d Its Debts World Be Le Horid in The gigantic rossibilities would lomain of the world's politic he mooted alliance between ritain and the United State n accomplished fact! pain, France and Russia ainst this great union of xon race the latter . reponderance in the uld practically render war in and give an incalculable

all the machinery of moder ritory controlled by an An ican alliance at its start would 100 square miles, or 6,000,00 niles more than one-third nd of the globe.

ulation of this territory; or 200,000,000 more than one

he globe's total inhabitants TE TOTAL WEALTH

liance, exclusive of India over \$125,950,000,000. nber of miles of operative 258,246, not to speak of 16. f steam and electric railway on in United States citie

igh to encircle the globe ser-

posal of the United States billion dollars on the enand perfection of its navy another great asset to the nd the completion by Enge railroad through Africa

al revenue of the Angloalliance would reach the 17,745,000. A faint conceps sum can be gained from it it would purchase 42,944; es of bread, a quantity of would keep three million starving for a period of days, or thirty-nine years h loaf of bread for every n and child every twenty-

age of the merchant ship ice would be 14,775,000 tops amound equal to the comt of all of the inhabitants ian Empire, with those of Netherlands, Egypt, Italy, l, Portugal, Sweden, Nore am. Switzerland, Greece. d Venezuela, allowing the ght of men, women and be figured at 150 pounds. value of the imports for o the territory of the be 4,170,500,000 this sum into one dollar bills and end would form a line of ver

MILES IN LENGTH, to encircle the earth over

times. xports of the Anglo-Ance would be over \$3,573, acluding anything exporta, Porto Rico, Hawaii or

indebtedness of the alli-

mount to \$7,864,500,000 or h of all the indebtedness. ntry in the world comlump sum, and which nts to \$27,400,000,000. army of the Angle, Amhave a peace footing of . ogether with a uniform-

is the volunteer system

ND STRENGTHENER.

Illtams' Pink Pills.

y in Ottawa and the ave been benefitted one r by the use of Dr. Willls for Pale People, the rned of the case of Mrs. of 1897, she was greatd and built up by the ams' Pink Pills. Speaker to a Journal reportthat while able to go ime, she was far from was poor, she was subes, and felt tired after rtion. She had read at of cures effected by the liams' Pink Pills, and them. She was benerst box and continued she had taken five e considered herself Mrs. Gilchrist says strongly recommends Pink Pills as a builder er, when any of her

NIZED GENIUS. a great deal for the

c or ailing.

ee anything published g to do with that. stuff.

WANT GOOD A. W. Campbell, C. E., Road Commissioner of Ontario.

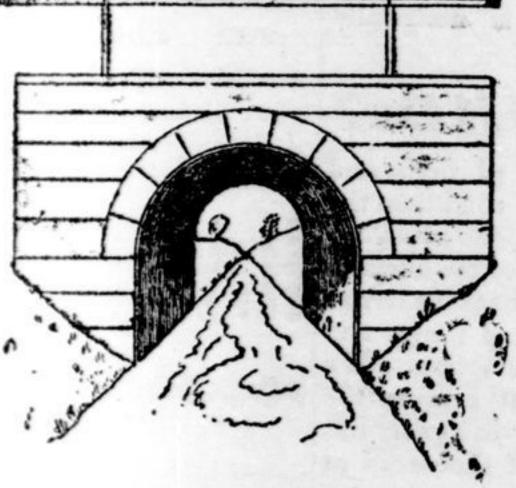
Great Need of This Country is Good Roads--How to Build Them Economically Explained by an Expert == Useful Hints and Diagrams to the Road Builders of this Country.

We must have deep placed upon us, the ex- thirty-five cents per day. it is largely forced down into the by satisfactory results can be obtained.

setually want good roads? Or the people making a home in a new at golds preferable? Is the cry country, and it suits the spirit of their roads preferable throughout the circumstances. They feel keenly the improving their roads, and the sad breadth of Canada and of need of improving their roads, and and breadth of want good roads," work with a will, earnestly and faithsometiment. We man in their sober sen- fully. That was the history of statute or has labor and money been labor in the pioneer days of what are or has labour roads for a century past now the populous districts of Canada. of on our roads to time, and keep But where the townships have grown wealthy and well wealthy and well are the stricts of Canada. groups to occupy our circulation. If wealthy and well populated, a different condition exists. surplus capital in de la bad roads condition exists. To such an extent preferable, why should we want has statute labor degenerated that some townships find that they can do more We must have roads. That necessity work by commuting all the labor at

ring been placed angle us the wis- If statute labor has not outgrown its negle which has not outgrown its usefulness there is certainly need for stally, teaches us the economy of reform when a man's labor is worth risk roads that are good. We want less than thirty-five cents a day. is which will withstand wear. We feeling in favor of statute labor still the labor and money spent on holds in some localities, but is growto be a paying investment. We ing weaker. There is not a country in to be a paying to be good no mat- the world, characterized by good roads, what the state of the weather. We where a system of statute labor is in to Cape Town, would con- strads which will not become rut- use. To a slight, but very slight exink to the chain of empire immediately the fall rains come on large and significance the frost leaves the ground ods of applying it. If it is to be retainthe spring, remaining in rough ods of applying it. If it is to be retainfor a considerable part of the ed in Ontario, the present feeling of and which does this is a the people strongly indicates that it The money and labor spent will have to be placed on a basis where-

There is a prevalent opinion that a of using statute labor is to utilize it his estimates referred to above. As far resident on a concession road knows in hauling gravel. In this work there as possible the material should be pur- 5 to 10 cents a load, and when mixed better than anyone else the re- is less opportunity for wasting time; chased by tender, and due consideration with an excessive amount of sand or deliging an economical road, im- quirements of that particular road. A it is work which is more agreeable than should be given to any ratepayer hav- clay is the most expensive road materremarkable feature, however, is that much of the other work of grading and ing material for sale. When purchas- ial for much travelled highways. When that they will last. Roads in Can- no two citizens agree in their ideas of ditching; it is work which the aver- ed it should be delivered and stored we consider the number of pits in some what work should be done, or how it age farmer understands to be of direct at convenient points, and placed in townships and their immense size, rethe stands of loads have benefit and is entered into heartily. Charge of, and used by the pathmaster, presenting that thousands of loads have



A CONCRETE CULVERT.

breaks up, a poor investment. we find-waste and bad roads. the up in the spring, or fences that me up in the spring.

the effect of building bad roads. less character is placed on the so great that no township can rerepaired when they need it are ne-

rs. Gilchrist states that a down " condition durthe roads were good.

by of the greatest obstacles in the taken of the question by so many tieds of this country. They have been to think of roads merely as ate labor they consider as means which will be of direct personal

by increasing the demand for statute exhing the market.

STATUTE LABOR.

after a year of service. Most when one man is right all the rest must of a very inferior quality. Usually no leading roads of Ontario have be wrong, Pathmasters are appointmade and remade a score of times ed in turn from among these to plan the gravel, remove the surface soil tre still bad roads. They are of and superintend the roadwork. The and that "break up." A road only result which could reasonably fol- gravel for being placed on the road. breaks up" is like anything else low from such a system is that which Teamsters go into the pit, one or two,

in road building is rightly under- The pathmasters can make the road or destroy it; call out the men or not; will no more think of building make the roadway 10, 20, 30 or 40 feet to satisfy their few days of labor. In make the roadway 10, 20, 30 or 40 feet wide, as may suit their individual ideas will think of constucting houses would be ready to fight the spring, or fences that crown the grade, make it flat or con- road to be improved. But with this the road builders of this country caved as may occur to them; they can thing can be done by the farmers exsupervisor, where the work is not concaved as may occur to them; they can America that 25,0000,000 the number of this country raised by them inside the number of days to be performed to be number of days to be performed in other ways mut in their time in sidered of sufficient importance to be and instruct them to turn out when at after year work of a flimsy, and instruct them to turn out when useless effort. If the council would the character is placed on the they see fit; the ratepayers bring such purchase or otherwise employ a rock implements as they wish, work or do purchase or otherwise employ a rock The results are only temporary not work, so long as they put in the are destroyed by a very little time; they haul gravel if they want the work has to be very short to put in three days in one; haul sand purchase screens, strip pits, etc., and the work has to be done over or turf so long as taken from the see that nothing but first-class gravel or turf so long as taken from the an Ottawa Lady Applies But the evil does not end with township pit; haul one load or ten so was provided, farmers would be encourted. This applies the same of the This annual demand for repairs long as the day is spent, and the pathmaster is satisfied. He is the agent of time to the fullest extent in hauling master is satisfied. The roads instead of be- the council, and his word is law. If he keeps his men at work, in good he keeps his hell at a good road, he humor, and is securing a good road, he had a securing a good road, he is a good fellow, but can't be kept in The first and greatest need of every emergency work, such as washouts, That bad roads are doing for this office more than two years. The job and any system of road construction, is the new to have one man at the head of the line required to oversee the statute diameter. butty is only one side of the evil. must be passed around even if the new to have one man at the head of the labor in his division is more than would of Mr. T. V. Gilchrist, what they are not man destroys the good work of his work to act as a general supervisor. He labor in his division is more than would man destroys the good work of his work to act as a general supervisor. He labor in his division is more than would be needed for his own statute labor. h. Mr. Gilchrist keeps the loss does not arise so much predecessor. Pathmasters must cermust be a practical man, and if poshe the money and labor wasted every tify to the loads of gravel hauled when sible, experienced in road construction and acquainted with the prinder certificate of the supervisor or tify to the loads of gravel hauled when the supervisor or the supe et, and is well known to the site of the supervisor or the site of the supervisor of the supervisor of the supervisor of the site of the supervisor of the s beople in Ottawa as well gers of this suburb of the loss must be measured not so much gers of this suburb of the monay be measured not so much a load, right or wrong, and quality having such an officer, appointed by having such an officer as secure formed; the council or supervisor to a load, right or wrong, and quality having such an officer, appointed by proper supervision of all work perof material must not be considered. by-'aw, with term of office as secure formed; the council or supervisor to

ion is mismanagement in actual road best explained by stating his duties:— actually necessary to oversee the work construction. A description of the actual work done sounds like ridicule, plan of his district, or township, show- local by-law of rules and regulations, however earnest it may be. A statute ing all roads, and the location on them which should be framed so as to include labor day is short, of eight hours, but of all culverts, bridges and water- this matter. the men are rarely on the ground for courses, classifying roads according to the six hours is spent in gossip, in 2nd. He should prepare a list of all Gravel is very plentiful in many they consider as means the six hours is spent in gossip, in culverts and bridges, showing dimensions, and where it can be culverts and bridges, showing dimensions, material used in construction, sonable hauling distance, makes a single with which will be of disconnected the six hours is spent in gossip, in culverts and bridges, showing dimensions, material used in construction, sonable hauling distance, makes a their conditions and the direction of their conditions are directly and the direction of their conditions are directly and the direction of their conditions are directly and the dire in finding fault with what is being sions, material used in construction, obtained, of a good quality, within readone. Another part is spent in look- their conditions and the direction of sonable hauling distance, makes a ing up scrapers and plows that should the watercourses passing through cheap but good road surface. As predo not see nor appreciate the ing up scrapers and plows that should the watercourses passing viously pointed out, it should be clean, free from sand and clay, since it is the qui-quarter. ing up scrapers and plows that should them, with memoranda as to the course free from sand and clay, since it is the have been provided before the work have been provided before the water and location of the outstone, not the earthy materials which stone, not the earthy materials which are needed on the road. Nor should the class of teams sent out by the large stones and boulders be mixed when the public grown are the wagens which can carry but the public grown are the wagens which can carry but the public grown are the wagens which can carry but the public grown are the wagens which can carry but the class of teams sent out by the large stones and boulders be mixed when the class of teams sent out by the large stones and boulders be mixed when the class of teams sent out by the large stones and boulders be mixed when the class of teams are needed on the road. When the large stones are large stones and boulders be mixed when the class of teams sent out by the large stones and boulders be mixed when the class of teams are needed on the road. the class of teams sent out by the state public good. But public good. But public good. But public good the boys who come to show, as to roads, whether they are with it, as they will work up, and roll are needed on the road. Nor should be show, as to roads, whether they are with it, as they will work up, and roll are needed on the road. Nor should be shown as to roads, whether they are with it, as they will work up, and roll are needed on the road. Nor should be shown as to roads, whether they are with it, as they will work up, and roll are needed on the road. the public good. But public ratepayers; the wagons which can carry show, as to roads, whether they are shown as the roads of the show are shown as the roads of the roads of the roads. on every citizen. Money and do a man's work—these and many oththe spent on the road. But public laterages, the wagons who come to show, as to roads, whether they are with it, as they will work up, and roll of gravel, stone or earth, graded or loosely under the feet of the horses ungraded, the system of drainage, and loosely under the wheels of vehicles.

where he can do the most profitable construction.

where he can do the most profitable construction.

where he can do the most profitable construction.

work, he uses his time in paying a road work, he uses his time in paying a road the construction.

the because of the can do the most profitable construction.

the short produce which is not now tax. A large part of the time spent tion as to locate the can do the most profitable construction. tax. A large part of the time wasted.

League of the difficulty of an an-A considerable part of our own annual tax bill is also expended on the and are control of township the leading roads, far from being good, statute labor system is suited to a regrettable is that, through improper age. It suits the abilities of plans and imperfect construction, the

most expensive form of maintenance built or repaired, with WASTE OF MONEY.

in making complete and durable work visable, it may be purchased and de- gether at the bottom. This is put in it would be of the greatest assistance livered on the ground during winter the wagons and taken to the road. in improving the roads. We find, how- months or other most convenient sea- Very few gravel pits provide materever, that the money is distributed in son, so as to utilize as much as pos- ial fit in its natural state for use on small sums among the pathmasters is sible, the labor of ratepayers during the road. Screening and crushing are spent in small sums for repairing tem- the slack season.

If a supervisor were appointed, if pathmasters, (and fewer of them) were appointed for a term of years to carry out the directions of the supervisor, and if to these positions the right men were appointed, a considerable step wou'd be taken towards the better management of roads in the townships. Under systematic management, money and labor could be made to work together to the best possible advantage. At present each pathmaster is given a few dollars and a few days of labor, surrounded by neighbors. Nothing but patchwork can be expected. By consolidating this money and labor, by using the statute labor in the ways in which it can be turned to the best advantage, by using the money in purchasing material and doing work to which statute labor is not adapted, by

UTILIZING STATUTE LABOR.

er means to be used in performing and in emergency work. township should possess. For the op- cil makes appropriations. Contracts is radically wrong. In some instances eration of these machines one man should be hired, as skill and experience are absolutely necessary. It cannot be passed around from farmer to farmer like a scraper or a plow. These machines do not know how a road should be shaped, but in the hands of a man steps to be taken so as to receive the ment. greatest benefits from statute labor is to see that the material, whether gravel or broken stone, is prepared in the pit or quarry, ready to be drawn to the road. If screening, crushing or stripping a pit is necessary, it should be all done before statute labor commences. Gravel may be plentiful, but effort is made by the council to screen from the pit or in any way prepare the at a time, it is of inferior quality, but they cannot undertake the task of rematerial unprepared for roadwork, nocrusher to prepare this stone and leave it ready for hauling, if they were to aged and would willingly spend their this material.

A SUPERVISOR.

do a man's work—these and many othungraded, the system of drainage, and loosely under the feet of the horses
ungraded, the system of traffic upon them.
of the oregan in the roads of the townof the friends of statute labor nature and extent of traffic upon them.
In the preparation of gravel it is enhance the value of every must necessarily frame numerous the should carefully study the present. In the preparation of g He should carefully study the present In the preparation of gravel it is

ity of material suitable for road con- sary to send a man over the road to struction, and amount of plank and rake off large atones and break them timber obtainable from ratepayers in by hand. the township or district, suitable for

work and economic maintenance. masters and report to the council, other, that will not yield to all the showing the number of days' labor in same extent in wet weather. en, and the amount of money which after a few hours' rain the road beshould be appropriated by the coun- comes softened. In this slight ruts are

to the construction of permanent and through. finished work.

9th. He should take stock annually and report to council on all machinery and implements, showing their condition and where kept.

10th. He should carefully examine all parts of the township where gravel and stone exist, and should by borings and tests, determine the quality and extent, and report thereon to the council. All material, stone, plank, gravel, etc., should be purchased by the supervisor in large quantities, and under instructions from the council, the One of the most profitable methods required amount to be determined by the first load, and is used for cases in which one man is right; but It follows that it is better for oth- subject to the order of the supervisor, been taken out, and then consider the

other work. For the grading of the 11th. He should prepare specifica- ly see that something in the quality of roads there is machinery which every tions of all work for which the coun- material and the mode of construction

detailed lent quality; then a stratum of coarse statement of all material required for sand one to two feet thick; and underthis work, and an estimate of the cost. lying this another stratum of fairly Councils commonly appropriate an a probable estimate of material refollowed by teamsters is to scrape amount of money each year to be spent quired during the following year, pre- down the face of the pit, causing the on the roads. If this money were spent sented each fall so that, if thought ad- soil, clean gravel and sand to mix to-

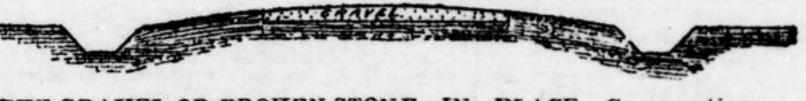
porary culverts; in doing a little 6th. His report should specify the er, to remove sand and clay from draining in front of the farm of some condition of all bridges, indicating among the stones. It is the stone discontented ratepayer to appease him; those who require repairs or re- which is wanted on the road-not the in doing no particular work at all, but construction, together with an estimate sand and clay. There is enough sand merely to give some other voter an op- of cost, and a statement dealing with and clay already on the road without portunity to earn a few dollars. In such special protection work on streams drawing it several miles from the gravsuch ways as these is the money which as he may deem worth the council's of pit. Road material, to be of its should be spent on durable improve- consideration. There should also be greatest value on the road should be ments, scattered, wasted and misap- reference to any needed re-location or nearly free from sand and clay. Dirty deviation of existing roads with a view gravel, while it unites readily and to doing away with bridges, culverts, forms a good roadway in dry weather, expensive grades, cuts or other features dissolves, turns slushy and ruts with which tend to prevent permanent equal readiness in wet weather; whereas with clean material the stones as-7th. He should consult with all path- sume a mechanical clasp the one of the

> each division, the work to be undertak- Earth and sand attract moisture and cil to properly utilize the statute la- formed which hold water; the whole structure becomes saturated, breaking 8th. He should arrange with divis- the bond and permitting each succesions desiring to compound statute la- sive vehicle to churn these ruts deepbor for a term of years, with a view er until the gravel coating is cut

> > PURCHASE OF GRAVEL.

A great many townships buy gravel by the load. This is very much like buying water by the pailful instead of digging a well. Gravel should be bought by the pit, or by the acre, and should be available at all times for any farmer who wants to increase the value of his land by improving the road past it. Especial care should be taken by councils to see that, prior to the performance of statute labor, the pit is stripped and the gravel otherwise treated if necessary.

This material is purchased at from short mileage gravelled, we must readi-



THE GRAVEL OR BROKEN STONE IN PLACE.-Cross-section.

able. For drainage and ditching it is if proper security is given, but the farm has been paid for by gravel purusually best to hire the work done by work should be subject to the approv- chased by the load and taken from men who are accustomed to this class al of the supervisor and all accounts a small corner. of work. One of the most necessary should be certified by him before pay- If first-class material were used un-

PATHMASTERS.

There are men in every township who are capable of taking the oversight of road-construction, but the system of changing the pathmasters every one or two years is not likely to produce men who are well qualified in this respect, Appointed in the spring, the pathmaster has no time to make a study of the subject such as it demands. Nor is the fact that he will be succeeded by some one else as pathmaster the following year an encouragement to effort in this direction.

Road divisions or "beats" should be moving the earth and clay, in order from three to five miles in length. A pathmaster should be a permanent ofthat the most of his travel will lead streams; this will be found to partake should, as a slight recompense, be prein other ways, put in their time in sidered of sufficient importance to be let by contract. He should, in addition, give special attention to all



THE FINISHED ROADWAY.

The result of this lack of supervis- as that of a township clerk will be determine whether the excess time was

GRAVEL ROADS.

and; it will increase the profits of the demand for farm by reducing the expense of the year when every farmer can be farm. The dairying indicate of the year when every farmer can ed to such traffic, the width and depth ed to such traffic, are ded continued and the sand and clay are removed and the farm. The dairying industries be immensely benefited by more remunerative, sale would be most profitable where he can do the most profitable with added the data with a depth and depth the sand and clay are removed and the do to such traffic, the width and depth the sand and clay are removed and the data with a data where he can do the most profitable with a data where he can do the make good wives. He simple for making of the sand all would make good wives. tion as to location, extent and qual-

Much carelessness is exercised in nocturne and a symphony.

who does, they are exceedingly valu- should be awarded to the lowest bidder much more than the value of a whole

der ordinary traffic, the annual repairs rendered necessary would be very slight.

In searching for gravel, the clearest indications are usually to be found along the banks of streams, where any extensive strata is apt to be exposed. A post-hole auger affords a convenient means of making tests over the surface of the soil for gravel, but the best implement is generally a simple form of drill. There are cases in which gravel beds may be entered at the level of a stream bed, and water is thereby obtained for washing the metal by natural drainage, affording a cheaper means of freeing it from sand and earthy matter than by screening. Gravel is still being deposited in drifts and bars by the agency of of the character of the pit gravel of the locality but generally will contain less clay, although sand may easily be in excess. This is usually one of the best sources, as the gravel can be washed by gatural drainage. Lake gravel is often a good metal but varies greatly. It is apt to be slaty, an undesirable quality: It will be free from dirt and clay, but contains sufficient sharp sand to secure consolidation, especially if a roller is used. Gravel which retains a perpendicular face in the spring, and shows on trace of slipping when thawing out may generally be assumed to be sufficiently clean and free from clay for use on the road without any treatment other than is necessary to break stones

(To be Continued.)

A STUTTERING SOLDIER

Colonel Hunt says that a private in the First Regiment, Ohio, refuses to go to the war because he stutters. You don't go to talk, but to fight, said the colonel.

But they'll p-p-put me on g-g-guard, and a man may go ha-ha-half a mile before I can say, Who-who-who goes

Oh, that's no objection, for there will be another sentry placed along with you, and he can challenge if you can

Well, stammered the private, b-b-but I may be t-taken and run through the

When the young millionaire who is visiting the city called upon a lady acquaintance who is a born match-maker, she urged upon him the necessity of getting married and settling down. I have four eligible nieces, she said, He simply disavowed any intention of making more than one woman his wife, and escaped before she rallied.

Flick-Call him a musiciant Why, he doesn't know the difference between &