

STONE ROADS' VALUE

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 stone 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 within 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 his 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.

LONG GOOD ROADS TRIP.

Special Train Traveled 12,000 Miles in Educational Campaign.

After an itinerary covering 12,000 miles the National Good Roads special train reached Chicago the other night, says a dispatch from that city. The train left Chicago on May 25, carrying the officers and organizers of the National Good Roads association and the directors of the office of public inquiries of the United States government. Eight states in the west were covered during the trip—Wisconsin, Nebraska, Colorado, Wyoming, Utah, Idaho, Oregon and Washington—and thirty-eight conventions were held, or organization of good roads associations being effected at all points. Seven railway systems were traveled over on the long trip—the Chicago and Northwestern, the Union Pacific, the Oregon Short Line, the Oregon Railway and Navigation company, the Denver and Rio Grande, the Colorado and Southern and the Atchison, Topeka and Santa Fe.

"This has been the most extended and most practical campaign for good roads ever completed in the United States," said President W. H. Moore of the National Good Roads association. "The good roads special has been a veritable college on wheels and will result in the economical expenditure of millions of dollars in the construction of earth, gravel and macadam roads."

OIL ON HIGHWAYS.

How to Subdue Dust by Its Use—Never Apply Before a Rain.

Supervisor E. C. Willets of Mineola, Nassau county, N. Y., gives his experience in the use of oil for the purpose of subduing dust as follows, says the Good Roads Magazine:

"We have had some experience with sprinkling roads with oil and I am at this time using several cars. The oil used is what is known as roadbed oil, that coming from Texas being much the best, as it is about 25 to 40 per cent asphalt. The oil used by us costs, delivered, 32-10 cents per gallon. A car contains about 6,000 gallons, therefore costing about \$200 per carload on sidetrack. The best result is obtained by clearing your roadbed clean of any and all old worn material, putting on a thin coating of screened gravel or screenings, and then wetting with oil, putting on about 1,000 gallons of oil per mile, wetting the road about eight feet wide. The oil works out wider with use. Very good results are had by putting oil on first and gravel on top. The applications will keep down the dust and hold the covering on the road the entire season. One application will last the best part of the year. Never put on oil before a rain or while the road is wet."

John D. Rockefeller's Roads.

In the November Country Calendar an anonymous author writes as follows of John D. Rockefeller on his Westchester estate near New York city:

"Mr. John D. Rockefeller's roadmaking amounts to little less than a passion. In instructing his superintendent on the location of new roads, in supervising the actual construction, then Mr. Rockefeller is seen, perhaps, in his most genial mood. He rubs elbows with the laborers, laughs and cracks jokes with them. Occasionally, it is said, he has been known to lend a helping hand. When he returns after one of his prolonged absences his first inquiries concern the progress upon some pet thoroughfare. And the work is in every way creditable. First the roads, as would be expected, are solidly built. Tarrytown and the surrounding country did not know what a well constructed road was until Mr. Rockefeller came. Above all, they are laid out with intelligence; they always lead somewhere, usually to vantage points from which unusually beautiful views are obtained. You can drive for hours on roads that Mr. Rockefeller has laid out and not exhaust them."

Road Building by a State.

The citizens of Hamden, Conn., held a special town meeting recently for the purpose of voting money for the construction of a good road under state supervision. There was no opposition to the project, and the sum of \$9,000 was voted. Two-thirds of this sum the state will pay back to the town when the road is completed.

An Automobile Road.

Seven miles of automobile road is to be the latest investment of Uncle Sam. It is to run from the point of Sandy Hook through the government reservation south to Highland Beach, under the Navasink light, and will be used exclusively by army officers and their friends.

Rural Delivery Notes

On Nov. 1 there were 33,948 routes in operation in the entire country.

The total number of free delivery routes now operating in St. Louis county under the rural system is thirty-eight, exclusive of the suburban service under the St. Louis postoffice.

Since June 30 there have been established in Ohio 117 new free rural routes, according to the report of the fourth assistant postmaster general. There are now pending 158 positions for new routes, and there were Nov. 1 in operation 2,392 routes in the state.

Residents along the free delivery route which takes in Mountain View, Preakness and the surrounding country near Paterson, N. J., were recently surprised when the mail was delivered by a pretty young woman, who did the work in a businesslike manner. She explained that her uncle, Peter Lydecker, regular carrier, was ill and that she would take his place until he recovered.

HIGHWAYS OF STEEL

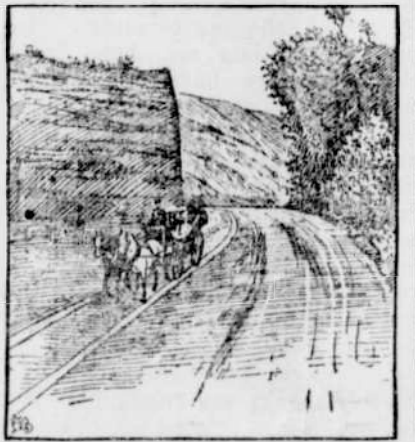
HOW THEY ARE CONSTRUCTED AND THEIR ADVANTAGES.

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 \$2,000. 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 out 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 repaving, 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.

SELECTIONS

MONSTER TORPEDO.

The New Engine of Destruction Adopted by the Navy.

The United States navy has just adopted a new engine of destruction in the shape of a high speed turbine torpedo, the Bliss-Leavitt. It is classed as one of the most powerful and deadly sea weapons in existence today.

This self propelling sea monster travels through the water at a pace of thirty-six knots and has an extreme range of 4,000 yards, 3,500 being the guaranteed contract range. Owing to its superior advantages in speed and range, being capable of going eight knots, or 25 per cent, faster and nearly double the distance of the latest Whitehead, it will supplant the latter, now considered to be obsolete. The best performance of the Whitehead is a speed of twenty-eight knots, going but 2,500 yards.

The new torpedo has an additional advantage and one especially adapted for submarines, inasmuch as it can be discharged equally well from submerged tubes as on deck, a feat never successfully accomplished with the Whitehead.

The torpedo is fired out of a tube some twenty feet in length, the interior being well greased. About twenty minutes are required to force the 2,250 pounds of compressed air into the air chamber. An impulse charge of ninety pounds starts the glistening, cigar shaped shell of steel on its course. On ships gunpowder and electricity are also used for this purpose. After making a five foot dive, striking the water nearly horizontally, the torpedo darts off on a bee line, foaming and tearing through the water to attack its imaginary foe.—The World Today.

Water Drinking.

After all the efforts of physicians to make their patients drink water copiously and of the aforesaid patients to dispose of quarts of water daily it is nothing short of discouraging to be told by a medical writer that excessive water drinking often works serious harm. Brain workers with too little muscular activity or men who have excessive muscular activity without proper hygienic supervision nearly always take a sufficient if not an excessive quantity of liquids in the form of tea, coffee, beer, milk or water, declares this author as quoted in the Woman's Medical Journal. The normal amount of water required daily is a mathematical calculation regulated by the sensation of thirst. Many conditions must be considered before water drinking is prescribed, she says further, and its effects should be as carefully noted as those of any other therapeutic measure.

Twenty Millions' Worth of Cameras.

Thirty years ago a camera was a rarity. The enthusiast who possessed one carried a mountain of traps afield and smothered in a tent during his tedious manipulation of the wet plates. Last year the United States alone made 300,000 cameras, working with the mere pressure of a bulb or button, and the photographic business reached the respectable commercial total of \$20,000,000.

Such figures, too, do not even hint at the true extension of this use of the sun's aid in obtaining exact copies of anything the eye can see. If one were to tell an ordinary business man that photography has a more pervading influence on his daily life than any other one discovery of which we have an authentic record he would probably be highly incredulous, yet it is an indisputable fact.—World's Work.

The County Watchdog.

Mart Person is regarded as a safe watchdog of the treasury in Washington county, Kan., on account of an incident which happened while he was road overseer. He was working a road that separates Washington and Republic counties. Along came a wolf that had been hunted nearly to death and lay down on the Washington side of the line to die. It was so utterly gone that the presence of man seemed to have no effect on it. The force of men working on the road gathered around it. It paid no attention to them, and finally Mr. Person, seeing it was bound to die, spurred it over across the road to the other side, saying, "There, you scoundrel, if you are going to die, go over into Republic county and let them pay the bounty."—Kansas City Journal.

Somewhere Else Next Time.

Justice Pickering of Springfield does not believe in cheap labor. The other day he married a couple and indignantly spurned a tender of \$1.25 for his services. "I never paid any more than that for getting married," remarked the bridegroom. "But I am not dealing in cut rate marriage services," replied the justice. Then the bridegroom offered to make it \$1.50. The justice remained adamant. He said his rate was \$2 and the bridegroom must produce. "Ain't I worth \$2?" asked the bride. "I suppose you are," said the bridegroom, and with a heavy sigh he paid full fare, but warned the justice that he would never come to him again to get married.—Jefferson City (Mo.) Tribune.

Unwelcome Hot Water.

The residents of Dravosburg, a village in western Pennsylvania, were supplied the other day with hot water through the street mains. The water which came from the faucets in the houses was too hot to drink. The solution of the matter was this: A water main from the village pumping station passes beneath an old slag pile. Some time ago the slag pile ignited and has since been smoldering. The heat extended to the water main; therefore the hot water.

High Grade Meats

Fresh Beef, Pork, Mutton and Veal always ready.

Our Refrigerator

is the finest in Oregon.

Fresh Fish each Tuesday and Friday.

See our plant, everything new and up-to-date.

J. H. Bartels & Co.

Phone Main 83.

You will always be happy if you burn electric lights, for they will "Tickle you to death."

Cottage Grove Electric Co.

Market Reports.

Portland, May 3, 1906.

GRAIN, PRODUCE, FEED.

Wheat—Walla Walla, 68c; Valley, 70c; bluestem, 69 red, 66c.
Oats—White, \$28; gray, \$28.
Barley—Brewing, \$23.50; feed, \$23.50; rolled, \$24 to 25.
Hay—Timothy, \$10.00 to \$11.00; clover, \$8.50 to \$9; cheat, \$6.50 to \$7; alfalfa, \$10.
Millstuffs—Middlings, \$25 to 26; cheap, \$19; bran, \$17 to 18; shorts \$18 to 19.
Flour—Hard wheat, patent, \$3.85; straight, \$3.40; Graham, \$3.50; rye, \$5; whole wheat flour, \$3.75; valley flour \$3.30 to 3.45
Dakota, \$6.50 to 7.25; Eastern rye, \$5.49; Pillsbury, \$6.20
Corn—Whole, \$24; cracked, \$25 per ton.
Rye—\$1.50 per cwt.

PRODUCE

Butter—Fancy creamery, 18c 20c; city creamery, 20 dairy, 14 to 15c; store 14 to 15c.
Cheese—Young America, 16c, Oregon full cream, 15c.
Eggs—Fresh Oregon ranch 18.

Poultry—Roosters, 8 to 9c; hens 14; fryers, 10c to 11; broilers 20 to 22c; geese, live, 8 to 8.50 dressed, 11-11.5c; turkeys, live, 14-15

FRUITS AND VEGETABLES.

Grape fruit—Crate \$ 3. to 3.50
Cranberries—\$14.
Tropical fruits—Lemons, fancy, \$4.00; choice, 3.25 per box; oranges, \$3.25 to 3.50; bananas, 5c per lb; pineapples, \$4.50 to 5 per dozen.
Potatoes—Oregon, 60 to 75c.

LIVESTOCK MARKET.

Cattle—Best steers \$4.75 to 5.00; cows; 3.75 to 4.00; calves, \$4.00 to \$5.00.
Sheep—\$6.00 to 6.25.
Hogs—\$7 to 7.25

HOIS, WOOL, ETC.
Hops—Choice 10 to 11
Mohair, choice 25 to 28c.
Wool—Valley 26 to 27c; East, ern Oregon 18 to 20c.

INDIGESTION.

No appetite, loss of strength, nervousness, headache, constipation, bad breath, general debility, sour risings, and catarrh of the stomach are all due to indigestion. Kodol Dyspepsia Cure cures indigestion. This new discovery represents the natural juices of digestion as they exist in a healthy stomach, combined with the greatest known tonic and reconstructive properties. Kodol Dyspepsia Cure does not only cure indigestion and dyspepsia, but the famous remedy cures all stomach troubles by cleansing, purifying, sweetening and strengthening the mucous membranes lining the stomach.

Kodol Dyspepsia Cure after meals is not only thoroughly reliable digestant, but it contains great tonic and reconstructive properties as well. This famous remedy enables the stomach and digestive organs to thoroughly digest, assimilate and contribute to the tissues of the nourishment that is contained in such food as may be eaten.

Kodol Dyspepsia Cure clears the way and makes sure the journey from sickness to health and weakness to strength. If the stomach is disordered Kodol will cure it.

Kodol Dyspepsia Cure lays the foundation for health, and the upbuilding of strength by cleansing, purifying and sweetening the glands and membranes of the stomach, and by supplying natural juices necessary to perfect indigestion, assimilation and nutrition. Kodol digests what you eat; prevents colic, cholera, diarrhoea, flux, dysentery and summer complaints generally, and its use will cure indigestion and chronic dyspepsia permanently. Kodol is good alike for young and old. Your druggist sells it.

Has. med.

Pres. B. F. Mulkey of the Ashland Normal will deliver his cele-

brated lecture on Hamlet at the Opera House on Saturday night before the school convention. Any and everybody is invited to attend this great lecture. Admission free.

Little Early Risers

The famous little pills.

Subscribe for the Leader.

THE ORIGINAL LAXATIVE COUGH SYRUP
KENNEDY'S LAXATIVE HONEY AND TAR
Red Clover Blossom and Honey Bee on Every Bottle.

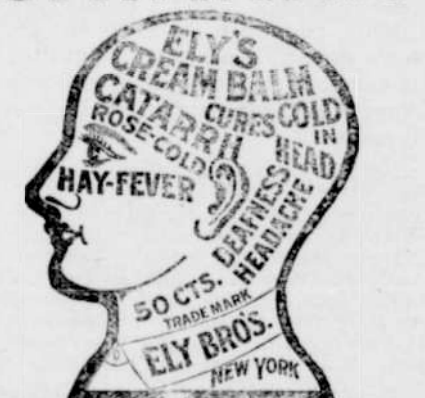
Buy on Credit!

this \$60 Machine for \$25

FRIGID PREPARED. It is a high-arm, drop head, ball bearing, lock-stitch, double feed, self-threading shuttle; has automatic bobbin winder and other latest improvements. This is the ANTI-TRUST MACHINE. It is the same machine agents are asking you \$60 for. All attachments go with each machine. Sold for only \$2 each and \$1 monthly.

Write TODAY for free FURNITURE CATALOGUE showing elegant household goods we will ship to eight freight) on Easy Payment plan now. Call for it.
Gavertz Furniture Company
173-175 First St., PORTLAND, OR.

CATARRH



ELY'S CREAM BALM

This Remedy is a Specific, Sure to Give Satisfaction. GIVES RELIEF AT ONCE.

It cleanses, soothes, heals, and protects the diseased membrane. It cures Catarrh and drives away a Cold in the Head quickly. Restores the Senses of Taste and Smell. Easy to use. Contains no injurious drugs. Applied into the nostrils and absorbed. Large Size, 50 cents at Druggist or 17 cent; Trial Size, 10 cents by mail.
ELY BROTHERS, 53 Warren St., N. Y.

THOMPSON HOTEL

MRS. I. E. THOMPSON.

Rates per day \$1.00
Room and board, per week..... \$4.50

ARRIVAL AND DEPARTURE OF S. P. TRAINS.
NORTH BOUND
No. 12 11:53 p.m.
No. 16 2:02 a.m.

O. & S. E. R. R. CO.

Time Table No. 4
To take effect April 2d, 1905.

East Bound 3 and 4 Tuesday W. Bound and Sat only 1 and Daily Ex-cept Sunday.

No. 3—No. 1	STATIONS	No. 2—No. 4
7:30 A.M.	Portland	7:30 A.M.
8:00 " "	Collage Grove	8:10 " "
8:30 " "	Walden	8:40 " "
9:00 " "	Currin	9:10 " "
9:30 " "	Cerro Gordo	9:40 " "
10:00 " "	Baker	10:10 " "
10:30 " "	Dorena	10:40 " "
11:00 " "	Red Rock	11:10 " "
11:30 " "	Gravel Pit	11:40 " "
12:00 " "	Stewart	12:10 " "
12:30 " "	Star	12:40 " "
1:00 " "	Rocky Point	1:10 " "
1:30 " "	Red Bridge	1:40 " "
2:00 " "	Wildwood	2:10 " "
2:30 " "	Hunt's	2:40 " "
3:00 " "	End of Track	3:10 " "

Subject to change without notice. All outward freight forwarded only at the joint risk of shipper and consignee. Stage leaves Wildwood after the arrival of train on Mondays, Wednesdays and Fridays for Bonita and Cresco. Returning on Tuesdays, Thursdays and Saturdays. Freight will not be received at the O. & S. E. R. R. Depot after 5 p.m. To insure forwarding on next train freight must be delivered in ample time to permit of it being billed.

A. B. WOOD, Manager