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EDITOR AND PROPRIETOR.

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From Millingtons Civil Engineering.

ON BRICKS AND BRICK MAKING.

(Continued)

All that now remains to be done, is the burning of the bricks, which is an operation of great nicety, because, if not burnt enough they will be soft and worthless, and if over done they vitrify, lose their shape, and often run together so as to be inseparable and useless. Accordingly, various methods have been adopted for producing the due degree of firing as it is called. In general, bricks are burnt, both in this country and in England, in a kind of building constructed for the purpose, and called a brick-kiln; but in London, the burning constantly takes place in the open air, the bricks being made up into immense quadrangular piles, consisting of from two to five hundred thousand bricks in each. The built kiln is thought by many to produce the best bricks, or at all events, a larger proportion of good bricks out of any given quantity, and must certainly consume less fuel; but as they are never adopted in the immense brick manufactories of London, where no pains or expense for conducting the concerns in the best and most advantageous manner is spared, this is evidence that there must be some objections to them; for if they possessed real advantages, there can be no doubt but they would be adopted.

A brick-kiln, as usually constructed, is formed of bricks built into a square form like a house, with very thick side walls, and a wide doorway at each end, for taking in and carrying out the bricks; but these doors are built up with soft bricks laid in clay, while the kiln is burning, and a temporary roofing of any light material is generally placed over the kiln to protect the raw bricks from rain while settling, and so made that it may be removed after the kiln is fired. The English kilns are generally thirteen feet long, ten feet wide, and twelve feet high, which size contains and burns 20,000 bricks at once. Wood is the fuel used in these kilns, and they are frequently built with partitions, for containing the fuel and for supporting the bricks, in the form of arches, as will be presently described. A brick-kiln has no flue or chimney, as its chief purpose is to direct the heat of the fire through the body of bricks piled above it. To effect this they must be placed in a particular form with great care, and this operation is called setting the kiln, and is performed by one or two men who understand the business, and to whom the raw bricks are delivered in barrows. The form of the setting is pretty nearly the same in the country kilns, or London clamps except that in the latter, the arches are much smaller, because wood is only used for kindling, and not for burning.

The bottom of the kiln is laid in regular rows, of two or three bricks wide, with an interval of two bricks between each, and these rows are so many walls extending lengthwise of the kiln, and running quite through it; they are built at least six or eight courses high. And this is permanent work, or work that remains in the kilns that have fire-places built in their floors, or has to be formed every time the kiln is set, when it has a flat bottom. The intervals between the walls are laid first with shavings, or light and dry brushwood, or any thing that will kindle easily, then with larger brushwood cut into short lengths, that it may pack in a compact manner; and, lastly, with logs of split hickory, or strong burning wood. This done, the over-spanning or formation of the arches is commenced; for this purpose every course of bricks is made to extend an inch and a half beyond the course immediately below it, for five courses in height, taking care to skittle well behind, that is, to back up, or fill up with bricks against the over-spanners. An equal number of courses, on the opposite side of the arch, is then set as before, and thus the arch is formed, which is called rounding, and is a nice and important operation, for if the arch falls or falls in, the fire may be extinguished or many of the bricks above the arch may be broken. The intermediate spaces between the arches are now filled up, so as to bring the whole surface to a level, and then the setting of the kiln proceeds with regularity until it obtains its full height. In setting the kiln, not only in its body, but in the arches also, the ends of the bricks touch each other, but narrow spaces must be left between the sides of every brick for the fire to play through, and this is done by placing the bricks on their edges, and following what is called the rule of three upon

three, by brickmakers, reversing the direction of each course. The kiln being filled, the top course is laid with flat bricks, so disposed, that one brick covers part of three others, which process is called planting.

The kilns of Philadelphia are constructed and managed in a manner very nearly according with the above description of the country kilns of England, but they are larger, having an average width of twenty-eight feet in the clear, and are higher; but the bricks are not laid more than thirty-five or thirty-six courses. There are seven arches or firing holes in the end, each two feet high by sixteen inches wide, and the distance between each arch is three bricks. Such a kiln holds 140,000 bricks, and consumes from forty to fifty cords of wood for burning them.

The kiln being built, or finished, the firing succeeds; and this is the most delicate operation, and one that requires practice. The fuel is kindled under the arches, but requires close watching and attendance, for being in a large body, it would burn violently and produce so sudden a heat as would crack and spoil the lowest bricks. To check the burning, the arch-holes or mouths are closed with dry bricks, or even smeared with wet clay, in order to prevent the entrance of air, and rapid combustion that would ensue. The fire must be made to smother rather than burn, in order that by its gentle heat it may evaporate away the humidity that remains in the bricks, and produce drying rather than burning. The slow fire requires to be kept up about three days and three nights, by occasionally opening the vents, to supply air and additional fuel, and closing or partially closing them, until the fire gets up, as the workmen call it, that is to say, until it has found its way through all the chinks and openings between the bricks, and begins to heat those at the top of the kiln. To ascertain the progress of the fire, the top of the kiln must be watched, and as soon as the smoke changes color from a light to a dark hue, the drying is complete, and the fire may be urged. The first, or white smoke, called water-smoke, is, in fact, little else but the steam of the water while evaporating, and when that is gone, the real smoke of the fuel succeeds, and now the vents may be opened to admit full draught, and a strong fire kept up for from forty-eight to sixty hours; but the heat must not be white or so strong as to melt or vitrify the bricks, and when it appears to be increasing too rapidly, the vents must be partially closed. By this time the kiln, if it contains thirty-five courses, will be found to have sunk about nine inches; but the stronger the clay the more it will shrink, and it is by this sinking that the workman knows when the kiln is sufficiently burnt. The experience of burning a few kilns will show how much the clay of that particular place yields to the firing. When it is thus ascertained that the kiln is done, the vent-holes, and chinks through which air can enter, are carefully stopped with bricks and clay, and in this state it remains until the bricks are cold enough to be taken down, when they are distributed for use.

From the nature of the above process it will be evident that bricks of very different qualities will be found in the same kiln; for as the fire is applied below, the lower bricks in its immediate vicinity will be burnt to great hardness, or, perhaps, vitrified; those in the middle will be well burnt; and those at the top, which are not only most distant from the fire, but exposed to the open air, will be merely baked, and not burnt at all; consequently, if they can be used, they must reserved for inside work, that is not exposed to weather, or they will soon fall and crumble to pieces.

In the London method of open clamp burning, without any kiln, the piling and disposition of the bricks is the same as above described, except that the bottom arches are much smaller, as they are only intended to contain brushwood to produce the first kindling, and not for the future supply of fuel. No fuel is used except the breeze kinders and small coal before described, and this is distributed by means of a sieve, with wires about half an inch apart, over every course as it is laid near the bottom, and over every other alternate course, or every third course higher up in the kiln. The first layers of this fuel are from an inch to an inch and a half in thickness; but they diminish as they ascend, because the action of the heat is to ascend, consequently there is not the same necessity for fuel in the upper, as in the lower part of the kiln. The brushwood in the bottom ignites the lower stratum of fuel, and from the nature of its distribution, the vertical as well as horizontal joints will be filled with it, and thus the fire gradually spreads itself upwards, and the whole clamp is nothing but a mass of bricks and burning fuel. The heat is therefore much more generally distributed throughout the whole mass, and in order to confine it, the entire outside of the clamp is thickly plastered with wet clay and sand, the bottom holes being opened or shut as occasion may require for regulating the draught of air.

Notwithstanding the heat is much more equally distributed throughout this form of kiln, yet the outside bricks all around receive very little advantage from the fire, and are never burnt; but being on the outside they are easily removed, and are reserved for the outside casing of the next clamp that may be built; and being then turned with their unbaked sides inwards, some of them become available. On taking down the clamp, the bricks are assorted, in London, into three separate parcels or varieties, according to their perfection and goodness. Those that are burnt very hard but have not lost their figure or shape, are called *malms*, or *maln* facings, or *maln* paviers, and are used for facing good work; or for paving, for which their hardness makes them peculiarly suitable. The main body of the clamp produces well burnt, and regularly formed bricks called *stocks*, with which the generality of houses are built; and such as are imperfectly burnt, and are soft, are called *place* bricks. These last are used for inside partitions, backing walls that are to be plastered upon, and other work that is neither exposed to the eye or the weather. These several varieties of brick have each a separate price, the best being worth almost twice as much as the worst. If the fire has not been carefully attended to, and has been permitted to get too violent, a few of the lower bricks will become distorted by partial fusion, and may fuse and adhere together, when they are called *clinkers*, and are useless for building purposes, but form an excellent road material. In this country the names of bricks are different, but derived from the same source, being called hard burnt or arch bricks, and soft or salmon bricks; though this last name is generally altered by workmen into *sanmy*. The goodness of a brick is derived from its regular shape and appearance, its tenacity and hardness, its sound, and by its not absorbing water, or being affected by frost. The tenacity and hardness are judged of by striking one brick against another, or letting them fall upon stone pavement. Good bricks should have a sound approaching to that of a metal when so treated, and they ought to ring, and bear a very hard blow with the edge of the trowel, before they divide. If they break readily with a blow, or crumble to dust by a fall, such bricks are of the soft or *sanmy* kind, and are unfit for introduction into a heavy wall, particularly on the outside of it, as they will be sure to be stacked by frost, and crumble to pieces. The absorbency of bricks is judged of by weighing them in the dry state, and then soaking them in water for an hour and weighing them again. Those bricks that take up the greatest quantity of water, are the least fit for use, when they are to be exposed to its action. The average weight of a sound and dry London stock brick, is four pounds fifteen ounces avoirdupois.

From the Cheshire Farmer.

THE WAY TO ACQUIRE BOTH PROPERTY AND CREDIT.

It is not the business to which a man is employed that confers upon him honor or brings wealth, so much as it is the man who makes his business honorable and profitable.

In whatever business a man is engaged he should make it his business and his study. His mind and his hands should both be in it as well for his pleasure as his profit.

It is proverbial that the man who has many "irons in the fire" will get some of them burnt; in other words he who engages in many kinds of business is not usually successful in any of them. One kind of business for one man and that thoroughly followed, technically I drove, will almost invariably ensure success. The professional man should give his attention to his profession—the merchant to his merchandize—the mechanic to his trade—and the farmer to his farm.

Knowledge applied with judgment is the great secret of success. Bad is a good general knowledge of men and things, every man should have a thorough knowledge of his own particular business, and bring all his information to bear upon it with a view to its improvement.

In our opinion farmers and mechanics are very negligent in this matter, greatly to their damage in point of usefulness, interest and honor. We have thought of the subject of late particularly in reference to the clinkers, and think there is a chance for very great improvement by the application of science to their handicraft labor. Many of this very useful class, work mostly by the *guessing rule* which a natural ingenuity sometimes renders curiously accurate. But how much more readily and better would such perform their work if they thoroughly understood their business and knew how to go to work to accomplish it at once, without sundry trials to ascertain how to do it. It is becoming too fashionable for a mechanic to learn his trade in a few months, or even weeks and think himself perfect, and take no pains to acquire further knowledge in it. Others go through with a regular apprenticeship, and learn by rote to do readily and accurately all common kinds of work, but when something is to be done which is a little different from common work, they are at a nonplus being ignorant of the science upon which their rules are founded. It should not be so. Every carpenter and joiner, for instance, should have a good work on architecture to study during his leisure, and other books from which to learn the first principles upon which his practical rules are founded. And so of other trades—more of the scientific is wanting with the practical.

But we intended to apply this subject mostly to farmers. It will apply to this class with great propriety. How much is done without knowing why we do it? The soil is tilled without knowing its qualities. Experiments are tried without knowing a reason for trying them, *old saws* are regarded as unlucky, and notions are held of the influences of the moon and of *unlucky days*, &c., which set all science and reason too, at defiance. We tug and toil

plow, sow, and plant, by chance, more than by knowledge which should direct the spade as well as the chisel.

Now this rushing on in the dark is uncertain business, and quite as likely to lead to a precipice as to a valley of fruits and flowers. It is better to light the torch and see where we are going.

Economy and strict attention to business are as essential to farmers as to those of other occupations. Expenses must be retrenched to come within the income, and it is well to calculate a little occasionally in reference to this point. It should be a constant aim to improve the soil, for it is suffered to run down, the owner is sure to go with it. All these things require the whole attention, and this is all that is necessary to ensure success and gain a good reputation. The sum of all is, a man must mind his business, and exert himself to be master of it.

From the Complete Farmer.

COWS FOR THE DAIRY.

In selecting cows for the dairy, the following indications should be attended to.—Wide horns, a thin head and neck, low-lap large, full breast broad back, large deep belly; the udder capacious but not too fleshy; the milk veins prominent, and the bag tending far behind; teats long and large; but-tocks broad and fleshy; tail long pliable, and small in proportion to the size of the carcass, and the joints short. The *Almerley* breed gives a very rich milk. The *Durham* short horns, however, exceed them as respects quantity; and we have the testimony of the Hon. Levi Lincoln, late Governor of Massachusetts, that the milk of *Denton's* progeny, a branch of that race, is not only abundant, but of excellent quality.

Cows should be milked regularly morning and evening, and as nearly as may be at the same hours. At six in the morning and six at night is a good general rule, as the times of milking will be equidistant from each other. But if they are milked three times a day, as Dr. Anderson recommends, the times may be five, one, and eight. He asserts that if cows were full fed, they will give half as much again if milked three times as if only twice. At the same time, it would prevent too great a distension of their bags, to which the best cows are liable.

The cow which is desired to remain in perfection, either for milking or breeding, should not be exhausted by drawing her milk too long after she becomes heavy with calf. It is paying too dear for a present supply of milk. She should be suffered to go dry at least two months before calving.

The expense of keeping cows of a poor breed is as great and sometimes greater than that of keeping the best. If cows are poorly kept the difference of breeds will scarcely be discernible by the product of their milk. Some have therefore supposed that it is the food alone which makes the odds in the quantity and quality of the milk. This supposition is very erroneous, as may be shown by feeding two cows of a similar age, size, &c. on the same food, the one of a good breed for milk and the other of a different kind, and observing the difference in the milk product. No farmer unless he is very rich, can afford to keep poor milk cows. He might almost as well keep a breed of "milked sheep," such as *Swift* mentions in "Guliver's Travels." The farmer who raises a heifer calf that is from a poor milker, or of a breed of little value, is as foolish as he would be, if, in clearing land, he should burn on the ground the birch, maple, and walnut, and save white pine and hemlock for fire wood. And yet many sell the calves of the best milk cows to the butchers, because such calves are fatter!

Those cows which give the greatest quantity of thin milk are most profitable for suckling calves, for rich milk is said not to be so proper food for calves as milk which is less valuable for dairy purposes. Milk which contains a large proportion of cream is apt to clog the stomachs of calves; obstruction puts a stop to their thriving, and sometimes proves fatal. For this reason it is best that calves should be fed with the milk which first comes from the cow, which is not so rich as that which is last drawn.

"Mr. Russell Woodward, in the 'Memoirs of the New York Board of Agriculture,' says, 'I have found that young cows, the first year that they give milk, may be made with careful milking and good keeping to give milk almost any length of time required. But if they are left to dry up early in the fall, they will be sure to dry up of their milk each succeeding year, if they have a calf near the same season of the year; and nothing but extraordinary keeping will prevent it, and that but for a short time. I have had them dried up of their milk in August, and could not by any means make them give milk much beyond that time in any succeeding years.'

A writer in the "Bath and West of England Society's Papers," states, that if at any time a good milk cow should go dry before her milk is gone, get a young calf and put it to her in order to preserve her milk against another year; for it is well known, if a cow goes dry one year, nature will lose its power of acting in future.

Cows should be treated with great gentleness and soothed by mild usages, especially when young and ticklish, or when the pups are tender; in which case the udder ought to be fomented with warm water before milking, and touched with great gentleness.

\*Large dew-lap is no sign of a good cow. Ed. Gaz.

†See New England Farmer, Vol. IV. p. 318.

otherwise the cow will be in great danger of contracting bad habits, becoming stubborn and unruly and retaining her milk ever after. A cow never gives down her milk pleasantly to a person she dreads or dislikes. The udder, and paps should be washed with warm water before milking and care should be taken that none of the water be admitted into the milking pail.

The keeping of cows in such a manner as to make them give the greatest quantity of milk, and with the greatest clear profit, is an essential point of economy. Give a cow half a bushel of turnips, carrots, or other good roots per day, during the six winter months, besides her hay, and if her summer feed be such as it should be, she will give nearly double the quantity of milk she would afford if only kept during the winter in the usual manner; and the milk will be richer and of better quality.

The carrots or other roots, at nineteen cents a bushel, amount to about eighteen dollars; the addition of milk, allowing it to be only three quarts a day for three hundred days, at three cents a quart, twenty-seven dollars. It should be remembered, too, that when cows are thus fed with roots they consume less hay, and are less liable to several diseases, which are usually the effects of poor keeping.

The keeping of cows is very profitable. Allowing one to give only six quarts a day, for forty weeks in each year, and this is not a large allowance, her milk at two cents per quart will amount to upwards of thirty-three dollars; which is probably sufficient to purchase her and pay for a year's keeping.

A farmer some years since kept eighteen cows on a common, and was often obliged to buy butter for his family. The common was enclosed, and the same person supplied his family amply with milk and butter from the produce of four cows well kept.

"Great milkers seldom carry much flesh on their bones, but they pay as they go and never retire in our debt. The difficulties in cow keeping are these: the expense of their food is considerable, more especially with respect to any which must be purchased and if the produce be inconsiderable it may be a losing concern. You may be feeding a sparing milker into flesh, and if you stut her or allow her only ordinary food you get neither flesh nor milk."

Amateurs in this line should procure the largest milkers, and I had almost said give them gold, they eat it. In this case it may be depended on, milk is always of more value than the best cow food, and a cow, the natural docility of which is to breed milk, will convert all nourishment, however dry and substantial, into that fluid; in fact, will require such solid kind of nourishment to support her strength.

Keep no more cows than you can keep well; one cow well fed will produce as much milk as two indifferently treated, and more buter; and if the cow be wintered badly, she will rarely recover, during the succeeding summer, so as to become profitable to the feeder. Cows should by all means be housed in extreme weather, an particularly those which give milk, or a failure in the quantity of milk will be experienced.—Wherefore, instead of keeping twenty cows poorly fed and but half of them stabled, sell ten and give the remaining ten food in amount equal to what the twenty originally had; procure constant salting for them, and you will receive quite as much milk and butter in return as was derived from the former mode of treating twenty. Sweet potatoes, carrots pumpkins, and ground oats, are unquestionably among the best articles for food for milk cattle; and they occasion the milk and butter to assume a fine flavor and color, as well as increase of quantity.

\*Farmer's Assistant.  
†Mowbray on Poultry, &c.  
‡Mowbray on Poultry, &c.  
§Frenton Emporium.

From the Maine Farmer.

BEN COPPS.

Hens are useful—valuable, and as profitable as any stock on the farm; but like other stock they should have an enclosure by themselves at certain seasons of the year, especially in the spring when the sowing and planting begins. A very cheap and convenient yard may be made for them by taking common boards, and a suitable number of posts—nail the boards so tight together that the hens cannot get through between them. This frame need not be more than four or five feet high. Then at the top nail on some shingles cut so as to make sharp points, and nail them up say two inches apart. Laths cut and nailed on are better—or narrow sticks split and made sharp, and nailed on, will, answer the purpose. A door of convenient size may be made to go in at. The hens may then be put in and there will be little danger of their attempting to scale the walls. The sharp points sticking up all round, look too formidable. The philosophy of the thing, is this. The hen is not very good for flight, and when she attempts to fly over any thing, she almost invariably lights upon it, and then jumps off. As they cannot tight and rest upon these sharp points, they cannot get over very conveniently, and should any succeed in flying over at a single leap, their wings may be clipped. When put into one of these coops, food should be kept by them constantly, and also water—a little dishes for them to shake up among their feathers in a sunny day, some gravel to grind their food with, and some lime to manufacture into egg shells. When thus

supplied, they will lay as well, and do as well here as when ranging about. We keep our hens and turkeys in such a yard, and find that they do extremely well.

From the Genesee Farmer.

SHEEP TICKS.

Farmers sometimes ask how they shall contrive to free their flocks from the sheep tick, since every one is aware that if these pestiferous insects abound it is impossible to keep the animal in good order, or prevent a serious diminution in the quantity of wool. Some have recommended mercurial ointments, but these are always dangerous, and should only be resorted to in cases of necessity arising from disease, such as the scab, or other obstinate cutaneous diseases. Some have proposed dipping in an infusion of tobacco, and this dipping, in our opinion, is preferable to ointments containing mercury; but this occasions considerable trouble, and to be efficacious, must be performed with more care than is usually given to such matters.

We will tell how we manage this matter. We do not keep a large flock only one or two hundred, yet our system is applicable to any number, and for several years past not a tick, or scarcely one, has been seen on our sheep. In the first place, we wash our sheep in a large tub, of such capacity that the sheep cannot reach the bottom, and wide enough at top to allow two to wash at once. The tub is kept full and running over slowly, by a small stream conducted into it of clear, pure water. In washing our sheep, soap is always used at the rate of about two gallons to a hundred, and after a few have been washed, the water in the tub will be strongly impregnated with soap, or in other words will be soap suds. This cleans the wool and the sheep thoroughly, and by letting the sheep remain a few days after washing in a clean pasture, the wool becomes again saturated with the oil which is so essential to its softness and elasticity. This is the first step in freeing the animal from ticks. At shearing it is well known, when this operation is performed as it should be, and no places where it is only half cut by the shears, or taglocks around the belly and legs are left to give the vermin a hiding place, that they will quit the old sheep for the lamb, in the wool where they find a secure place of retreat. To get rid of them fully and finally, we now shear our lambs.—Some farmers apprehend that such a process would injure the lambs, but the experiments we have purposely made, and the experience we have had, has convinced us that such fears are groundless, either as respects the animal itself or the effect on the next clip of wool. Let any farmer whose sheep are rendered poor and sickly by the constant irritation of these insects, try washing them in soap suds, and at the proper time shearing the lambs, and we think he will make no more complaints of ticks on his sheep.

BREEDING SWINE.

We feel very much indebted to the writer for the following excellent communication on a subject of the greatest importance. The rearing of swine is a department of rural economy in which there is room for the greatest improvement, and we think our Kentucky breeders will find much useful information and many valuable hints in the communication below.

Franklin Farmer.

BUFFALO, N. Y., Aug. 31, 1839.

To the Editor of the Franklin Farmer.—Sir Agreeable to the intimations in my last, I now come to the rules adopted by the most successful breeders of *Berkshires* in this vicinity, your readers will excuse me particularly in stating them, for the reasons that the article of pork, as before asserted, is the most important item of western agricultural production, and that I am writing to those who are not above their business, but who take the same pride and pleasure in raising a fine race of hogs, as they would in that of blooded horses or Durham cattle.

A boar should never be permitted to be used till seven months old at least, and it would be much better that he were allowed to run till nine months. But commencing at seven months, he should cover sparingly, say not more than fifteen or twenty sows till a year old, and these as distant apart as possible—one or two only in a single week. From this time till he has attained pretty full vigor which I should place at about eighteen months age, he may be used a little more freely. His spring seasons might then vary from twenty-five to thirty sows, and his fall nearly double this number. In the meanwhile he should be kept with care. A strong door may open his pen from one another, to which the sow is introduced, the boar is then let in and allowed one coltus only, immediately after which he must be turned back, and the sow taken away. It has generally been noted that one covering produces a greater number and stronger offspring than two or three, and that an *ad libitum* service is alike pernicious to all parties.

The best food for the boar during the season, is boiled or soaked corn, with plenty of pure fresh water, and for variety some will from the house with meal in it (oat is the best) and a raw or boiled vegetable root or two, and as an antidote to disease, and to give tone to appetite, and assist digestion, a table spoonful or so of sulphur, is occasionally put in his food. Salt is also placed where he can get at it when he pleases, and charcoal or small chunks of rotten wood, together with a handful of crushed bones, if convenient, is thrown. He must be kept up alone in his sty under close cover with