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like the Rittenhouse farm originally-too wet in some seasons to give even a fair return for the labor involved ! All such may be transformed as this was. But says some owner, rendered poor by the wetness of his farm, "We can't do it, we haven't the money to put the drains in." For such an one the Government has long since made provision, in the Tile, Stone and Timber Drainage Act, by which any township is empowered to borrow money from the Province at 4 per cent. and lend it out again at the same rate, to aid in underdraining the land, with twenty years to pay off the principal. With such cheap money, and such easy terms as this, no one need plead that he can't afford to drain his land ; the truth is he can't afford not to drain it, for removing the excess water will always increase the crop by more than four per cent. of the cost of drainage, usually by 20 to 50 per cent., or even more in extreme cases.

Anyone interested in the details of this plan for encouraging underdrainage should procure a copy of the Tile, Stone and Timber Drainage Act from the Department of Agriculture at Toronto. O. A. C., Guelph. WM. H. DAY.

Building a Plank-frame Barn.

Increasing scarcity and cost of timber for barn-frame construction is serving to turn attention toward a more economical and, on the whole, a more satisfactory principle of construction, namely, the plank frame. We receive a very large number of inquiries for books or other in formation on plank-frame barn construction, but cannot do better than reproduce an article contributed to "The Farmer's Advocate" last February by a subscriber, D. A. McIntyre, of Lambton Co., Ont. Mr. McIntyre gave such an exceedingly clear and practical description of the details of building a plank-frame barn that it will be read with profit even by those who have no immediate intention of building. No one knows when he may have to build a new barn, and it is well to be prepared. We trust every subscriber will carefully preserve this copy of "The Farmer's Advocate" for future reference, as we cannot undertake to republish it again.

. . .

In 1904 we built a plank-frame barn, 40 x 68 feet, with 18-foot posts, on an 8-foot solid-concrete foundation; also root cellar, 10 x 26 feet, under the approach to the drive floor.

The foundation is 40 ft. 4 in. by 68 ft. 4 in. as it is necessary, in building a foundation for a plank-frame barn, to build 4 inches longer and 4 inches wider than the size of the frame, for the following reason : The girts are all spiked on the outside of the posts; when on, the face of the girts will be flush with the face of the wall. The siding can then be carried down below the top of the wall, and prevent snow and rain from drifting in.

The wall is 12 inches thick, with 16-inch foot ings, and is built of moderately coarse gravel and Portland cement, mixed one to eight, and filled with field stone from bottom to top. I consider the wall strong enough to carry any ordinary The wall required about 54 barrels of cebarn. ment and about 55 days' labor to build. It is also necessary to build buttresses in the side walls, to carry the foot of the purline post (see Fig. 4).

The mows are carried on two trim beams, 10

between the two sections, and near the top of the wall post, then passes between the two sections of the purline post near its top, and joins its The truss brace is of one mate at the peak. piece, 2 x 8 in., and has its lower end placed between the sections of the long purline post, and on top of the top girt in the bent, then passes between the sections of the short purline post, and meets the brace from the opposite side of the bent at the peak, immediately below the jackrafter. The short purline post is made of two pieces, 2×8 in., which are placed one on each side of jack-rafter and truss brace, and at upper

> 71g. 5 12 71g.4 Cross Section of Concrete Wall.

end of purline post, as shown in Fig. 2, each section having a shoulder at upper end, to carry purline plates. Clamp of two pieces, 2 x 8 in. placed one on each side of the upper ends of the jack-rafter and truss brace, prevents the bent from spreading at the top. The girt is 2×8 in., and runs across the barn from side to side, and is bolted to the foot of the wall and purline posts, and prevents bent from spreading at the bottom. The timbers in middle bents are all bolted together with §-inch bolts on every bearing (see Fig. 2). The side girts are 2 x 8 in., braces 2 x 6 in., and are placed as shown in Fig. The single post, placed midway between the bents, is made of two pieces, 2 x 10 in., spiked together as shown in Fig. 5.

The wall plate is made from two pieces, the plate proper 2 x 12 in., and the top girt 2 x 8 in. The top girt is placed flush with the top of the wall posts; the plate is placed on top of the posts, with its outer edge flush with the girt, and spiked; or both sections may be suiked together on the ground, and raised together.

gether. The sills, 3 x 12 in., being heavy enough are placed on the wall, the joists or overlays, as the case may be, being placed in position, and flooring placed in both mows and drive floors, as building is all raised from the floor. This style of frame should always be put together by the framer before the day of raising, and is raised bent by bent, all the bents but the last end bent being raised in one direction; the last bent is raised from the inside in the opposite direction. By raising in this manner, it saves building staging over the end of the wall to carry the bent, as was necessary with the old-style timber frame.

The last bent to be raised is the first to be put together, and is placed with its foot towards the end of the wall, put together as shown in Fig. 1, and left flat on the floor face up. middle bents are placed with the foot in the opposite direction, and put together as shown in Fig. 2. The other end bent is now put together, and the frame is ready to raise. About 30 or 35 men will be sufficient to do the work. When the first and second bents are raised, the single posts, girts and braces are placed as shown in Fig. 3. Continue in the same manner until the bents are all up, put on wall plate and purlines, and the frame is up.

The frame required about 5,500 feet B. M. made up as follows : End bents, 680 feet each three middle bents, 630 feet each ; side girts. braces, door-caps, 470 feet; purline plates, -340feet ; wall plates, 272 feet ; tie girts, 160 feet center posts, 180 feet ; purline braces, about 180 feet, and sills, 648 feet. Rafters are of soft elm, 2 x 5 in., sawn full length, and placed. The flooring and sheeting is all soft elm, and requires about 7,060 feet. Siding 4,408 feet pine; roof Siding 4,408 feet pine; roof about 31,000 cedar shingles.

The cost of the material would, of course, be governed by local conditions. I am, therefore. unable to give any satisfactory figures. As for labor required, I should judge that three men would have frame ready to raise in about six davs. or possibly less.

There are, at the present time (1908) three other plank-frame barns in Brooke Township, and their owners are all well satisfied. I, for one. have no hesitation in advising anyone intending to build a barn to build a plank-frame. If elm timber is not available, pine, hemlock, black ash or basswood will do very well. Two of the other plank-frame barns in this neighborhood are built mostly of black ash, and the third is altogether of pine





Posts.

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x 12 in., running the full length of the building placed 6-ft centers, thereby dividing the stable into two parts, each 16 feet wide, with alleyway 6 feet wide between. Cattle and horses face the alley on both sides.

The frame is of soft-elm plank, sawn 2 in. thick, nothing being used but good sound timber, free from knots and shakes. The end bents are built with five posts, viz., two corner posts, two purline posts, and one center post. The corner posts are made of two pieces, each 2 x 10 in., spiked together, as shown in Fig. 5. The purline post runs from the foundation straight up to the plate, and is made from two pieces, one 2 x 8 in., the other 2 x 6 in., spiked together, as shown in Fig. 5. The center post extends from the foundation to the peak, and is made from three pieces. The lower 26 feet is made from two pieces 2 x 8 in., placed and kept 2 inches apart by blocks, and spiked together. The upper part is made from one piece, 2 x 8 in., placed between the sections of the lower part and bolted (see Fig. 1). The girts are 2 x 8 in., and are spiked on the outside of the posts, as shown in Fig. 1 Braces are 2 x 6 in., and are placed as shown in Fig. 1

Each middle bent is made of two wall posts. two long and two short purline posts, two jackrafters, two truss braces, one pair of clamps. six short girts, and one tie girt

The wall posts are made of two pieces, each 2 x 10 in., placed one on each side of the bent girts (see Fig. 2). The long purline post is carried on the wall at the foot of the wall post, and is made of two pieces 2 x 8 in., and is placed as shown in Fig. 2. The jack-rafter is made of one piece, 2 x 8 in., and is placed with its lower end



The purline plate is 3×10 in., and is placed on the shoulders of the short purline posts in the middle bents, and on the end of the long purline posts in the end bent. Both wall and purline posts are in sections, reaching from one bent to the other.

The purline braces are placed with their lower ends butting against the truss brace, immediately above the foot of the short purline post, the upper end being spiked to the upper face of the purline plate.

We will now suppose that the foundation wall is built, the timber framed and ready to put to-

child which otherwise would die. And cream ! What does not cream improve? -tea, coffee, porridge, pudding, pie, cake. The golden, clover-scented butter, which is such a fitting accompaniment to the staff of life, we would not like to do without —so, again, we must say thank you to the dear old cow. Then cheese more and more is it being looked upon as a staple article of food, and, truly, it furnishes much concentrated nour-

What meat is more in demand than good beef, and we have to thank the cow for The leather from her back shoes us; her that. horns and hoofs comb us, and button our clothes; her hair is plastered into our houses; the very refuse from her body enriches our gardens and fields and brings the luxuriant and bountiful harvest.

In time of need or convenience it is the cow that furnishes the beasts of burden to take the place of horses

These are only a few of the familiar common blessings the cow bestows on mankind. There are