Constructing and Repairing Roads | kept hard and smooth, and sufficient-

Old Stone and Gravel Roads. Labor. Drainage of Roads. regular and constant fall to a free Tile Drainage. More Useful Information from the Report on Highway Improvement. (Third Article.)

4.907 :-OLD STONE AND GRAVEL ROADS

crowning these old roads, is to cut. Manufacturers of roadmaking mar become too flat. A well-rounded road off the shoulders, and instead of chinery are now supplying wagons will last much longer than one that

road-bed underneath prevents even or- to which the hopper is opened. of it absorbs and holds the water un- buting them evenly over the stone, are ! til it becomes a fluid slush.

earth and sod from the sides, and to tion engine, affords one of the cheapor stone, is also a serious blunder, stone for a considerable distance, un-The process just described goes on der certain conditions. Each wagon with the exception that the new met- holds about 11 cubic yards of metal. or stone placed on to the road is outlay. very easily lost, and the durability is any event seriously impaired.

should always be turned outward. If matter of good drainage. Do not three inches in one hundred feet. were unable to join in the contribuod is followed, it will simply become mud. Where roads have been treated in this way by drawing mud to the no time should be lost scraping it off, as ehe longer it mains, the more serious will be injury to the road. On a large portion of these old stone and gravel roads throughout the country, more can be done to improve their condishoulders, thereby giving the road a crown, than can be accomplished by several years application of new material. New material may be required on these old roads bring them to a proper standard, but it should not be supplied until road has been shaped and crowned by cutting away the square shoulders at the sides, which prevent proper sur face drainage.

In the same way, the cost of broken making culverts. spreading.

(1) Designate certain men for cer- come to the surface.

derly manner.

such as road-graders, rock crushers, more to procure earth to raise the est on the surface in the spring, aftwheeled scrapers, etc.

ed with proper tools. To build a road cheaply means

Continuing the information on road proper direction of labor. The reason age. The method and extent of drainimprovement, Mr. Campbell, the why contractors can so often do the age must depend largely upon highway improvement expert, writes work for less than municipal corpor- character of the soil over which the skill possible in directing and using swampy, springs, flat, undulating, disloyalty and were simply waiting to be planning a regime in which the most instructively in the report for ations is because they exercise all the road passes; clay, loam, gravel, sand labor to the best advantage. An im- are all terms suggesting conditions for time and a suitable and capable English shall have no part. He says: portant principle to follow in this that modify the plan of drainage. Hundreds of miles of road have regard is to designate certain men 'A drain without an outlet is usebeen ruined, and thousands of dol- for certain work, and to keep each less-or worse than useless. If there lars have been thrown away by im- one at his own particular work un-

Throughout the Province there is a should be so balanced that all can be roadway. This water is drawn up ingreat extent of road originally mac- kept steadily at work. Too many to the entire roadway just as a toll road companies, men and not enough teams, or too sponge will absorb water and hold it yoke and that self-interest and by municipal corporations, and many teams and not enough, men, in all its pores. been kept in repair by mean that one or the other will be the annual application of new coat-standing in idleness a considerable er year in a useless effort to main-

shoulders, no matter how great the not crowd one another in a small pit even if it is necessary to carry the lation. original crown may have been. Dust so that some few can fi'l their wag- drain a considerable distance across and fine material from the centre of ons with good material, while cibers private property. the road is constantly being washed haul sods and boulders. There are A road should, in order to conto the sides, where there grows up a usually enough of the latter on the struct it economically, without hand high shoulder of earth and sod. Many road without paying for teaming labor, be such as modern machinery,

With the advent of the graning ma- length of haul, and every load should stead, a cross-section of road should when the people of England are beginchine a common pravice his been contain a certain quantity-usually show gentle curves, the rounded surto cut off the square shoulders at the one and a quarter, or one and a half face of the road not sharply defined affairs, it is highly important that side, and draw them to the centre of cubic yards. It takes very little from the ditch. The latter should be they should not be misled. He then the roadway in order to raise the more time to go from the pit to the about two feet wide at the bottom, goes on to say that the sedition crown of the road. 'n the light of road with a yard and a balf of grave where a wheeled scraper can work, the Punjab is confined to a few semiall that for many years has been said el than with only half a yard. In and about eighteen inches in depth. educated persons, and that the and written regarding road making, fact the larger load represents a clear The crowning of the road materially tives at large have no share in it much a practice can only be certicized gain of the difference in age of the aids surface drainage, shedding wat. As for the princes, the real leaders as the height of folly and stupidity. loads. Specify the size of the wagen or to the side drains. Roads should of the people, their only regret is Mud should be scraped off a road, not box, and number of loads to con- be well crowned when first construct- that they have not the patriotic task

drawing them to the centre, draw with a hopper-shaped opening be is too low and flat, them outward, across the ditch if tween the front and rear axles, made expressly for drawing gravel and bro-To draw the earth and sod from ken stone, and distributing it over the roads as they will for farm land. Mind. At the time of the Panjdet the side of the road to the centre is the road. The opening of the hopper merely to create in the centre of the is controlled by a lever beside the road a bed of mud that with the first driver. The metal can be distributed tiled without gravel will be better sistance from the native princes in wet season of spring and fall will be to any required depth, after a little than if they are gravelled without the shape of soldiers and money pourcome a perfect slough. The hard experience, by regulating the extent tile. This applies, to practically all ed in on the Imperial authorities, and

these wagons are particularly use-

al settle until it reaches the old, Labor saving machinery should be a method is followed ruts and mud for men to do on the roads, but that quickly appear, and the new gravel more work can be done for the same

Give up the idea that gravel and (4) Lay the tile on an even grade that the Indian Government has no Williams' Medicine Co., Brockville, He picked at her nose, stone, without drainage will make a with a constant fall to a good out- land to give? Did those native rul- Ont. accumulated to form shoulders, road. Road construction is largely a let; the fall being not less than ers who, from one cause or another,

top of it. In considering the im- uneven laying.

courses crossing or adjacent to the take the place of deep open drains at a cost of about \$700,000, and in

flow steadily to these outlets.

(3) Every side drain should have to sink into. an outlet; nor should depres tons be

left at the side to hold water.

ing are almost wholly a matter of the water in small laid on these. The roots of trees, strong feeling of loyalty to the Roylabor. Grave, costs very little—but (6) Dispose of the water in small laid on these. The roots of trees,

stone grows out of the cast of labor (7) Lay tile drains to lower the joints of the tile should be cemented personal forms, such at the Govern- er study and notice of the writers pa-

(2) Have the work well planned in road of pure sand. In all other cas- open gutters, with V-shaped drains advance, and keep it going in an or- es, every dollar put into drain is well at intervals from the centre of

teams will be kept going steadily, as isting roads consists of open ditches the side of the roads only; then on each side of the graded portion, drain at one side, only, or in the cen-(4) The number of men at each with a depth of about eighteen inch- tre of the road; then only an occapart of the work should be so bal- es. They are frequently carried thro- sional drain at springy or damp anced that all will be kept at work. ugh rises of ground, past natural points. (5) Fix the size of the wagon box- water courses. Little attention is Some municipalities cannot underes, and the amount of gravel or given to the regularity of the grade, take to at once underdrain all their stone they must hold. Designate the in the bottom, or to the amount of roads in this manner. They should number of loads to constitute a day's fall, as evidenced by the varying place tile drains where they evidently depths of stagnant water at wet sea- are needed most, in low-lying sections (6) Use labor-saving machinery, sons. The object of these drains was where water is seen to remain long-

> often they have no outlets. A road that is built and maintain- during the summer.

ed with a view to good drainage almost certain to be a good road. If this is done, the road surface will be will flow immediately to open drains at the side. These drains will have a

in elongated ponds by the roadside,

Rather than spend money year aftcy of all such roads is to become Teamsters should drive into a grave will be found a measure of economy very nearly representative of the flat in the centre, with high square el pit in regular order. They should to at once provide proper outlets, opinion of the general native popu-

only flat, but are actually higher at A day's work in hauling gravel or For this reason, deep, open ditches, the sides than they are at the centre broken stone, should be specified by with sharp angles and narrow bot-

TILE DRAINAGE.

dinary drainage. The earth on top For screenings especially, in distri-

dangerous open drains.

road under the bottom of the open shoulder to shoulder with his Majes- the genuine bearing the full name, drain, at a depth of 21 or 3 feet. ty's white soldiers.

nearly all that tile on both sides will fence have been made by the Indian are imitations. If your medicine She blushed like a rose, do. If one side of the road is high- princes. What self-interest prompted dealer does not keep the genuine pills. He picked at her nose, er than the other, lay the tile on the these gifts? Did the princes expect they will be sent at 50 cents a box Twas the first of her woes,

drawn to the centre, whatever methputting them on roads that are not hills or wet spots where springs ing and foreign Government? Ten properly drained. The natural soil come to the surface, running a blind years ago, when there was trouble on EVEN "OLD MOTHER GOOSE" Money, rotund, glistering; honey, over which the road passes must be drain into the heart of the spring. | the Indian frontier, and the Tirah kept strong enough to support traf- (6) A three-inch or four-inch tile campaign was fought, the Maharajah fic. Dry earth will do this. Wet will meet most conditions, but the of Patiala, and the late Maharajah earth will not-for wet earth is mud, size must depend on the length of the Rona, of Dholphur, risked their lives soft and yielding, whether on the drain, fall, and amount of water to on the field. In addition, the troops surface or below it. Mud below a be carried away. The larger tile are of the Gwalior, Jadhpur, Jaipur, Pabed of gravel is worse than mud on less apt to become stopped through tiala, Nabha, Kapurthala, Nahan

age, the following are important: with sawdust, sods, or straw. (1) Consider the main water Tile drains are permanent. They magnificent hospital ship to China

road, which can be used as outlets, and cost less to maintain. Their ef- the Chinese campaign many other naand the natural slopes of the road fect is most noticeable in spring, tive chiefs gave signal proofs of their causing the roads to dry up quick.y. devotion to the British crown. (2) Then grade the road, and open In this way, and throughout the drains at the side so that water will year, they save the gravel or stone covering as there is less mud for it

(3) Arrange the work so that the The drainage usually found on ex- this the scale descends to drains at

centre of the road above the water er a heavy rain, where springs have (7) See that every man is provid- line than to lower the water. Very a tendency to appear, or where the ground is found to be cold and wet

LOYALTY IN INDIA

THE NATIVE INDIAN IS TRUE TO THE CROWN AND AN ELO-

moved, where necessary, by tile drain- ed about of the unrest in India that existence of causes for minothe general impression must surely ances is, in the opinion of the Mahabe that the whole native population rainh, no reason for supposing the of India were sadly tainted with their British rulers.

Recently a writer in the staid old journal-Blackwood's Magazine voicstructing old stone and gravel roads. The number of men and teams to soak into and soften the travelled ed some opinions along this line. it the less discreet agitators who were

eloquent refutation is made by Maharajah of Bikaver in the London Times. The Maharajah denounces the Blackwoods' article as libelous and mischievous, and then proceeds show from history how erroneous malicious are its conclusions. making the roadway almost a drain. the number of loads, according to toms, are not now suitable; but, in-

Some of the incident mentioned by the Maharajah to disprove the charg that the loyalty of the chiefs, where it is not a fiction, is inspired wholly Tile drains will do as much for by self-interest, are worth bearing in Some roads can never be good roads scare, when it appeared that war with until they are under-drained. Roads Russia was imminent, widespread atroads except those on pure sand, though the cloud passed away, it was tribution of a large body of magnifi-(1) Tile drains lower the water- cently equipped troops recruited from To attempt to improve these old ful. A number of these wagons coup- line and thereby make a deeper stra- the best material available—the Imroads by crowning them with the led together, and drawn by a tractum of dry, and consequently solid perial service troops-and maintained earth underneath the road. In this at the personal expense of the princes place over this a coating of grave est methods of hauling gravel or way they take the place of deep and for the defence of the Empire. On more than one occasion since, these (2) Lay the tile at the side of the troops have proved their prowess

and other States had their fair share cutting off the square provement of a road, and its drain-

CYALTY AND LOVE FOR THE

CROWN. The grief of the Indian Empire Tile drains offer no difficulty to lay the death of Queen Victoria, the enexcept in quicksand. In cases where thusiasm with which an all-Indian ledge of style and acquaintance with While the beauteous Minnehaha (4) Place culverts under the road the sand is troublesome, the tile may memorial was raised to her memory the poem and poet suffering from the Strolled among the deepening shad-The cost of roads is made up chief- wherever needed to provide an out- be surrounded with sawdust, sods, or the anxiety over King Edward's ill- parody must be shared alike by the straw to keep out the silt. If settle- ness so soon after his accession to the author of the parody and the reader Came the Black Bird, Hiawatha, teaming. Very little is spent on Ma- (5) Crown the road well so that ment is at all likely, Loards should throne, and the joy with which tid- or the twisted poem must be mented his lips upon her features. terial alone. Thus grading and drain- water will flow readily to the sade be laid in the bottom of the tree h ings of his recovery were hailed in Inteaming gravel, handling it in the quantities. Do not carry it in long particularly the willow, are apt to al person and House. Indeed, it is condemned completely. Sometimes, pit, and on the road soon count up. ditches past natural outless, to avoid enter and, in time, block the tile. the fashion of the native to devote when well written, its peculiarities for quarrying, crushing, hauling and water line. In general, the without for a distance likely to be reached by ment, the Empire, the Constitution rodied, and if it accomplishes this Important matters to consider in tile. Tile drains are especially useful Their location with respect to the infavor of the Maharajah's conten- ence of the parody is justified. to underdrain hills where springs road should be varied with circum- tion is the attitude of the princes and The Princeton Tiger, a college jourstances. The most effective type of rajahs, as a class, at the time of the nal, in a recent issue contained The only road that will not be im- drainage employed is a system in great Mutiny. With a few exceptions number of parodies, all from the one til there is no more of that kind of proved, by the most perfect system which there is a tile drain on each the Royal families of India remained basic subject, and in which the of drainage that can be given it, is a side of the roadway underneath the staunch supporters of the British tinctive traits of the different poets

> ered feet are Buk. Store girls, postmen, policemen, walk a lot should test its value! Zam-Buk also cures chafing il skin diseases and injuri-Buk Co., Toronto.

an example of gallant loyalty that should never be forgot-

QUENT REPLY TO CHARGES of the British Government with the TO THE CONTRARY IS GIVEN Indian Empire is admitted by the Ma-BY THE MAHARAJAH OF BI- harajah, but he is confident that Mr. lessen friction and improve in many So much has been written and talk- ways the existing machinery. But the satisfactory to all concerned. If ever u federation came into Leing, it could only work under the helping hand the British Government." As far as acy in the Indian Empire.

WISE PARENTS

THEIR CHILDREN'S HEALTH BY GIVING THEM DR. WILLIAMS' PINK PILLS.

The health of the growing boy or should be carefully guarded. As Maud tangled herself During the growing time there is a oned and the health seriously impaired. The blood should be kept But of all sad faces I've ever seen. pure and the child will grow strong, The saddest of all is Maud's, I ween. or to the pale cheeks and strength to these pills saved his daughter, Marie, from a life of misery. He says: "A year ago my daughter, a girl of chirteen, was very weak. She was so ill that I feared she was going into consumption. Though I tried remedy after remedy she remained in this weak state for several months and 1 began to think she never would get better. began to improve; her appetite returned ; she grew strong ; color came into her cheeks and to-day she is as healthy as any young girl could be. I firmly believe Dr. Williams' Pink

Dr. Williams' Pink Pills are equally as successful in bringing those of mature age back to health as they are in building up the young. They make pure, red blood-that is why they banish anaemia, rheumatism, St. Vitus' dance, heart palpitation, indigestion and the secret ills of girlhood "Dr. Williams' Pink Pills for Pale (3) A line of tile on one side of . In the past few years, large addi- People," on the wrapper around each He picked at her nose, mud ooze up through it. When such not mean that there will be less work the road at a good depth will do tional contributions to Imperial debox. All other so-called Pink Pills But he thought 'twas a cherry, large grants of territory, knowing or six boxes for \$2.50 from The Dr. But it made him quite merry,

SOME PARODIES

THE INSATIABLE PARODY Scent of the wash-tub, bars of soap MAKER. By some people of refinement and

literary culture the parody is looked

on as the vilest form of literary evil -in fact as a form of heresy approaching closely to blasphemy. Yet the parody goes on its popular way unashamed, though certainly not unrebuked. For the average parody there can generally be offered but a In the wigwam by the water, small modicum of excuse, but there By the shining big-sea water, is always this one good thing about Sat the big Chief, Umskihaha, quires a knowledge of the style imi- And the red squaw in the Tepee tated and an acquaintance with the Ate the honey, whiskey woo woooriginal and its author that is not Honey sweeter than the fragrauce altogether to be despised. This know- Of the yellow rose in autumn, etc. But the most striking argument good end once in a while, the exist-

parody is founded on Old Mother Goose's nursery rhyme '-

The King was in his counting-house Counting out his money ; The Queen was in the parlor Eating bread and honey ; The maid was in the garden Hanging up the clotnes; Down came a blackbird

BY CHAUCER.

And pecked off her nose !

He counteden his guilders greedilye, And Eke his queen that wered a gi- If you were what the nose is, poun, Dit eten honey for digesteoun. Whylom the mayoe in the rard near-

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Don hangen up the clothes sickerlye; touches as to the distinctive stellar Down cam a black bird right upon hir any of the parodies, we would suggest And left a verray parfit emptye place! and the force of the parody and

BY WHITTIER.

Maud Muller on a summer's day Hung clothes in a garden-so they resultant on a comparison While the judge in his office in

And his lady ate jam in a third-floor

clothesline, fate danger of the blood becoming pois- Decreed-what is much too sad to re-

BY BLISS CARMAN.

Once there was a maiden Long ago. Household duties laden

Better so ! Sheets and shirts a-wringing Dirt dispels, Blackbird-horoid creature-Came with loyous singing. Pecked upon her feature Where she smetls !

BY POE. Once within a garden dreary, strolled a maiden worn and weary. Hanging brother's, sister's, moth-

washing near the kitchen door Sudgenly there came a flapping, as of someone loudly clapping. And it caught the maiden napping napping with a gurgling snore, Then a Black Bird huge and vicious, dripping with its victim's gore,

Took her nose and-nothing more.

BY TENNYSON, Pearline and soapy clothes, The starchy swish and swash, And may there be no black bird take

When I hang out the wash ! BY AUSTIN DOBSON.

But he thought 'twas a cherry.

BY WHITMAN. I am the King. I am myself. I am part of al' I behold ;

clothespins, stretch of clothesline, shirts on the line, The sweeping whirr of a bird, ominous, black, portentous,

The robust, bare-armed, lusty, soapsuddy Bridget, minus a nostril Would it were the queen's !

BY LONGFELLOW the parody in general; that it re- Counting o'er kis beads of Wampum,

And the madam's in the parlot Putting honey out of sight. But the maiden in the garden Hangs the clothes up on the line, Singing: "Back, you naughty black

Bring you back that nose of min-Brin; you back that aquiline, Place it where it used to shine, Stick it on with porous plaster That's quite good enough for mine. BY SWINBURNE.

And you were, my dear, queen, If I were king, my darling, We'd count our dough together, In sad or singing weather, 'Mid dasfodil and starling, And eat our jam between If I were king, my darling, And you, my dear, were queen, If you were what the nose is, And I were like the bird. We'd fly afar together, A King ther was, and that right mis- On light and lithesome feather. O'er Gelas and flowerful closes, Twould really be absurd

And I were like the bird.

If any of our readers should fail to

a reading of the poet in the orginal following of the poet's own style will be readily appreciated. In env no harm, and much good, might ems that were the models



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Long, long ago, if reck intervening mechanical yet not so very long as years have passed, a sm orously, cand in a fever dread, climbed the long, way leading to the con of a morning newspaper had secured a "job" an his first night. It was tion of a long-cherish yet, as he approached h goal, he was fearful, an trembled as it touched t the door, from behind v came a buzzing, as of r Baving overcome an alr ible desire to rush out ing and back home again deep breath and stepped,

Then it's time to act to study, to read, ment! You want to hair, and save it qu So make up your very minute that if ever comes out you Ayer's Hair Vigor. ae scalp healthy. stays in. It canno ag else. It's nati ne best kind of a tes

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