The Farmer's Advocate
AND HOME MAGAZINE.

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has dropped almost 2,000,000. The decrease in six of the principal countries of Europe amounts to 24,710,000. Surely this condition of affairs will inspire sufficient confidence in farmers to breed their sows instead of sending them to the slaughter house.

There is still another phase that has a very important bearing. Prior to the war Denmark had become entrenched in the British market with her hog products. During hostilities she has been catering to other countries, and her supplies are short. In the meantime, Canada has gained a footing and now the question is before us whether we shall go on and firmly establish ourselves with volume and quality, and thus ensure a continuous future demand, or allow ourselves to be crowded out altogether, and consequently obliged to drop back to a position of comparative unimportance. In view of the fact that all are agreed to the policy of converting our farm crops into live stock, it would seem wise to increase our swine and thus ensure a lucrative market for the years to come. We can only expect to compete successfully with the United States and other countries by producing the bacon hog, and even with that as our specialty we must have volume or we will be ignored. So far as live-stock production goes we are only touching the fringe of our possibilities. There is a great future ahead if producers will supply the volume and quality and the Government will keep open the avenues of trade and see that justice prevails in all the transactions leading up to the disposition of the product. The matter is in our hands now. Let us carry this thing through and make Canada the headquarters for choice bacon.

An Opportune Time to Improve Our Roads.

BY ALLAN MCDIARMID.

If there ever was a time in our lives when our attention was called to the kind of roads we have in this country, it has been throughout this past autumn. It takes the wet weather to show up one of the weak spots in our Twentieth Century "Civilization." There are exceptions to the rule in this matter of bad roads, just as in every other case, but it has been very apparent lately that the good road is the exception and the horse-killing, time-wasting mud-trail, the rule.

Emerson mentions the fact, in one of his Essays, that in some of the Western States of that time, he had noticed that the roads near a large town or city often started out as a grand highway, with trees planted on both sides of it, but as you followed it up it gradually got bad, and then worse, and finally ended in a squirrel-track that ran up a tree. A little worse than ours yet, but going to show that newly-settled countries all have their road problems. We consider this a comparatively young country and some allowance will have to be made for that fact, but all the same there's no excuse for us being as backward as we are in some sections in regard to our country highways.

I heard a man being asked once if he had a good farm. "No, I can't say that I have," he replied; "about all it's good for is to hold the rest of the land in the neighborhood together." And I suppose he would have said the same thing about most of our roads, if he had been asked as to their main purpose. They hold our farms together, at least.

It has been said that roads are the first and most important element in the advancement of a nation. Rivers, canals and railways have their place and share in progress, no doubt, but they act as the main outlets from a country, as it were. As I heard a farmer say once, when he asked that a side-road leading to his place be repaired and was told that the main road was getting all the time and money that year: "What good will it do me," he yelled, "to fix up the main road if I can't get to it?" And that is the situation, comparatively speaking, in regard to our country roads and the railways. They're but little use to us if we can't get to them.

Of all nations that have inhabited this earth the Romans were the greatest road-builders. They left us an example that we have so far failed to follow. The roads they built are still there, as models of efficiency and permanence. The fame of their Appian Way has come down to us through all the intervening centuries. It was built about 313 B.C. and parts of it are still to be seen, although unused and uncared for for hundreds of years. In building it the Roman workmen removed all the loose soil from the foundation, and on this solid base were built several layers of stone cemented together by lime and some other unknown material. On top of this was laid the pavement, made of large blocks of the hardest stone and so well fitted together that it all looked like one solid piece. As concrete does in present-day construction. Hills were cut through and valleys filled up and no difficulties were too great to prevent them accomplishing their purpose. The cost was tremendous, but evidently they thought they were getting the worth of their money.

The roads they built in Britain, after their invasion of it, although not planned on so extensive and costly a scale, are still used by men of to-day, and are looked on as being among the best highways in the world.

Apart from what Rome did for her, however, England continued to have bad roads until about a couple of hundred years ago. In 1285 a law was passed that all trees within two hundred feet of the roads be cut. This was for the purpose of preventing robbers hiding in them and holding up the passing travellers. Then, in Edward III's time the first toll-roads were built. Later an Act of Parliament provided that two surveyors be appointed to look after the highways and keep them in repair by compulsory labor. After this came the "Statute-Labor Tax," and we have the beginning of a system that has come down to us of the present time, without very much change or improvement. It didn't solve the problem in old England. Their roads continued to get worse instead of better. They came to be little but horse-tracks, and the only advantage in following them was in the fact that they kept to the high ground and the traveller was saved from becoming lost in the bogs. England, at this time, was evidently badly in need of another Roman invasion.

But, in the course of time two men were born that lived to change the situation. These men were Telford and Macadam. They made England's roads what they are to-day, although their ideas and systems were different in some respects. Telford's plan was to make a strong foundation of flat stones and then put several layers of crushed rock on top of this. Macadam did not pay so much attention to the foundation, provided the ground was fairly dry. He simply laid down stone, broke in angular form, and by means of a roller crushed them into place until a solid road had been built up. Both systems gave good results. And so will any scheme of road-making that puts its main dependence on stone. That is, stone of the right quality. Sandstone is too easily crushed. Limestone is affected by the weather. There is a sort of granite boulder, pretty common in this country, that seems to serve the purpose better than anything else. It makes as permanent a road as can be had, apart from concrete.

But a knowledge of all these facts and the example that other nations have set before us won't go for much, or anything at all, if we don't wake up to the fact that we are behind the times in this country, and make some sort of a move that will bring about a change in that state of affairs. To acquire good roads three things are necessary. They are men, material and money. Now that the war is over we have the men. As to material, there are millions of tons of it lying scattered all over the land. And so far as money goes the last "Victory Loan" made to the Government isn't so far back in the past that we can't draw a few conclusions from it.

They say that one of this country's problems at present is to provide for our returning soldiers. Here's the key. Let them help us in the effort towards a better system of highways. The investment will pay us more than five and a half per cent., and Canada will be a pleasanter country to live in by about fifty per cent., at least.

We know that there has been a good deal of talk in our Houses of Parliament during the past two or three years on this subject. But this talk hasn't so far had any effect in keeping us out of the mud. If something doesn't happen soon we're going to turn Bolsheviki.

Nature's Diary.

A. B. KLUGH, M.A.

Peat. (Continued.)

In color peat ranges from light-yellowish or straw color through various shades of yellowish-brown, reddish-brown, and dark brown to jet black. All of these colors are darker when the peat is wet, but the lighter shades often change to dark brown after the peat has been cut and exposed to the air.

From what has already been said, it is apparent that the peat has great capacity for taking up and holding water. The water present in peat is held partly in the interstices of the deposit and partly in the cell-walls and cell-cavities of the plants composing the peat. Of this water a part only is removable by pressure or other mechanical means. Prolonged trials made by many competent experimenters show that only a relatively small per cent. of the water can be pressed from peat having at the outset 90 per cent. moisture, which is about the quantity found in the peat as it occurs in the bog. The remainder of the water resists the greatest obtainable hydraulic pressure and the best centifugal machines, and can be removed only by evaporation. By pressure the amount of water can only be reduced to about 70 per cent., and the rest can only be driven off by heat, either derived from the sun or more expensively from an artificial source. This residual water is held mainly in the cells of the plant componants, and is clearly not held in chemical combination, as it can be entirely removed by gentle heat without destroying the structure of the peat. After drying under proper conditions the peat will again take up water and will assume its former appearance, but drying destroys the cementing compounds in the peat, and peat that has been once dried out, will not, even if thoroughly wet, make good machine-peat bricks.

The quantity of water held in peat varies somewhat, being less in the black, thoroughly-decomposed types than in the more fibrous brown ones. Thorough maceration also has the effect of rendering the water more free in its movement in the peat, this effect being probably due to the increased uniformity of texture and not to the breaking up of the cells of the plant remains, as these cells are exceedingly minute and would not be much affected by the course machinery commonly used for grinding peat. After thorough maceration and puddling, if the peat mass is allowed to dry slowly to an air-dry condition, it contracts in bulk, and dries into a hard and firm substance that absorbs very little water even if immersed. This effect is due to the formation during drying of a complex hydrocarbon compound known as hydrocellulose, which is distributed through the interior of the peat brick and which forms a skin over its surface. This skin while it will absorb moisture from the interior and transmit it to the air does not allow the water to pass in the other direction. Untreated peat, on the other hand, dries into a loosely aggregated mass, which takes up water readily and is easily broken up either in the wet or dry condition.

Peat that has been dried below the air-dry condition, that, dried until it contains less than 25 per cent. moisture that is, dried until it contains less than 25 per cent. moisture, quickly absorbs moisture from the air, and its moisture content then varies with the relative moisture of the air, so that the air-dried peat contains a lower percentage of water in a dry climate than in a moist one, or in dry weather than in wet.

The suitability of a peat deposit for certain definite uses depends much upon the physical condition of the plant remains contained in the peat. Thus, if peat is to be used for stable-litter there should be a large amount of well-preserved fibrous matter present, whereas fine-grained, structureless, compact peat is the best type for use as fuel.

The classification of peat is usually based upon physical properties, but it is difficult to draw hard and fast lines between the different types. In this connection the word "muck" should be mentioned. This term is frequently used as distinct form of peat to characterize peaty soils high in mineral matter, but it is often used by farmers to indicate swampy soils which, by their color, show a high percentage of organic matter, whether they are of pure vegetable origin or not.

A convenient and commonly used classification of peat is the following:

Turfy peat.—Consisting of slightly decomposed mosses and other peat-producing plants, having a yellowish or yellowish-brown color, very soft, spongy and elastic; weight from 7 to 16 pounds per cubic foot.

Fibrous peat.—Little decomposed peat which is brown or black in color, brittle and easily broken; weight from 15 to 42 pounds per cubic foot.

Earthy peat.—Nearly or altogether destitute of fibrous structure, drying to earth-like masses which break with some difficulty; weight, 25 to 56 pounds per cubic foot.

Pitchy peat.—Dense; when dry, hard. Often resisting the blows of a hammer, breaking with a smooth, lustrous fracture; weight, from 38 to 65 pounds per cubic foot.

This last kind of peat is very similar to lignite, and in this series of peats we see a change from recent and little decomposed plant remains in the direction of coal.

(To be continued.)