion, was not furnished with palaces, but with a multitude of trees.

Nor did the middle provinces escape the contagion. The Swedes who first settled on the Delaware were to raise silk according to the programme prepared for them. Half a century later, Penn proposed mulberry-trees, and a specimen of silk from Pennsylvania was seen in England in 1726. Franklin was an active promoter of silk-culture; a filature was established in Philadelphia, and, by the old method of offering premiums, two thousand three hundred pounds were procured for winding in 1771, the most of it from the New Jersey side of the river. The Queen of George III. wore a full court-dress of this silk—the last of all the garbs produced by loyal American silk-growers for English royalty. The succeeding silk fever produced a suit for Washington, and it is at this writing given out that a society of enthusiasts have their silk-worms at work on one for Mrs. Garfield.

All the American colonial experiments proved that there is no physical obstacle to the production of silk in America; but they all showed also the insuperable economic objection to such an enterprise. The Swiss at Purrysburg, in South Carolina, and the Salzburger in Georgia, whose modes of life and labor were those of European peasants, produced cocoons with more success than any others. The pastor of the Salzburger touched the core of the difficulty when he showed that, after the premiums were taken off, his people

could earn two shillings a day at other labors and barely one at tending silk-worms. But hobby-riders are never unhorsed: the failure was attributed to the culpable negligence of the planters in not importing a larger proportion of women slaves who might have been put to raising silk.

Wine-culture was set agoing by the same considerations of national policy as silk-raising, was tried with the same persistent iteration in almost if not quite every one of the American colonies, and failed from the same economic difficulties. Before they had bread to satisfy hunger, the James River settlers had made sour wine of wild grapes. In 1632 the growing of five vines was made obligatory on every planter, and in 1658 ten thousand pounds of tobacco were promised to him who should first produce two tuns of Virginia wine. The tolerable fitness of the Virginia climate and soil for grape-growing was proved over and over again, by the vine-dressers brought over from France in the first years, by the Huguenots, who produced wine on a small scale for a long time, by the Palatines on the Rappahannock, and by many others. Beverley, the historian, won a wager of a thousand guineas by making four hundred gallons of wine from his vineyard of three acres. Yet, so late as 1762, subscriptions were solicited to set on foot a new beginning of grape-culture in Virginia.

Undaunted by climate, the Massachusetts immigrants asked for French vine-dressers in 1629, and later an island in Boston harbor was leased to Governor Winthrop by the sanguine General Court for a hogshead of the best wine that should be made there annually. In the patroonship of Rensselaer at Albany wine was proposed, as it was by the Swedish pioneers on the Delaware. It was attempted by French settlers in Rhode Island and Carolina; the latter province was expected to supply the whole demand of the West Indies. William Penn only hesitated whether to import foreign wines or to "fine" the American ones, and ended by trying both plans, establishing a vineyard with two thousand French vines near Philadelphia. It is unnecessary to trace further this chronicle of failure in wine-growing. To the end of the colonial epoch these efforts were renewed; vine-dressers were sent over and rewards were offered, but no considerable quantity was ever made. It was cheaper at that day to import from Madeira and Portugal than to divert labor from the profitable American staples to grow wine, and the law of relative cheapness is as hard to escape as that of gravitation.

Other favorite plants for experiment were

madder, which was tried from the extreme South to Albany, and olive trees, which were several times introduced; for there was good hope that the South would prove, in the phrase of a writer of the time, "a very good oyl country." Leave was given to make oil from nuts, in South Carolina, in 1714. Minuit and his Swedes sowed canary seed on the Delaware, but it was "afterward neglected"—probably from lack of canary birds to eat it. The Utopian plans of Oglethorpe for Georgia led to experiments in gross with coffee, cotton, palma christi, tea, and "several physical plants of the West Indies." The cinchona tree would have been tried also, but for the impossibility of procuring anything to plant except the bark. North Carolina is said to have attempted coffee.

The persistent effort to find some staple commodity for New England, other than that which grew in the sea, led to experiments in that inhospitable clime with almost every agricultural plant of the world. "Staple commodities are things they want there," says a writer named Wiggins, whose letter, bearing date 1632, is preserved in the English archives. He recommends a consultation with "one Lane, a merchant tailor," who had just come from the West Indies, and who desired to introduce into New England a staple, the name of which is to this day shrouded in the mystery thrown about it by Wiggins and the merchant tailor. But neither Lane nor Wiggins, nor any of the long line of projectors who came after, succeeded in finding an important agricultural commodity suited to the New England sandy coasts and rocky hillsides; and this, notwithstanding the hops, licorice, madder, and woad roots sent out at the beginning, the mulberries so often planted, and the coffee-berries sown by Harvard students in 1723, and by other students in 1748, and in spite of the cotton attempted in Connecticut by Jared Eliot,—which last would perhaps have succeeded, had not the frost interfered with it before it was ripe,—and in spite of the licorice, hemp, and indigo tried by the same enterprising clergyman, and the English walnuts ingrafted by Judge Sewall. New York, New Jersey, and Pennsylvania had wheat, Maryland and Virginia tobacco, the Carolinas rice and indigo; but New England, like a disinherited youth, was forced to take to the sea; from which, by the hard toil of fisheries and foreign trade, was won a fortune as good, certainly, as that gotten by the richest staple commodities of the more genial countries to the southward.

The ardor for novel projects in the colonies was but a symptom of the fever in the metropolis. Manifestations of this spirit are

found in the repeated propositions from England and the actual attempts in America to domesticate the American bison as a substitute for the ox; and the yet more startling plan for the "unwinding" of the James River sturgeon, and for the extraction of perfume from the musk-rat. Any one of these seems feasible, however, when compared with the proposal, made in 1650, to tame the American Indian, and use him in winding silk, and in diving for pearls in the Virginia waters.

III.

THE TOBACCO STAPLE.

BUT in a new land trial of many ways is needful, and the bold man who makes experiments has always the chance of finding a new pathway; out of the thousand experiments emerges one discovery. Of all the colonial experimenters and projectors, one of the most fortunate was John Rolfe, the first Englishman to hazard marriage with an American savage, whereby he procured years of peace, in which the pioneer colony took firm root,—and the first Virginian to risk the planting of tobacco for the market. Two facts had put this last experiment well out of the reach of probable failure; tobacco was already growing in the Indian fields in Virginia, and it was already an article of sale in Europe, having been introduced into Portugal nearly a century before the settlement of Jamestown.

When the Virginians applied the spade to its culture it soon became much more productive than it had been in the rudely tilled Indian patches; in 1621, before the planting of tobacco was ten years old, fifty-five thousand pounds were sent from the James River to Holland, the land of smokers. In this same year began the efforts of the royal government in England to put restrictions on the production of the despised narcotic. The wide-spread opposition to tobacco at that time seems to have come partly from a dislike of novelties, partly from a belief that it tended to produce a degeneration of the English race, and partly from the multifarious puritanism that was spreading among people of every rank, and which objected to self-indulgences except in the ancient and well-established English forms of heavy eating and stout drinking. James I., notwithstanding his own intemperate use of strong liquors and his hatred of puritanism, had already published a "Counterblast to Tobacco," and he now undertook to resist economic forces, with as much chance of success as his remote predecessor Knut had of arresting the incoming

tide. Tobacco was in demand; a few years later a hundred thousand Englishmen were in bondage to it, and the very plowmen had learned to take it in the field. Virginia was able to supply it in better quality than any other country. This conjunction of demand and supply settled the destiny of the much-battered pioneer colony. In five years after the destructive massacre, and still more destructive terror, of 1622, there were more than four thousand English on the Virginia river banks, well housed and prosperous. Two years later, in 1631, the Privy Council of Charles I. declared that this plant enervated "both body and courage," and the king announced that he had "long expected some better fruit than tobacco and smoke" from Virginia. The colony also desired, for other reasons than those assigned by the king, to prevent excessive production. Having tried in vain every conceivable form of minute regulation, the legislature ordered the destruction of all the bad and half the good in 1640; and when the price had further declined, divers attempts were made to wholly suppress tobacco-growing for one season in order that the market might rally.

All natural conditions were favorable to the culture of tobacco in the Chesapeake region. Virgin land was without any known limit, and the climate was congenial. The small farmer, and the English servant newly freed from a four or five years' bondage, could begin a tobacco-field without other capital than an axe, a mattock, and a hoe. Every comer was entitled to fifty acres of land, subject to an insignificant quit-rent. The easy application to tobacco of the labor of indentured servants, convicts, and negro slaves, made it a favorite crop with the large land-holder; the navigable rivers and broad estuaries of the Chesapeake and Albemarle regions enabled the planters to ship their bulky hogsheads direct from their own barns, or to boat them to the inspector's warehouse. These advantages, and the agreement of tobacco-raising with the country-gentleman notions and pride in land-ownership brought from England, made it inevitably the leading occupation of the country. The habits of the people in the two Chesapeake colonies were soon molded by their staple, so that tobacco held its own, almost to the exclusion of all other productions, except wheat and maize; and this in the teeth of the restrictions of royal monopolies at first and of burdensome navigation acts afterward, and notwithstanding a duty of six times the plantation value on what was consumed in England. Tobacco was subjected, besides, to plunder on ship-board, to exasperating frauds in the customs,

to unreasonable extortions from the merchants under pretense of samples, and to a tare of one twenty-sixth of what remained after all this robbery.

At first the planters simply threw their tobacco in heaps and allowed it to cure as heaven pleased by exposure to the sun and the air. As early as 1617 a Mr. Lambert invented the better way of hanging it on lines, and an order was sent to England for cordage; but it occurred to somebody at a later time that the plant would hang as well on Virginia sticks as on London strings. Pegs were driven into the stalks to hang it by, until some new inventor saved the trouble with pegs by partly splitting the stalks and so hanging them on the sticks. A more important change was wrought when, at some not remembered period, the primitive dependence on outdoor exposure for curing gave way to the method of drying by a slow fire in an airy barn. The Virginia and Maryland planters, though conservative and slow-going in all besides, carried their own particular art, step by step, to high perfection; and then, by excluding the poorer sorts from European shipment, through a rigorous system of inspection, they gained a world-wide reputation for producing the staple at its best.

By the beginning of the eighteenth century private "rolling houses," for the deposit and shipment of the staple, had become common, and early in the century both the Chesapeake colonies established public places for the deposit of tobacco. The quality was more perfectly guaranteed by the utterance of transferable warehouse certificates of deposit, which passed current for money.

In 1730 twenty-four thousand tons of shipping were required to carry a year's crop from Maryland and Virginia, and before the close of the provincial period there were two hundred large vessels in the trade, carrying a hundred thousand hogsheads annually. The navigation laws required that all of this should first be landed in England, where it paid a duty equal to a million and a half of dollars, an amount greater than that brought into the exchequer by any other commodity. No bounty was ever paid to promote the culture of the despised "weed," as King James had nicknamed it; the English government and the colonial legislatures alike sought to repress it; but the sure action of an economic gravitation begotten of climate, soil, social condition, and market demand, was strong enough to restrict even the profitable wheat culture, and to extinguish almost all other forms of industry in the two tobacco colonies. The staple entered into the whole life of the people, furnished currency, gave form to com-

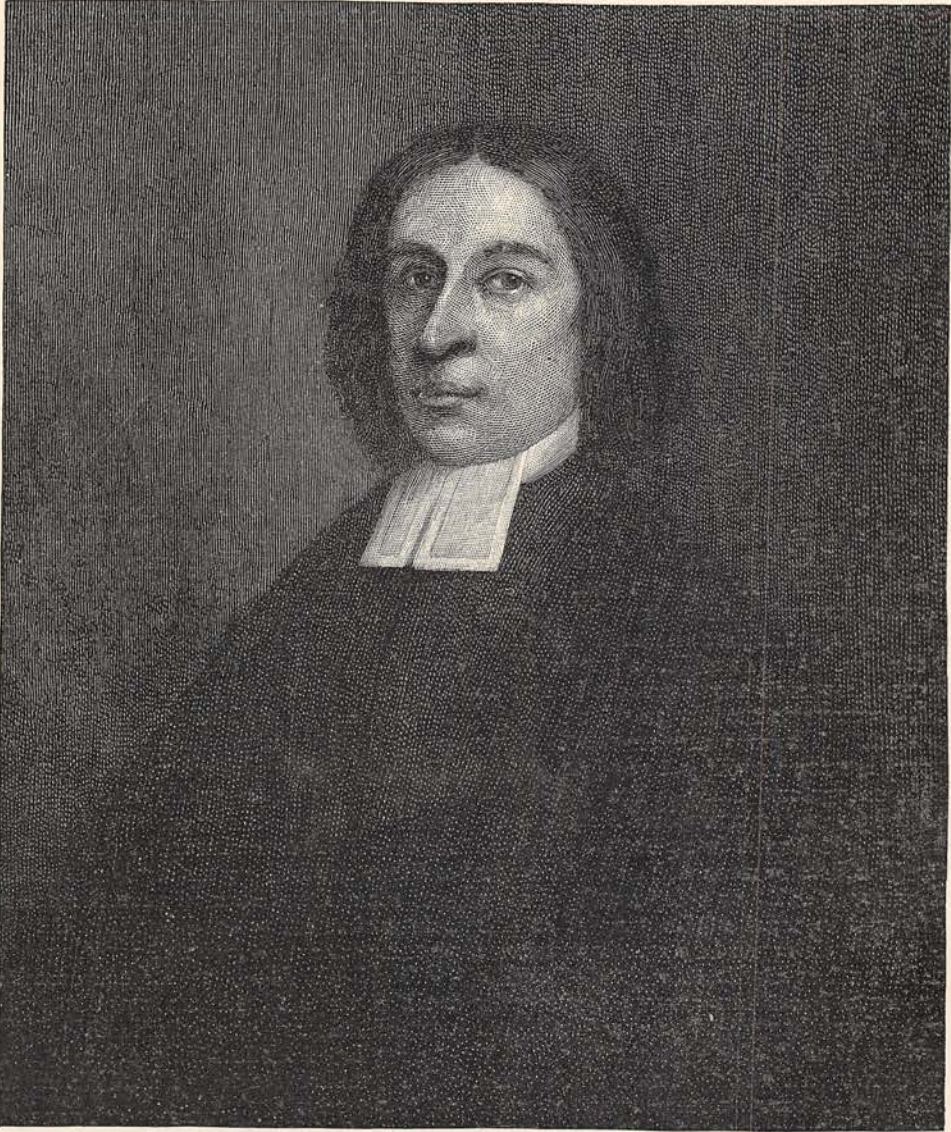
merce, affected manners, made slavery profitable and persistent, and pervaded all legislation.

There was, of course, no sharp line of demarkation for the growth of a staple. When the early overproduction of tobacco made a secondary crop desirable in Virginia and Maryland, wheat was profitably grown, and became a crop of such magnitude in the later years of the colonial period, that it was believed to threaten the ascendancy of tobacco. Tobacco, in turn, stretched the area of its growth far to the north. The Delaware country was famous for its fine tobacco in the days of the Swedish and Dutch dominions, and at one period, after the coming of the Quakers, Philadelphia loaded fourteen ships a year with this staple. New York from Dutch times grew tobacco for export; there were official inspectors of it as early as 1638. It was grown in New England, and as far toward the pole as Quebec. But in the English colonies north of Delaware Bay, climate and social conditions turned the balance slowly but surely in favor of wheat, and the middle colonies became like the ancient land of Egypt for corn. North Carolina grew tobacco; but in the southern and sea-coast counties of that colony, the rosin, pitch, and turpentine of the pine forests were more profitable, and their production was more suited to the habits of the people. Even in South Carolina tobacco was the great staple of the "upper counties."

IV.

RICE AND INDIGO.

THE destiny of South Carolina was changed by a single lucky experiment. In 1696, when the colony was more than thirty years old, the pioneers were still engaged in buying furs from the Indians, extracting rosin, tar, and turpentine from the pines, cutting timber for shipment, and growing slender harvests of grain on the light soil along the coast. Attempts had already been made to grow indigo, ginger, and cotton; but these had not answered expectation. A small and unprofitable kind of rice had also been tried in 1688. But one Thomas Smith thought that a patch of wet land at the back of his garden in Charleston resembled the soil he had seen bearing rice in Madagascar. It chanced in 1696, that a brigantine from that island anchored in distress near Sullivan's Island, and the captain, an old friend of this enterprising Thomas Smith, was able to furnish him a bag of Madagascar rice suitable for seed. It grew luxuriantly in the wet corner of the



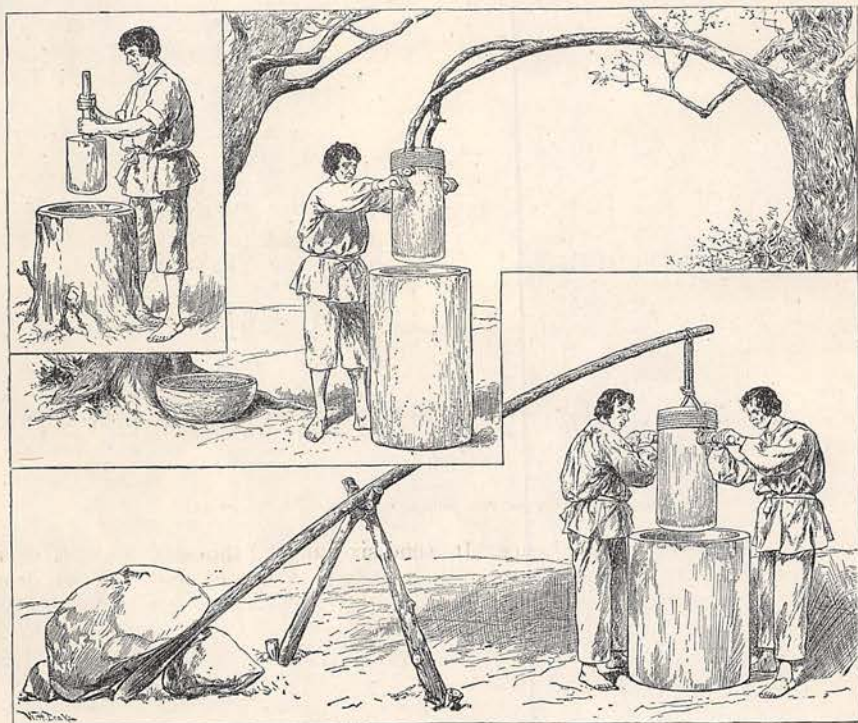
JARED ELIOT. (FROM AN OIL PORTRAIT IN POSSESSION OF CHARLES G. ELLIOT, ESQ., CLINTON, CONN.)

garden, and the seed from this little harvest was widely distributed. In three or four years the art of husking the rice was learned. African slaves were easily procured in the West Indies, and the face of society in the young State was presently changed: South Carolina became a land of great planters and of a multitude of toiling negroes. Smith was raised to the rank of landgrave, and made governor of the colony three years after the success of his rice-patch. The new grain was at first grown on uplands; but the planters afterward discovered that the neglected swamps were more congenial and

less exhaustible. The cruelly hard labor of separating the grains from the adhering husks crippled the strength and even checked the increase of the negroes; but in the years just preceding the Revolution this task came to be performed with mills driven by the force of the incoming and outgoing tides, or turned by horses or oxen. A hundred and forty thousand barrels of Carolina rice, of four or five hundred weight apiece, were annually exported before the war of independence. Through the example of a governor of Georgia, the culture of rice spread into that colony, and completed the ruin of the silk business.

Nearly half a century before the bag of seed-rice fell into Thomas Smith's hands, this grain had been tried in Virginia by Governor Sir William Berkeley, and had yielded thirty-fold. It seems to have had a humble place as one of the products of south-eastern Virginia many years afterward. Rice was also grown as far northward as New Jersey; there was a considerable exportation of it from

In South Carolina, where indigo became a leading staple, rivaling rice and only yielding to cotton after the Revolution, its introduction was due to the enterprise and intelligence of a young lady. Miss Eliza Lucas, who afterward, as Mrs. Pinckney, made gowns from home-grown silk, not daunted by the failure of early experiments with indigo, procured seed from Antigua about 1741 or 1742.



PRIMITIVE MODE OF GRINDING CORN.

Salem as early as 1698, while the culture of it was yet in its beginnings in Carolina.

We may reckon among Virginia commodities indigo, which awakened in 1649 almost as much interest as the experiments with silk and vines. "All men begin to get some of the seeds," says a writer of the time, "and know it will be of ten times the gain to them as tobacco." He adds that "gain now carries the Bell." During this indigo fever some of the more sanguine Virginians modestly hoped to wrest the indigo trade "from the Mogull's country, and to supply all Christendome. This will be many thousands of pounds in the year." More than a hundred years after the experiment of 1649, indigo is again mentioned along with bar iron and ginseng as one of the less important exports from the colony to Great Britain, but its culture was in a feeble and failing condition.

Her first planting, made in March, was destroyed by a frost; the second attempt in April was cut down by a worm; but the third succeeded. An expert, brought to show the manner of making the dye, proved treacherous; but the perseverance of the lady won the victory at length, and by 1745 the possibility of growing indigo in Carolina was proven. Two years later two hundred thousand pounds were sent to England, and the annual exportation reached more than a million pounds in the last years of the colonial period.

V.

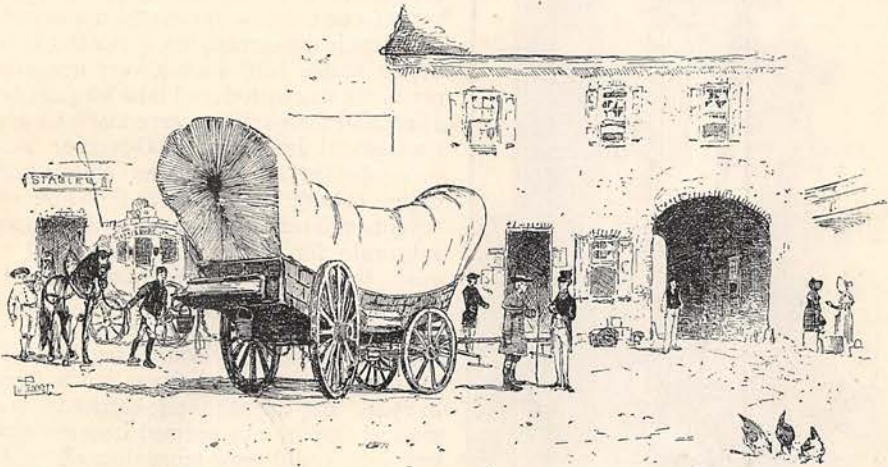
WHEAT, MAIZE, AND MINOR PRODUCTS.

IN 1634 Massachusetts, having more new emigrants on her untamed soil than she was

able to feed, sent a ship to Bermuda for bread. Finding none there, the captain secured five thousand bushels of wheat in Virginia, "for the relief of New England." But a few years later, when emigrants suddenly ceased to come to Massachusetts Bay, the supply of money which the new-comers brought, and the market for food products which they afforded, abruptly failed, and there was no means for paying the debts due in England,

which the planters had either captured in the chase or bought of the Indians.

For what legislation had failed to achieve, natural causes, when left to themselves, had wrought. The overproduction and consequent low price of tobacco in 1640, and at later periods, had promoted the culture of wheat and maize in both of the Chesapeake colonies; so that before the Revolutionary struggle set in, Maryland was accustomed to

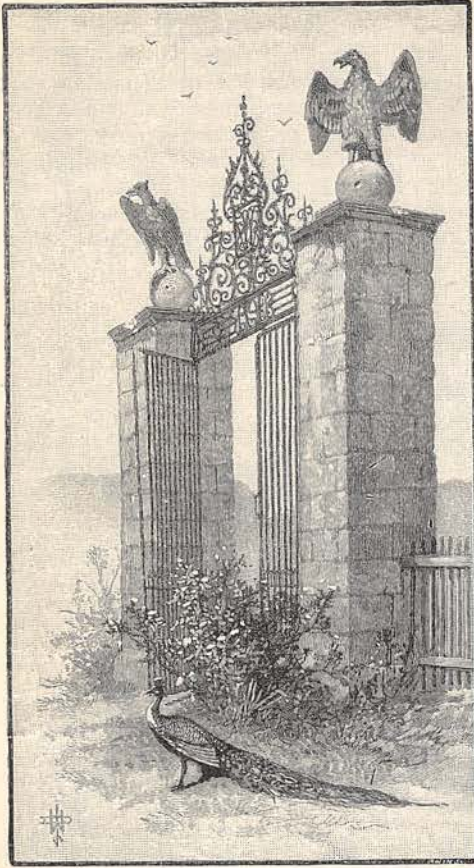


A CONESTOGA WAGON IN THE BULL'S HEAD YARD, PHILADELPHIA.

or for purchasing things needed thence. It was in this emergency that the first exportation of farm produce from Massachusetts took place. A ship-load of wheat was made up with much ado and sent abroad as the best purchasing agent within reach. The General Court expressed the opinion that wheat would be the staple of New England, and forbade its use for bread or malt. But in Massachusetts, as elsewhere, it was found that the production of staples depended on causes not within the control of law-making bodies. Indian corn at this early day had not become an article for shipment, and in this same year it was so abundant as to be unsalable. Later, when the prolific New England people had multiplied and given themselves to the fisheries, to whale-hunting, and to foreign commerce, and when the belts of alluvial land had been impoverished by bad husbandry, food was sought farther south. In all the rivers flowing into the Chesapeake and Albemarle Sound the New England peddling craft brought to the very door of the easy-going planters rum, sugar, molasses, and salt, with ready-made clothing, at exorbitant prices, besides smaller commodities. These were bartered for the superabundant bread and meat of the southerly colonies, and for the peltries

send six hundred thousand bushels of wheat annually to England, and Virginia nearly as much. The latter colony and North Carolina also exported maize to Portugal, to South America, and to feed the West Indian negroes. Oats were early and abundantly sown in Virginia. As the English beer passed out of use, Indian corn took the place of barley, and was even used to make a sort of beer by a process of "malting by drying in an oven." Rye was sown for bread in New England from the first. In Virginia its culture was promoted by the Scotch and Irish settlers of the valley, who used it as a basis for the whisky which they preferred to the tamer beer of the English. The white-blossoming and red-ripening buckwheat, which is so bright an object in our spring and summer landscapes, was used in Carolina to feed cattle in the first years of the eighteenth century, and was early brought into the valley of Virginia, perhaps by emigrants from the European continent. The raising of cereals for the market extended from New England to South Carolina. From the latter Indian corn was exported after 1739, while wheat was produced by the German palatines in the interior.

But the great bread-giving region lay in New York, New Jersey, and Pennsylvania;



A PLANTATION GATE-WAY. ENTRANCE TO THE ESTATE OF WILLIAM BYRD AT WESTOVER, VA.

from the lands between the Connecticut and the Susquehanna, the British West Indies and the Mediterranean countries received large supplies of wheat and flour. By the middle of the eighteenth century, eight or nine thousand of the great white-topped Conestoga wagons, drawn each by four, six, or even eight horses, were required to bring to the busy little market city of Philadelphia the produce of the farms of the interior, besides all that was floated down the Delaware and the Schuylkill. New York at the same time sent out large shipments of grain, brought from the Hudson valley, Long Island, and the Jersey bays, in sloops. Of flour and bread, also, New York exported about six thousand tons annually. The "bread," which was a large element in the outward trade of the three chief wheat provinces, was hard-tack, sold to ships and sent to the West Indies and elsewhere. There was a bakery attached to almost every mill. In 1770 the exports of flour and bread from all the colonies were equal in value to three millions of our money,

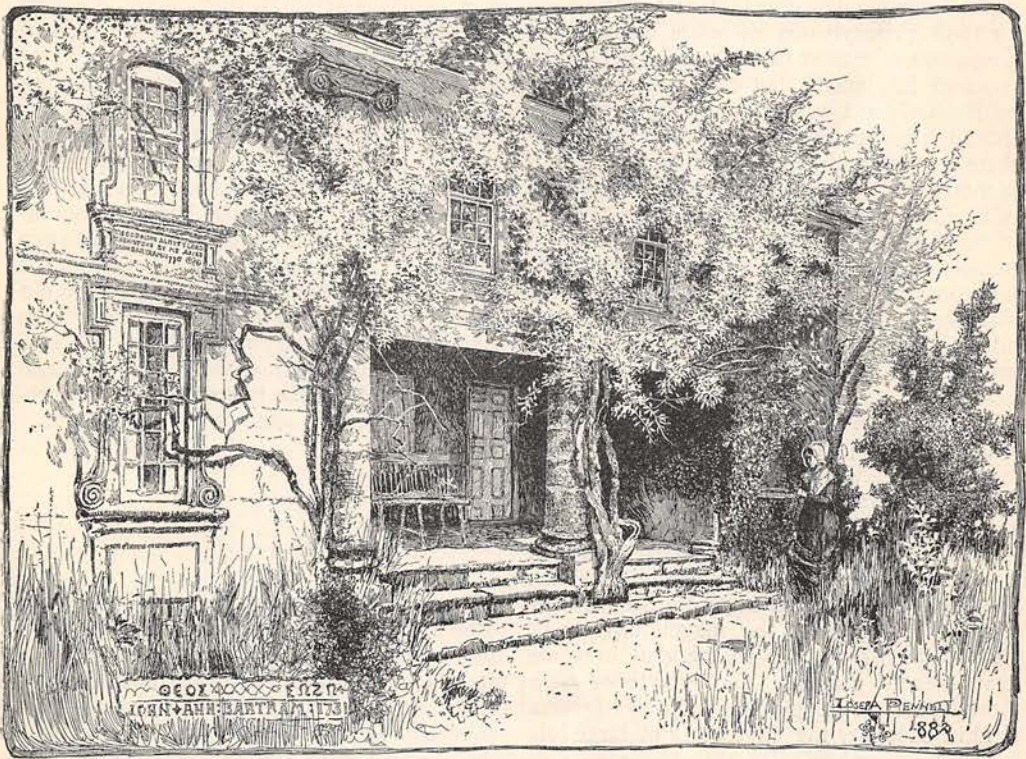
besides a million bushels of wheat and more than half as much of Indian corn. For domestic use Indian corn became very early the indispensable source of supply. At first it was pounded in wooden mortars, after the Indian way, or ground in hand-mills, after the old English fashion. In all the colonies, farmers lived chiefly upon bread of Indian meal.

The greatest difference between the agriculture of the later provincial period and that of our time, so far as the nature of the products is concerned, lies in the fact that the cotton staple held then a very insignificant place. It was introduced into Virginia before 1620, and many efforts were made to give it commercial importance. Governor Andros succeeded in awakening an enthusiasm for cotton culture in Virginia at the close of the seventeenth century; but enthusiasm is a poor substitute for profit, and cotton fell away again, though at the Revolutionary period Virginia grew more than any other State. Cotton for domestic use was grown successfully from southern New Jersey southward, and a small quantity was exported from South Carolina in 1748. But the economic barrier to its commercial importance seemed insurmountable; one man could grow more than all the spare hands on a plantation could clean from the seed. The irksomeness of this work of cleaning led to the invention of gins to rid the cotton of its seed; but they all, in some way, injured the fiber. It was not until after the separation of the colonies from England that the invention of Whitney's gin gave the cotton plant a swift ascendancy in the South, driving indigo from the field.

Hemp was much fostered by legislative bounties, and its culture was advocated by theorists and patriots who wished to see the king's navy supplied from the king's dominions, and not from the distant land of "the Czar of Muscovy." Liberal bounties were paid to promote its culture, and among other visionary schemes one was broached in the bubble period of 1720 to settle a whole county in Virginia with felons who should be forced to cultivate hemp, the county to be called Hempshire—name full of disagreeable suggestion to those who were to have inhabited it. Like other petted children of colonial agriculture, hemp came to no great things. The Massachusetts people in 1641 set "all hands" to work on hemp and flax, and burned down several houses while zealously drying their flax. In 1646 the Virginia Assembly required every county to send ten boys or girls to Jamestown for instruction in the flax houses. In spite of all this coddling, flax was more fortunate than hemp, for its culture was pro-

moted in all the colonies by Irish immigrants accustomed to fields of flax and linen-wheels at home. There was a thriving trade to Ireland in flaxseed, the Irish flax not being

was required to inclose a quarter of an acre for vines, roots, and so forth. Nine years later, the observant Dutch voyager De Vries saw a garden on the James, in which was a



HOME OF JOHN BARTRAM, THE COLONIAL BOTANIST AND AGRICULTURIST, NEAR PHILADELPHIA.

allowed to ripen its seed; and there were a good many mills in New England for expressing linseed oil.

The potato, originally a South American plant, was introduced to Virginia by Sir John Harvey in 1629, though it was unknown in some counties of England a hundred and fifty years later. In Pennsylvania, potatoes are mentioned very soon after the advent of the Quakers; they were not among New York products in 1695, but in 1775 we are told of eleven thousand bushels grown on one sixteen-acre patch in this province. Potatoes were served, perhaps as an exotic rarity, at a Harvard installation dinner in 1707; but the plant was only brought into culture in New England at the arrival of the Presbyterian immigrants from Ireland in 1718. Five bushels were accounted a large crop of potatoes for a Connecticut farmer; for it was held that, if a man ate them every day, he could not live beyond seven years.

Gardens, with whatever else made for luxury in living prospered among the Virginia squires. As early as 1624, every freeman

profusion of Provence roses, apple, pear, and cherry trees, and all the fruits which he had been accustomed to see in the horticultural land of Holland. In 1649, "potatoes, sparagus, carrets, turnips, parsnips, onions, and hartichokes" are set down among Virginia "roots." "The gallant root of potatoes are common, and so are all kinds of garden stuff," says the ungrammatical Hammond, in 1656. On the other hand, Beverley, the historian of Virginia, from the point of view of an agricultural reformer, declares, at the beginning of the eighteenth century, that "they ha'n't many gardens in the country fit to bear the name." The Labadist travelers complained in 1680 that the garden vegetables in one part of Maryland were "few and coarse"; but in 1775 Arthur Young, the best known of English agriculturists, thought that no part of the world could boast more plentiful or more general production of garden vegetables than the two Chesapeake colonies.

The climate and other conditions were less favorable to gardens in New England, but vegetables, vines, and orchards were tried from

the outset in Massachusetts. Gardening in New England largely fell to women; even the sale of garden seeds was in their hands. Besides the medicinal and culinary herbs of the old English gardens, New England women were accustomed to give little plats to flowers. In 1698 Pennsylvania colonists boasted the possession of "most of the garden herbs and roots of England"; but the best gardening in Pennsylvania was due to the patient and thorough-going Germans. In the genial climate of the South, a great variety of garden plants were found to thrive; but the opening of new lands for the culture of rice and indigo in South Carolina brought about a general neglect of horticulture; cabbages, onions, and potatoes were imported at Charleston until after the Revolution. The sweet potato was adopted from the aborigines in all the Southern colonies, and it is yet known in the market as the "Carolina." The squash in many varieties was of aboriginal origin, and, everywhere planted; the water-melon was largely used in the Middle and South, and Jared Eliot brought a new variety from Russia suited to the New England climate.

Perhaps the best of colonial gardeners were the Dutch of the Hudson River region. With the love of horticulture characteristic of their nation, they wrought the rugged interior of Manhattan island into thrifty, and in some cases elegant gardens. The growth of New Amsterdam, in the period of Dutch rule, was held in check by the engrossing of large lots for village gardens. To the Hollanders is attributed the introduction of the red, white, and carnelian roses, gillyflowers, tulips, white lilies, marigolds, and garden violets. Orchards, chiefly, though not wholly, of seedling fruit, became common in every province at an early period; even the Iroquois adopted the apple from early comers, and in the course of time raised large orchards. The Lenni Lenape on the Delaware grew peaches before Penn came, and the Congarees in Carolina, about 1708, had the art of drying peaches. One large and hardy peach-tree was so early and so widely distributed, even among tribes remote from European settlers, that it was called the Indian peach, and was thought to be indigenous even by John Bartram, the botanist.

Cider was at first made by pounding the apples by hand, often in wooden mortars, such as were used for Indian corn. The pomace was sometimes pressed in baskets. Vast quantities of cider were made in New England in the eighteenth century; a village of but forty families made three thousand barrels in 1721; a larger town turned out ten thousand. The greater part of the cider was sent to "the

islands," whither also went large shipments of American apples, accounted already superior to those from England. From Pennsylvania to Virginia, fruit on trees was by custom free to all-comers; in Virginia, the surplus peaches from orchards of ten to thirty acres in extent were thrown to the hogs, after the annual supply of brandy had been distilled.

All the bees in the colonies were the offspring of a few swarms brought to Massachusetts Bay at or soon after the first settlement. The production of honey was not large in New England; in Pennsylvania almost every farmer kept seven or eight swarms; but in the southern colonies the quantity of honey about 1750 is described as "prodigious." This was used not only for the table, but for making the old English strong liquor, metheglin. The bees were for the most part rudely hived in cross sections of the gum-tree, hollowed by natural decay; whence, in the South and West, a beehive of any kind is often called a bee-gum.

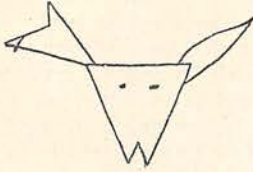
VI.

CATTLE.

THE first cattle that were brought over sea to be the beginners of new herds were valuable beyond price, and in Virginia it was made a crime punishable with death to kill one of them. In the great migration to Massachusetts Bay, the death of a cow or a goat was signaled from ship to ship. Sometimes, in the chronicles of the time, the death of a brute and that of a person are set down in the same sentence in such a way as to excite a smile in the modern reader, who fails to remember that the animal was of greater consequence to the welfare of the colony than the person,—the brute was the harder to replace. But having the wide, unfenced earth for pasture ground, cows soon became cheap and abundant; in New England they shrank to less than one-third their former value about 1642, and the decline had the effect of a modern financial crash on the trade and credit of the little colony. In Virginia, notwithstanding the destruction of breeding cattle in the early famines and that wrought by the savages in 1622, they were counted by thousands in 1629. Forty years after the *Susan Constant* brought Englishmen to James River, there were twenty thousand horned cattle there, with three thousand sheep, two hundred horses, fifty asses, and five thousand goats.

In 1670 a planter in the new settlements of Carolina thought it a great matter to have three or four cows; thirty years later two

hundred were a common allowance, and some had a thousand head of cattle apiece. In all the colonies the wild grass and the browse of the woods was the main dependence; but the rich annual grasses were, after awhile,



CATTLE EAR-MARK, AS REGISTERED, FROM BAILEY'S "HISTORY OF ANDOVER."

From the Records of Andover: "December the 25th 1734 the ear-mark that James Frie Giveth his cattel and other Creatures is as followeth *viz*, a half cross cut out of the under side of the left ear split or cut out about the middell of the Top of the ear, called by som a figger of seven."

reduced or extirpated by the close cropping, which did not allow opportunity to mature seed, and long before the artificial culture of grasses had become common in England, the perennial English grasses were introduced into New England, Long Island, and Pennsylvania, by sowing the unwinnowed sweepings of English haymows. A few corn-husks and a little wheat-straw were sometimes fed to cows; but in the depth of winter the half wild and starving creatures often perished by venturing too far into the marshes in search of food. In Pennsylvania, so late as the middle of the eighteenth century, superstitious people were wont to tie a dogwood bough about a cow's neck when she staggered and fell down from inanition in the spring; the dogwood was probably regarded as a sort of tonic. In Virginia, at one period, it was expected that the hides of the cattle dying every winter would furnish shoes for all the negroes on the plantation. In the seventeenth century some of the Virginians held that to house or milk cows in the winter would be the death of them. A better system came in as the colonial period drew to its close; the German settler in Pennsylvania, indeed, adhered from the first to the usage of the fatherland, and sheltered his cows from the tempests of the winter under the same roof with his numerous children, and later in the great barns that marked the growing prosperity which follows hard work and frugal living in a fertile country.

On the other hand, the English colonists brought the bad custom of neglecting live stock from England. At the beginning of American settlements, cattle were almost as much exposed and starved in England as they were, for a century afterward, in the colonies. The culture of forage plants was a novelty in the mother country in the time of the Commonwealth; the growth of root crops,

for winter feeding, was introduced among English farmers about 1760. The branding-iron, which in the colonies was used to mark the ownership and the town to which the wandering beast belonged, was employed in England in the fourteenth century, and probably earlier, and no doubt lingered in the mother country until after the North American migrations.

Notwithstanding the multitude of herds that filled the woods from Maine to Georgia, one hears little of the exportation of any dairy products except from Rhode Island, Pennsylvania, and New York. Farmers in the northern colonies often had no milk at all in the winter, and little children were obliged to soak their bread in cider for a substitute. On the eastern shore of Maryland, in 1680, it was matter of doubt whether one would find milk or butter in a planter's house even in summer.

In 1666 it was a boast that it cost no more to raise an ox in Carolina than it did to rear a hen in England. The ranch system had its beginning in Virginia and the Carolinas and among the Spaniards of Florida. "Cowpens," as they were then called, were established on lands not yet settled, and cattle were herded in droves of hundreds or thousands. Small prairies existed in many places, North and South, and these, with thinly wooded plains, were especially devoted to pasturage after beef came to have a commercial value. In some parts of Massachusetts a "hayward" was employed to attend the cattle of a whole township, which were kept together in one drove. Sometimes the townsmen took turns in herding the cows, after a very ancient European custom. Similar arrangements prevailed in the great herds on the plains of Long Island, where little artificial ponds, lined with clay, were made to hold rain-water for the stock—a device brought from England, and still used in Texas. In some places a peninsula was chosen for a "herd walk," and fenced at its junction with the mainland, to keep the cows in and the wolves out. The reach at Nahant, and Cow Neck on Long Island, for examples, were thus fenced to inclose, by aid of the sea, gigantic common pastures. Coney Island was filled with cattle, completely hedged by natural barriers and sheltered by the bushes, and Fisher's Island, at New Haven, was inhabited by goats.

At first, the settlers fired the woods in spring, to get rid of the undergrowth and make room for grass. The practice, like many others, was borrowed from the Indians, who burned out the bushes systematically that they might get about easily, and that the

deer might have better range. There are traditions yet preserved of the splendor of these fires when seen by night. At a later period, when fires had come to be dangerous to the denser settlements, the people in some places were required to cut underbrush for a certain number of days every spring. In the first years of the eighteenth century the wild meadows of the South and the marshes of New England began to be reclaimed by drainage; sometimes they were inclosed with fences or ditches, and used for fattening cattle. The value of marsh hay became known; timothy—first cultivated by Timothy Hansen in Maryland or Virginia—and clover were sown by thrifty farmers in the more settled regions; and the value of corn-fodder began to be understood.

If the cattle were countless, the hogs "swarmed like vermin upon the earth." On the New England coast, in the earliest time, the droves of pigs fed on the refuse of the fishing stages, and their meat acquired a flavor so rank and aquatic that the Indians preferred that of the white man's dogs. In Carolina, the swarming hogs came out of the woods at the sound of a horn to eat a little refuse of potatoes or turnips fed to keep them from becoming utterly wild. In Virginia, no account was made of swine in the inventory of the estate of a man of substance; uncaught pigs were not easily numbered. The countless hogs furnished the most of the meat, as Indian corn supplied the greater part of the bread, in all the colonies. In New England, each family had, after the old English custom, its "powdering tub,"—not yet everywhere disused,—in which the pork for the family table was salted, and from which it was taken to be smoked by hanging in the ample chimney.

Small attention could be paid to the breed of animals living at large; from this cause, and the annual course of semi-starvation, the stock of all kinds degenerated in size, but acquired, by merely natural selection, the tough vitality which has made our so-called "native" cattle valuable for cross-breeding. Only in the pineries of the North-east was attention given to the size of cattle; the lumberman of the Piscataqua prided himself, beyond all things, on the size and strength of his yellow oxen. Instead of improving the breed of the myriads of neat cattle in the colonies, the experimenters of that day made repeated attempts to domesticate buffalo calves. These became gentle enough, but persisted in going where they listed by butting down any fence that stood in the way; and it was discovered after awhile that a species tamed for thousands of years was better.

Six or seven dollars of our money was the price in Virginia of a cow and calf, "sight unseen," as the phrase went; whether big or little, young or old, was not considered. Horses, cattle, and sheep were not taxed: "they turn to so little account," says the chronicler. The Virginia beef was small, but sweet; that of Carolina poor and lean; but large droves of Carolina cattle were driven through Virginia to fatten on Pennsylvania blue grass, before going to the Philadelphia market. New England cattle in early times survived the long winters rather as outlines than oxen; but later they were better cared for, and Massachusetts people learned the art of giving to an ox exhausted in the yoke a year or two of rest and good feed; by which beef was produced "that would credit the stalls of Leadenhall market," as an English traveler attested. Connecticut, less given to the fisheries than the colonies to the east, exported more salt beef than all the other colonies together, while Rhode Island became known for its dairies.

The growing up of many horses, neat cattle, and hogs in the wilderness, without knowledge of men or marks of branding-irons upon them, gave rise to new and exciting forms of sport. Wild beeves and hogs were fair game for the rifle of the hunter. A wondering Scotch-Irishman writes, in 1737, from New York to the Presbyterian minister in the town of his nativity, relating, as one of the attractions of America, "horses that are wild in the wolderness, that are yer ain when ye can grip them." In some of the royal and proprietary colonies, these wild animals were at times claimed as part of the revenue, under the old English doctrine of the right of the king or the manor lord to estrays. But such a claim was hard of enforcement. In some parts of the Chesapeake region, and perhaps elsewhere, a customary "right in the woods" pertained to every planter, and was matter of sale and purchase. It consisted in a claim upon a definite proportion of the unmarked cattle in the forest. In Virginia and North Carolina, men mounted on steeds trained to thread the mazes of the forest without touching the rider's foot against a tree would give chase for hours to a wild horse until he stopped from exhaustion, whereupon one of the pursuers would clap bridle and saddle upon the captive and mount while yet he was too weary to rebel. The scrubby little "tackkeys" still taken in the marshes along the North Carolina coast are descendants of the wild horses of the colony.

A horse whose stature reached fourteen, and in some colonies thirteen hands, was accounted large enough to breed from, even

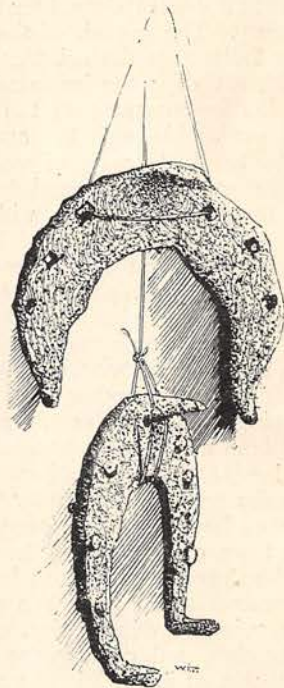
by those who were seeking to arrest by legislation the deterioration of the stock. But these undersized creatures were exceedingly hardy and suited to a new country, whether for riding or for work under the pack-saddle. Rarely shod, their hoofs became hard, and they were frequently ridden fifty miles in a day at "a good, sharp hand-gallop."

From the latter part of the seventeenth century, attention was given to the improvement of their horses by the Virginians, whose country-squire traditions and frantic love for racing made them always more careful of the strain of their steeds than the other colonists were. Many horses of pure Arabian blood were bred in Virginia and some in Maryland, and these "fleet and beautiful thorough-breds" were the admiration of travelers. Virginia horses, in the Revolutionary time, fetched double the price of those bred without care in the northern colonies, which latter were much derided by foreigners.

Good horses were not entirely wanting in the other colonies; the rich rice-planters of Carolina, indeed, toward the close of the colonial period, rivaled the Virginians in their truly English passion for fine horses and for racing. Penn imported three blood mares at his first coming, and in 1699 he brought over "the magnificent colt Tamerlane," of the best strain in England. But to the German farmers of Pennsylvania is due the credit of producing the great Conestoga horses, the finest draught animals on the continent in the colonial age, and perhaps the most substantially valuable of all American horses so long as the horse had to do the work now done by the railway. Staten Island was also noted for horses larger than the degenerate breed of the mainland. As early as 1667, Hull, the maker of the Massachusetts pine-tree shillings, hit on Point Judith as a peninsula suited to the raising of "large and fair mares and horses"; and in later times Rhode Island, with parts of Connecticut, became famous for excellent horses, many valuable stallions having been brought from Virginia. That delightful American eccentricity, the natural pacer, was known in Virginia not later than the first quarter of the eighteenth century. The "Narragansett pacers" of Rhode Island came into request at about the same time, and in New England, where racing was unknown, the pace became the commonest gait of horses in the country towns. The awkward but "prodigiously" rapid natural amble of the American pacer was a sort of world's wonder, and was thought to have been learned from the cows with which the colts were herded.

The hardy Canadian horse, longest naturalized to American conditions, was much valued

and widely distributed through the colonies in later times. One other breed deserves mention: the Chickasaws—the first mounted Indians known to the English—carefully



ANCIENT HORSESHOES PLOWED UP IN SCHENECTADY CO., N. Y.
(IN THE NEW YORK STATE AGRICULTURAL MUSEUM.)

guarded from mixture their fine race of horses derived from the Spaniards.

Notwithstanding the large numbers sent to the West India Islands from all the colonies, horses were more than abundant. Laws were made in several provinces to reduce "the extravagant multitude of useless horses and mares that are in the woods."

The only domestic animal that did not multiply to excess in the wild pastures of America was the sheep, which had for deadly foes the American wolf and the English woolen manufacturer. The wolves were reduced by a system that had been followed for centuries in England, of paying liberal bounties for the heads of destructive animals. The public officer who redeemed these heads cropped the ears, so that a head once paid for might be debarred from passing current for a second reward. In the province of New York the constable's house was rendered conspicuous by the decoration of its front with grinning wolf-heads, which the law required him to nail up in this fashion. But, however much the colonists might have desired it, they could not affix the head of an English cloth-worker to the front gable of the constable's house. There was nothing that English legislation

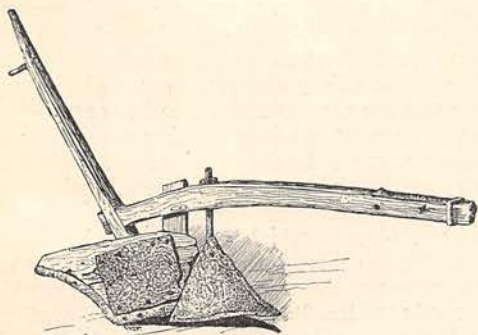
of the time sought more persistently than the development of the English woolen trade;—among the devices for promoting this end was a law commanding every Englishman to go to his grave in a woolen shroud for the good of his country. The growth of the woolen industry in Ireland or the colonies was repressed with severity; the importation of a sheep for the improvement of the colonial breed was punishable with the amputation of the right hand. In spite of wolves and acts of parliament, many thousand sheep were raised, but they had to be folded within hearing of the farmer and his dogs. The negligent methods prevalent in a new country bore more hardly on sheep than on other animals, and it was estimated that about one-third of all the sheep in the northern colonies perished in a single hard winter, a little before the middle of the eighteenth century.

The keeping of sheep in New England and on Long Island was much promoted by the holding of lands and tending of herds in common; and the one thousand New England sheep of 1642 had trebled their number by 1652. The town of Milford, in Connecticut, sequestered a large common and kept more than a thousand sheep as public property, the profits going to defray town expenses. When, in the eighteenth century, the common lands and such vast Long Island pastures as Hempstead plains were divided, sheep-raising became more expensive and difficult.

VII.

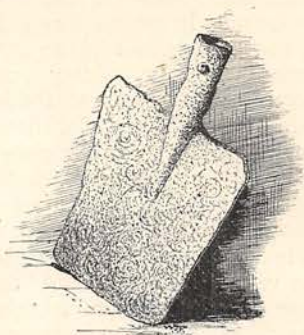
TOOLS AND TILLAGE.

THE cumbrous and complicated English plow of the period could not have been of much use to the colonists until it had undergone modification. As late as 1786 it required "four oxen, two men, and a boy" to run a plow in the west of England; the midland



COLONIAL PLOW WITH WOODEN MOLD-BOARD. 1706. (STATE AGRICULTURAL MUSEUM, ALBANY, N. Y.)

plow of the same period required five or six horses; the old Scotch plow two horses, aided by two or four oxen; and the primitive plow team of eight oxen, known from remotest antiquity, could still be found in use in Great



ANCIENT HAND-MADE SPADE. (STATE AGRICULTURAL MUSEUM, ALBANY, N. Y.)

Britain. One hears of a plow in the colony of Virginia drawn by four horses, driven by a postilion riding the near horse next the plow, and of a plow in Georgia, in 1735, drawn by six horses. The plow in the colonies, however, generally took on a simpler and ruder form; it was sometimes built by the farmer, and ironed at the nearest smithy. The one-handed plow was held by the left hand; the right bore a plow staff for cleaning the dirt from the wooden mold-board. Simplicity was carried to an extreme in Virginia, where there were few artisans; in some cases a grubbing hoe bound to a plow-beam was used with perfect seriousness to scratch the light soil of the peninsulas. In Massachusetts, the fortunate owner of a plow sometimes made a business of going about to plow for his neighbors; the town would now and then pay a bonus for keeping in repair the only plow within its bounds.

Carts also were often home-made—the body being fast to the axle-tree, so that dumping was impossible. The first Swedes on the Delaware, and perhaps others, had carts with truck wheels sawed from the liquid-amber or sweet-gum tree—probably mere cross-sections of a round log. Two skids fastened together made a "drag," or "sledge," to which was hitched a single ox or horse, for drawing burdens over the grass or ground in summer. This sledge was used on the northern frontier, in Pennsylvania, and in Carolina, and with it the Maryland and Virginia planter sometimes dragged his tobacco hogsheads to the place of shipment. But the commonest mode of moving tobacco was yet more naked: the cask was strongly hooped, and then rolled by human strength along the hot and sandy roads often fifteen or twenty miles

to the inspector's warehouse, known for this reason as a "rolling-house." The road, which went round about to avoid hills, was called a "rolling-road." When oxen or horses were used in rolling, a tongue and axle were fitted into the ends of the hogshead.

The New England settlers were curiously slow to learn the great lesson of their climate. While the Dutch were traveling and hauling great loads upon the snow, their Connecticut and Massachusetts neighbors laid in wood in November in cumbrous carts, and this continued to the close of the seventeenth century; it was much later before long journeys were undertaken upon sleigh-runners. English farmers, more than five hundred years ago, made their own horse-collars of straw. The American colonists also made them of straw, and added the art of weaving them from the husks of the maize. But oxen chiefly were used for plowing and other farm work in the seventeenth, and even into the eighteenth century. When the "horse-hoe," a progenitor of our modern cultivator, came into vogue in England, and was brought to the colonies, Jared Eliot used oxen to draw it, yoking them far apart that they might pass on each side of the row of Indian corn. But the cheapness of the horse brought that animal into more general use in the years just preceding the Revolution.

Grain was reaped with sickles, though "scythe-cradles" were not unknown. Threshing was done in New England with a flail; in New York and to the southward wheat was often trodden out by horses or oxen on the hard and well-prepared threshing floor in the open field. Both methods are older than human records, and both continue in out-of-the-way places to-day. Winnowing was performed in the primitive way, by throwing the grain against the wind and then running it through sieves; in some places large willow winnowing fans were used. The winnowing machine in its simplest form is a Dutch device, and did not reach England until 1710; "Dutch fans" were little known in the colonies.

While virgin land was abundant, manure was but little sought for, though in New England the settlers learned from the Indians the art of burying a whole fish in each hill of corn. In some places, the horse-foot crab was cut in pieces and put into the hill for both corn and potatoes. A part of the stipend of a minister in Cape Cod was two hundred fish from each of his parishioners to fertilize his sandy corn-ground. The Connecticut agriculturist,



ALEXANDER SPOTSWOOD, GOVERNOR OF VIRGINIA FROM 1710 TO 1723. (FROM A PORTRAIT BELONGING TO BENJAMIN ROBINSON, ESQ., OF KING WILLIAM CO., VA., AND NOW IN THE VIRGINIA STATE LIBRARY.)

Eliot, used creek mud and sand, and sowed clover to recuperate worn-out fields, as did the Pennsylvania botanist and agriculturist, Bartram, following a fashion then just coming into English agriculture. But Eliot could not introduce another practice freshly brought to England from the Low Countries,—that of growing turnips on poor lands and putting sheep on them. "Our poor land is so poor," he writes, "that it will not bear turnips bigger than buttons." In Maryland and North Carolina, no method of fertilizing was known but one that has been followed in Europe since the middle ages,—that of using a pen of movable hurdles for confining cattle at night on an impoverished piece of ground; and sheep were thus confined for the same purpose in New England.

Travelers from Europe united with colonial writers in condemning the general badness of farming in the thirteen provinces. Clayton and Beverley in Virginia and Eliot in New England were unsparing in their denunciations of the slovenly husbandry of their neighbors. Clearings were frequently made by merely girdling the larger trees and burning up the undergrowth. On land treated in this way, the dead trees presented a ghostly appearance, and their falling boughs endangered the lives of travelers. Wheat was dragged in with a tree-top or with a wooden-tine harrow. Spades and hoes were made by

country smiths, and were unwieldy. Pennsylvanians sometimes sowed oats in the rows of Indian corn and followed with wheat, thus killing out the noxious blue grass and destroying the fertility of the soil at a blow. In this and the more southern provinces, land weary of hard usage was allowed to lie fallow, or was abandoned to old-field pines. The colonial farmer, North and South, had so long scratched the earth's cuticle that he came to believe that deep plowing ruined the land. Jared Eliot was one of the first to set the example of actually stirring the ground.

But in every new land a sort of bad husbandry is good husbandry. The very first comers suffered from their failure to perceive this. They felt obliged, in the antique phrase of Jared Eliot, "to stubb all staddles,"—that is, to grub up by the roots the smaller saplings,—and to cut down, or at least trim up, all the great trees. They even leveled and pulverized the ground with rollers, after the method of English farmers. It took years to show them that the conditions of success were different in a new world. In England, land was precious and labor cheap; the problem was to get as much as possible out of an acre. But in America, acres were unnumbered and human hands were few. To get as much as possible out of a man was the stint set before the colonists. The Virginian never calculated how much his field yielded to the acre: he counted his yield to the hand. It was inevitable that the planter of tobacco should girdle and burn the trees for new ground in preference to fertilizing an old field, and that the New England farmer should leave the roots in his field and impoverish the soil by the shallowest culture. The newly come English farmer who tried to improve colonial methods no doubt paid the penalty of failure; just as the emigrant from the older States who tries deep plowing and clean culture on cheap prairies remote from markets now grows poor, while his neighbors prosper by an energetic skimming of the

land. The difficulties of the very earliest colonial agriculture discouraged careful farming. The forest was a deadly foe; a great part of the settler's life was passed in killing trees. The New Englander had to watch his sandy field on the coast for two weeks after corn planting, to keep the wolves from digging it up in search of the fish that enriched the hill. In some colonies, the squirrels were so pernicious that two-pence apiece was paid for killing them; in Maryland and northern Virginia, every planter was obliged by law to bring to a public office the heads of four of these pests. Then, too, the woods tempted the settler from his toils with abundant and savory meat, and the virgin streams were alive with fish. Only the indefatigable, conservative, and frugal German peasant on the Pennsylvania limestone soil, aided as he was by the toil in the field of his wife and children, could farm with thoroughness in such an environment.

As population increased, as cities were built, as commerce opened markets, and land grew valuable in the parts of the country that had been earliest settled, superficial farming, grown by this time to a tradition, was no longer commendable, or even excusable. The influence of enlightened example became necessary to abolish it. Virginia was said to have been more improved in Governor Spotswood's time than in the century preceding. The governor himself, and some such lords of great estates as William Byrd of Westover, were influential in introducing improvements; and half a century later Josiah Quincy found Virginia agriculture very far advanced. Jared Eliot—an enlightened and wealthy clergyman-farmer in Connecticut—tried all the artificial grasses of England. He introduced the drill, and persuaded the ingenious President Clap, of Yale College, to simplify its construction from the cumbrous English model. In a hundred ways, this grandson of the apostle Eliot strove for the betterment of



MEDAL AWARDED TO REV. JARED ELIOT, NOW IN POSSESSION OF CHARLES G. ELLIOT, ESQ., GOSHEN, N. Y.

American husbandry; but his writings have the air of begging pardon that a clergyman should make himself useful beyond the range of his profession. He excuses himself by telling how Charles V., on a visit to the Netherlands, sought out the tomb of Buckhelsz, who enriched his country by finding out a method for curing and barreling herring. Bartram, the botanist, and other Pennsylvania Quakers used many improvements in farming, and the wet lands on the Schuylkill were drained. Irrigation was also used in some parts of Pennsylvania to promote the growth of grass, and the agriculturist Masters made composts of forest leaves in the modern fashion. It is interesting to know that there was occasional correspondence between the men, scattered through the colonies, who were striving to lift agriculture out of the rut of stupidity into which it is always apt to sink. One reads with pleasure that fifty copies of Eliot's first little "Essay on Field Husbandry" were bought by "Benjamin Franklin, Esq., of Philadelphia," and that the progressive Bordley, of Maryland, ordered "Dr. Eliot's Essays" by way of London.

Alongside the new-born enthusiasm for science and the desire for improvement in practical affairs, which makes the later colonists seem to belong to our age rather than to the preceding one, there lingered many incongruous superstitions, even in the minds of

intelligent men. The almanacs of the time were publications of considerable importance, and one finds in these little pamphlets exact directions for regulating farming operations by the position of the sun in the zodiac. Even Eliot cannot shake himself free from these notions; his essays tell us with unruffled gravity that trees must be girdled in the old of the moon, "that day the sun moves out of the foot into the head," but brush is to be cut when the sun is in the heart. This day for giving a fatal stab to obnoxious alders unhappily falls, now and then, on Sunday, as the good parson confesses. In one of his later papers he half apologizes for his astrological nonsense, as though he had a dawning perception of its absurdity. In the very year before the outbreak of the Revolution the "Massachusetts Calendar" tells its readers to cut timber, for lasting, in the last quarter of the moon, naturally; but wood for firing should come down in the first quarter — perhaps because the moon is then firing up; and there follows a list of the proper phases of the moon for killing bees, for sheep-shearing, apple-gathering, hedge-cutting, manuring land, grafting trees, cutting hair, and I know not how many operations besides. Similar notions can be found to-day among the illiterate; a hundred years ago and more, they were treated as scientific principles by men of liberal training.

SOME OLD CONSIDERATIONS.

THE Puritan lies in his tomb —
 A grand fellow was he in his day;
 But now he's so bothered for room
 He'd have hardly the space to pray,
 Should he rise on his knees.

Not a foot from him down below
 Great Sachem Paupmunock lies,
 With his kettle of corn and his bow;
 And both he might use, could he rise,
 And sit at his ease.

Right over the two is my bed,
 Delightfully propped on the great;
 And here at my ease overhead
 I rest on two Pillars of State,
 And I sleep very well.

If they muttered a word under ground,
 I dare say 'twould come to my ears;
 But I've heard not the slightest sound,
 And they've slept there two hundred years,
 So the records tell.

I muse as I think of them there,
 And sometimes I laugh to myself,
 As I say — What a fine old pair!
 But how easily laid on the shelf,
 When we youngsters came!

The Sachem sang in his throat,
 The Puritan twanged through his nose;
 We sing a more lively note
 Of the ruby red and the rose:—
 In the end 'tis the same.

We too shall hobble away
 From the merry folk and the fire;
 "Good-bye" to the singers shall say,
 And pass from the lute and the lyre,
 From the folk and the flame.