

STONE ROADS' VALUE HIGHWAYS OF STEEL

HOW THEY HAVE BENEFITED A MICHIGAN COUNTY.

Farmers Not Isolated In Rainy Weather and Their Farms Considered More Valuable—Great Drawers of Trade From Other Counties.

It is twenty years or more since the people of Bay county, Mich., decided to pull themselves out of the mud and build a permanent system of public highways, says W. H. Gustin in *Auto Advocate and Country Roads*. It was Bay county that took the initiative, and had the legislature pass an act permitting the county to establish a stone or macadamized road system, and authorizing it to raise money for the purpose of bonding, and to spread an annual tax on all property in order to raise means to keep in repair and extend these macadamized roads.

Since the commencement of the stone roads there has been a radical change



A ROAD IN BAY COUNTY.

[The farmers use wide tires.] In the manner of building them. At the outset the roadway was excavated to the depth of about eight inches or a trifle more. Then flat limestone was placed in the roadbed, and on top of this was placed a layer of coarse crushed stone, and the top dressing was a layer of finer crushed stone. Experience showed that the foundation stones would work out of place and rut would form in the road. These flat stones were then entirely discarded and the crushed stone used in their place. This plan is yet followed.

Under the stone road system of Bay county as it is followed nearly every farmer is on a stone highway or with in a short distance of one, so that he is never deprived of an opportunity of going to the city. No weather was ever yet experienced when the stone roads were in such a condition where they could not allow a farmer to take a full load of produce to market. During the sugar beet season it is not an uncommon thing to see a farmer station a load of beets upon a stone road and then haul another load from the farm over a clay road to load it upon the standing wagon for drawing to the factory—in other words, he is enabled to draw two and three times as many beets on the stone roads as he can on a clay road.

The farmers invariably use wide tired wagons. Formerly narrow tires prevailed, but it was soon found that in rainy seasons they cut holes through the stone. The size of loads drawn over the macadam roads is limited only by the capacity of the wagon.

There isn't a farmer in Bay county who is not in favor of the stone roads. A farm on one of these highways is considered of much more value than one off on a side road. While it is impossible to say accurately how much more a farm on a stone road is worth than it would be with no stone road, it is known that the owner of the place considers it of inestimable advantage, benefit and value. It saves time, wear and tear on wagon and harness; he can haul larger loads, he is not isolated in rainy weather, a smaller team can accomplish much more than otherwise, and there is the satisfaction of knowing that he can come and go just when ever he pleases without giving any consideration to weather conditions.

While the cost of supporting these stone thoroughfares, these arteries of trade, falls more heavily upon the owner of city property than upon the farmer or the owner of agricultural land, there is no complaint made by the city landowner. He figures that in the long run his city property is made much more valuable by the upbuilding of the farming section, and he pays his stone road tax willingly. What has been the effect of the stone roads upon neighboring counties? Bay City draws trade from as far east as Sebawaing Huron county, as far southeast as Vassar, Tuscola county, and along the southern line of the county, where the stone roads run bang up to the Saginaw county line. Saginaw county farmers come to Bay City as their market, and they do their trading here. The same can be said of the farmers in the direction of Midland. The farmers all know about the stone roads of Bay county, and they come here on that account as well as the fact that they find a good market here for all of their farm produce.

Bay county has almost reached its limit in the building of main highways. What building will be done in the future will be in connecting the ends of the main roads as a spider connects the main branches of its web. This will accommodate the farmers living off the stone roads and tend to enhance the value of farms which are not now considered desirable, because they are somewhat handicapped compared with others more favored.

HOW THEY ARE CONSTRUCTED AND THEIR ADVANTAGES.

Cost of Hauling and Force Required Much Less—Haulage Equally Easy In Summer, Spring and Winter. Tracks Must Be Thoroughly Laid.

The modern American steel road is not so much a road of steel as it is an improved railway track adapted to the use of ordinary trucks, says George E. Walsh in *Gunton's Magazine*. Twelve inch plates of steel one-quarter of an inch thick are laid down on a bed of broken stone or vitrified clay at the standard gauge of four and a half feet. The rails have flaring sides, with downward flanges, which fit evenly with the surrounding surface of stone pavement. This latter is raised slightly over the level of the steel plates, so that by means of the sloping guides the wheels of vehicles are conducted naturally to the steel surface below. The plates are strongly spliced by a channel piece closely fitting underneath the joint in order to form a continuous rail of uniform bearing. The steel tracks thus formed accommodate the widest wheels of the heaviest trucks and give to them far less resistance than the ordinary car tracks. The latter are generally too narrow for truck tires, and the constant friction against the sides partly neutralizes the gain obtained in other ways.

The relative cost of putting down steel roads either for the city or country is one that naturally calls for careful consideration. The amount of metal for a mile of steel tracks would approximate seventy-five to a hundred tons, including the steel splices and bolts. With steel at \$18 to \$20 per ton, the price for which it has sold in the last few years, the cost of the material for a mile of steel road either for the city or country would run from \$1,800 to \$2,500. This does not represent the labor and cost of laying the tracks nor of fixing the adjacent part of the road.

In the country districts, where the steel roads would be subjected to much lighter use than in the cities, the rails could be narrower, and the road outside of the line of rails could be left unfinished. This would enable drivers of vehicles to use the steel tracks con-



A STEEL TRACK ROAD.

tinually except when turning out for other trucks or wagons coming from the opposite direction.

Efforts have been made by the agricultural department to ascertain the relative amount of loss suffered by farmers through the use of poor country roads. In the statistics gathered of the cost of hauling on country roads, with estimates of distances and quantities moved, the total expenditure for this work has been found to approximate \$900,000,000, of which two-thirds is chargeable to bad roads. According to the estimates furnished, it was found that the average cost was 25 cents per ton per mile. In Europe, where good country roads have long been in existence, the average cost per ton per mile is as low as 8 cents. But even this rate is exorbitant compared with the cost of hauling on steel roads.

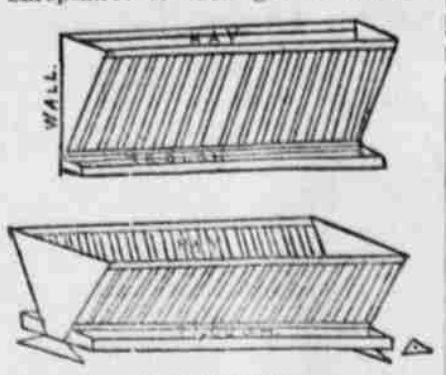
The question of steel roads is consequently one that applies to the country districts fully as much as to the cities. Where only the center of the road is macadamized the cost runs from \$2,000 to \$2,500.

With our country roads costing from \$2,000 to \$3,000 a mile, the steel road would prove more serviceable for many reasons. The force required to haul the load over the steel plates would be much less, and it would prove equally easy in summer, spring and winter. On the best macadam country road haulage in the winter and spring becomes almost impossible. The soft mud will work up to the surface, requiring constant and expensive repairing, and when the spring thaw begins heavy loads cannot be hauled. Farmers are thus handicapped in the delivery of their goods at some of the most important seasons of the year. The question of repairs will always show a heavy balance in favor of the steel roads. There should be no repairs required of steel roads oftener than once a year, and these should be of little account. The steel rails should last for upward of a quarter of a century in the ordinary country districts where traffic is light.

A good deal depends upon the thoroughness of putting down the steel tracks. There must be a perfect foundation of stones, gravel or burned clay for the steel plates. The foundation must be built down far enough to insure perfect solidity and the surface finished off with cobblestones large enough to give the rails stability in freezing and thawing weather. The weight of the rails and their continuous length will ordinarily make them firm and steady on almost any kind of a foundation, but where the soil sags and is washed out in places the constant pounding of the rails will in time weaken the channel pieces and ties. The weak parts of the steel roads are at these joints, but if provided with proper stone foundations at each joint there should be little danger of any injurious strain or friction.

WINTER CARE OF SHEEP

The sheep pen should be dry, well ventilated and protected from drafts, writes E. Van Alstyne in *Rural New Yorker*. There should be a door to shut the flock in at night or when it is stormy and to shut them out when feed is put in. The hay will be kept off their backs, the feed can be evenly distributed in the racks and mangers, and the sheep will not crowd on one another or the feeder. It is an advantage for them to have a dry yard to run in when the weather is fair. The best breed for wool and mutton is a question that each advocate of his particular breed will answer from his own viewpoint. All things considered, the Shropshires or their grades will certainly be satisfactory.



SHEEP RACKS.

tainly be satisfactory. If the pastures are rather rough and hilly the Cheviots will be a close second. If one has early lambing in mind the Dorsets or Tunis will be best.

I have tried several styles of racks and have found nothing better than is shown herewith, placed all around the sides of the pen. Then the whole space can be given to the sheep, with nothing to crowd against. The hayrack on top prevents the sheep getting in the feed trough, and, as they can only put their noses through the slats, they do not get their wool so saturated with hayseeds. The feed mangers will catch the coarse parts of the hay left, and it can be gathered up and is readily eaten by horses. These mangers must be carefully swept each time before the grain or roots are fed. We feed the grain on the roots. These racks may also be made double, as shown, and set away from the wall. Then the sheep can feed from each side, the racks can be set in the center of the pen, and when lambing time comes on make a partition to divide the flock, separating those with lambs from the ones that have yet to lamb, which should always be done for best results.

Take Care of the Foal.

Weaning time presents its difficulties and dangers. Few farmers fail to understand the fundamentals of weaning foals successfully, but many of them from neglect or carelessness do not practice them, says Breeder's Gazette. It seems a great pity that a foal on which the dam has expended her best effort during the summer season should be allowed to retrograde now that the mother must be relieved of her burden and dry feed be substituted for milk. Care is the main thing. Young stock cannot thrive without watching. Foals cannot be fed as hogs are fattened. The eye of the master is indeed here necessary. Horses are high in price. Surely the foal that it paid to breed should not be allowed to go backward, especially this season where succulent feed has been so long available and hay and sound oats in such liberal supply.

Raising Good Steers.

To do the best with beef cattle they should be raised on the farm and kept growing to their full capacity. Well bred steers handled in this manner may be marketed in eighteen months, weighing 1,200 to 1,250 pounds, and selling for \$65 to \$70. To do this it would of course be necessary to have the best beef breeds. But why should not many eastern dairymen carry selected Shorthorn or other suitable cows and use a good Shorthorn bull? There would be every facility for pushing the calves on a dairy farm, and the best results should be regularly obtained. This would permit of the number of cows being reduced, lessening the labor without seriously affecting the net income.

Finishing Hogs.

Sometimes a hog grower gets many kinds and sizes in his herd. Sometimes he neglects to castrate males till they come to be of a size that they will not thrive. Such a combination always works a loss to the owner. Different sizes fed together cannot do as well as assorted into smaller lots of even sizes. Particularly is this true when cold weather comes on. To get a nice finish on them, whether light or heavy, they should be in bunches of even size. The farmer with a lot of different sizes who is not situated so he can divide them according to size will do well to sell part to some one who can.—National Stockman.

Ration For Lambs.

As a result of experiments in lamb feeding at the Wyoming experiment station it was shown that it is possible to fatten lambs without grain on a cheap ration of alfalfa, turnips and oilmeal, and such rations will be further investigated. A complete and well balanced ration of alfalfa, turnips, corn and oilmeal gave the largest gains on the smallest actual amount of nutrients in the food.

Care of Ewes.

Ewes ought to be kept in medium condition. For eight or even nine months in the year they do not require oil cake or corn, and the time to spend money upon them is when they are nursing.

THE AILING HORSE.

Proper Way to Administer Medicines to Sick Animals.

In giving liquid medicines to a horse, says the *Horse World*, have the medicine in a stout bottle with a sloping shoulder—an ordinary "pop" bottle does very well—and do not add any more water to it than is necessary to properly dilute it, as a very large drench is difficult to administer. Next get the horse in a good position so that he has to take his medicine.

If the construction of the stable permits it, back him into a single stall, throw a rope over the beam at the back, make a noose on the end of it, pass it under the nose band of the halter and place it in the horse's mouth below the upper jaw. Now raise the horse's head until the medicine will run back in the mouth. Don't pull it too high or the horse will have difficulty in swallowing and there is danger of the medicine going the wrong way.

You can easily keep the head in this position by holding the rope in one hand while you pour in the drench with the other. Pulling out the tongue and squeezing and thumping on the throat are quite useless as inducements to the horse to swallow and may cause coughing. Should coughing occur, the head should be released at once even if the medicine is lost, as otherwise it might get into the lungs. This is a much better and more humane way than putting up the head with a twitch, and a drench is usually given without any difficulty.

Millet as a Stock Feed.

So far as nutritive properties are concerned the seed of millet is almost on a par with oats, says Michigan Farmer. The seeds, however, are not readily digestible, and it is therefore advised that they be reduced to the form of meal before feeding. In the form of hay it is relished by horses, cattle and sheep if it has been cut before the stems have become coarse and reedy. In nutritive value it surpasses timothy and nearly equals red-top and blue grass hay. Well authenticated experiments reveal the fact that millet as a steady diet is injurious to horses, affecting the kidneys and later the joints and bones. While so far as known no such trouble has been experienced in feeding it to other animals, it will probably be safest to feed other roughage and grain with it.

Rape For Sheep.

With rape for summer feeding and alfalfa for the winter, a flock may be fed at least possible expense, but with the greatest maximum of profit, says American Sheep Breeder. Alfalfa is the cheapest permanent crop known. Rape is the cheapest annual plant known, for it gives the largest quantity of feed at the least cost and labor and, besides, leaves the land in the best possible condition. The mere presence of rape on the land is worth, in addition to the value of the feeding for sheep, no small trifle in its increased productivity. Alfalfa has nearly one-half more protein, or matter containing nitrogen, than red clover and is therefore so much more valuable for sheep.

The Brood Mare.

Pregnant brood mares that are turned into fields where feed is abundant early in the morning, when the grass is frozen or covered with frost, will be very liable to abort or suffer from colic. To insure safety keep them in their stalls until the sun has melted the frost.—Horse Breeder.

THE SWINEHERD

The Poland-China is the best hog for general purposes, writes a Maryland farmer in *American Agriculturist*. It is a quick maturer, ready for the market at any age and can be made a heavyweight if necessary. I call it the poor man's hog. What I mean by that is just this: These hogs are ready to sell at any time when the farmer's pocketbook needs replenishing. A few preach that feed makes the hog, but I say breed and feed must go together. A man can breed a ham on a hog, but he cannot feed one on. Look at the ham on a well bred Poland-China. It is well rounded, extending down to and sometimes covering the hock. Can one be fed on a common hog like that? The Poland-China is primarily a lard hog. Our butchers seem to like it very well, as the fat and lean are not mixed and can be easily separated.

The Runt Pig.

The runt seldom if ever pays. The animal that pays is the one that gets a good start in the world and keeps it. It may pay to raise the runt if feed is no item. If feed is bought, the owner is better off if the runt is in the other man's pen.

Selection of Swine.

No animal of any breed will uniformly beget young that are all of superior excellence. Prudent swine men seem to realize this fact more than do any other kind of stock breeders and do not hesitate to use the knife accordingly.

Value of the Boar.

In selecting a boar the price should not control the calculations if the purchaser has an idea of building up a valuable herd. If a farmer has ten brood animals, improved stock from a first class sire will very soon pay in the extra weight of pigs and pay the second time in the value of a well graded herd.

Care of the Sow.

Feed brood sows moderately until after the pigs come and then increase the feed gradually until they are a week old, when the sows should be on full feed. It is important to give the sow some sleep before she farrows to insure a good flow of milk.



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TIMBER LAND NOTICE.

United States Land Office, Lakeview, Oregon, October 20th, 1905. Notice is hereby given that in compliance with the provisions of the Act of June 3, 1878 entitled "An act for the sale of timber lands in the States of California, Oregon, Nevada and Washington Territory," as extended to all the Public Land States by act of August 4, 1892, Frank Hall, of Klamath Falls, county of Klamath, state of Oregon, has this day filed in this office his election statement No. 3015 for the purchase of the NE 1/4, NE 1/4, NW 1/4, NE 1/4, and lot 2 of section 19 in township No. 34 S., Range No. 18 E., W. M., and will offer proof to show that the land sought is more valuable for its timber or stone than for agricultural purposes and to establish his claim to said land before Geo. Chastain, clerk of Klamath county, at his office at Klamath Falls, Oregon, on Saturday, the 13th day of January, 1906. He names witnesses: C. H. McCumber, of Dairy, Oregon; Herbert Crenner, Fred Benson of Klamath Falls, Oregon, and E. A. McCully, of McCloud, Calif. Any and all persons claiming adversely the above-described lands are requested to file their claims in this office on or before said 13th day of Jan., 1906. J. N. Watson, Register.

Our Offer.

With the June number will begin The Pacific Monthly's series of special editions for the year 1905. They will comprise a number for Portland, for Seattle, for Southern California, for San Francisco and the souvenir number of the Lewis and Clark Exposition, also a special automobile number. The articles of Dr. Wolf von Schlerbrand, six in number on "The Coming Supremacy of the Pacific" are also promised, and the plans contemplated by the publishers will, without question, place The Pacific Monthly far in advance, not only of present competitors, but also into the unreachably class of periodical literature on the Pacific Coast. The Pacific Monthly is sold to regular subscribers at the extremely low price of \$1 a year. We have made an arrangement with the publishers by which we are able to offer it in connection with The Lake County Examiner, (both Publications), to new subscribers, and old ones who pay up any back subscription they may owe and a year in advance, for the very low price of \$2.50 a year. If