A FEW HINTS ON A VERY IMPORT-ANT SUBJECT.

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make and maintain a permanent roadway, two rules must be followed:

1. Take the water out.

2. Keep the water out.

Underdraining. Where a road is to be constructed on a wet and retentive soil, a perfect system of underdraining must be provided. This is best done by cutting ditches diagonally across the roadbed with discharge into side ditches. These diagonal ditches should have a good fall and good outlet and should be from eighteen inches to two feet deep and about one foot wide at the bottom, with a slight slope outward. In these should be laid coarse, broken stone, broken bricks or other material suitable by cutting down or destroying or causing to form a drain, filling them up to the level of the sub-grade.

Surface Draining. Open ditches should ways or road allowances within their be cut on each side of the roadbed at a distance of about twelve feet from the outsides of the metalling. They should be by the treasurer of the municipality, as the it?" deep enough to drain the foundation; at | council of the municipality may direct." least eighteen inches below the sub-grade.

Shallow gutters should be made over the \$20." tiles to catch the surface water and conduct it to catch-basins placed at convenient distances apart. The catch-basins should be made of durable materials of sufficient size to be freely cleaned and should be covered with iron gratings. The basins should extend at least two feet below the bottom of the tile to provide space for the deposit and they should be cleaned at least twice a year.

The Roadsides. The strips of ground between the metaled road and the open ditch should be properly graded to conform with the crown and grade of the metalling and should be seeded and kept in sod. This will always be pleasing to the eye, is cheap, and very largely useful in preventing the carrying of mud on to the metalling. Moreover, the uniformity of the grade facilitates the passing of meeting teams.

Location of Sub-drains. In a soil that is gravelly and pervious to water, the open ditches on each side of the road, even of a 66-feet wide road, are sufficient for draining the road bed. If there be any springs under the road, a sub drain leading directly to the side ditch will be required. Should the road be on a sidehill a deep open ditch on its upper side, to arrest the flow from the adjacent land, may be sufficient, the water being at intervals conducted across and under the road by an ordinary stone culvert.

Outlets. Mistakes are often made by giving insufficient outfalls to the drains. Under the Ditches and Watercourses Act a municipality has the same power as an individual to enforce the natural outlet for the drainage water of the land. But municipal officers are apt to shrink from forcing an outlet through private lands, and to leave their road drains with insufficient outlets rather than incur the ill will of possibly influential constituents. This should not be so. Municipalities should insist upon their rights, and the owners of lands interfered with should pay the same proportion of the cost of the work as if only private individuals were concerned.

Bad Drainage and Frost. Imperfect drainage is the cause of the badness of our roads in nearly all cases. The inexperienced are not apt to appreciate the paramount necessity for the maintenance of a perfectly dry foundation of earth for their surface of broken stone. gravel, etc., to lie upon. A protracted rain will soften an undrained road and on the passing of a heavy load injurious ruts are the consequence. In these latitudes the soil water freezes and the consequent expansions and contractions quickly ruin a road bed.

Destructiveness of Ruts. It matters not whether a road be earth or macadam if attention is not given to the preservation of the finished crown. If ruts are allowed to form water is admitted. Every depression is a centre of destruction. The power of resistance to the water becomes less and less until the roadway becomes actually

impassable. Road Machines. In constructing earth roads a plow should not be used except where actually necessary, because a plowed surface is only with great difficulty made hard and smooth, and the plow is likely to cut too deeply into the earth. A good road machine should be procured if possible. for by the use of a machine the natural foundation of the ground is not disturbed in rounding up the road as is done with common plows and scrapers. Every municipality should own a road machine and should have a man especially instructed and constantly in charge of it. With a road machine in skilled hands, there will be no question raised as to the economy of construction and repairs and the efficiency of the work done.

Width of Roadway. The roadway should be twenty-six feet between the ditches and the metalling for ordinary roads should be sixteen feet wide.

Height of Crown. A roadway of this width should have a crown of at least ten inches and should always be maintained in

this shape. Rolling. After the road machine has completed its work, the whole grade should be rolled with a roller weighing about five tons. Rolling is essential in making the foundation and surfacing to form permanent or gravel roads. The roller should follow closely upon the grader or scraper and not inclined to pack, it may be slight- | gregation.

ly meistened to facilitate the consolidation of the earth. The rolling should begin at the sides of the roads and proceed gradually towards the centre ; that is, the roller should be passed from end to endalong the side of the road and then in the second passage the roller should slightly lap the first passage until the centre of the road is reached.

Metalling. After the formation of the road and the draining are completed, the mass of broken stone or gravel which is to Requisites for Permanency. In order to form its wearing surface should be laid, packed and so consolidated that it will be practically water-tight. Such a road will be durable and easily maintained. It will shed water readily. Its hardness will prevent the formation of ruts, which is the observed : first stage of destruction.

Width of Tires. If all wagons used in country roads could be provided with tires four inches wide, they would roll the sur away." face more smoothly and more quickly, and the road would be in fairly good condition all the year round.

(Sec. 9.) "It shall be the duty of the overseers of highways in any municipality to see that the provisions of this Act relating to Noxious Weeds are carried out within their respective highway divisions to be cut down or destroyed at the proper times, to prevent the ripening of their seed, all the noxious weeds growing on the high-

respective divisions, such works to be per-

formed as part of the ordinary statute

labor, or to be paid for at a reasonable rate

(Sec. 10, sub-sec. 4.) "Every overseer Tile Preferable. Where tile is cheap discharge the duties imposed upon him by and a good outlet obtainable, tile side this Act shall, upon conviction, be liable drains are preferable to open ditches. to a fine of not less than \$10 or more than

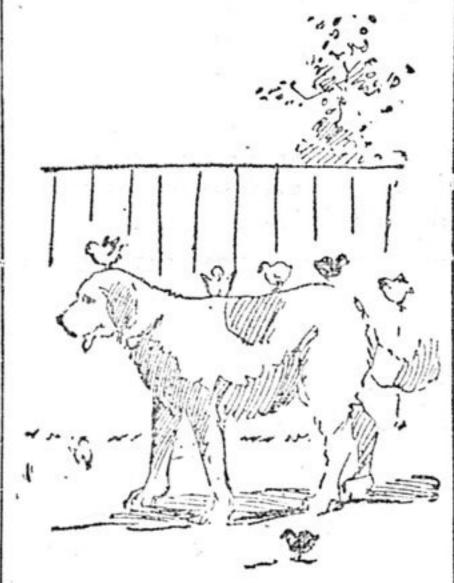
Noxious weeds include Canada Thistles, Oxe-eye Daisy, Wild Oats, Ragweed and Burdock.

AN ODD FOSTER FATHER.

Kansas City Spaniel Adopts a Brood of Motherless Chicks.

"Bob" lives in a very comfortable way out in Kansas City. He is a water spaniel and one of the fattest dogs in town-and he is not such a heavy eater. He is simply so good natured that he gets fat on nothing but a good conscience and an even temper

they all look up to "Bob" as their foster | right." father. A queer friend for a chicken is a big, fat water spaniel, but the chickens don't care what or who he is, he is just "Bob" to them. There is a brood of motherless chicks who are seldom away from him if they can help it. When he lies down they climb upon



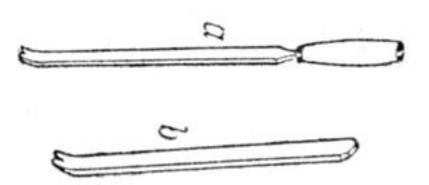
OLD "BOB" AND HIS FRIENDS.

his back, which is so broad as to resemble the big, flat pad on the back of a circus horse. They crawl upon his head and peck at his ears. He does not shake them off, and they hang on tight when he walks slowly around the yard in his lazy way. When he lies down they nestle in near his paws, and he will remain motionless there for a half hour at a time.

The motherless brood are getting to b big fellows now, but they have not deserted him, although a brood of younger chickens have come up to climb his back and peck at his tongue and the end of his nose. It is astonishing to see the care and gentleness of the old fellow when the chickens are near him.

Tack Pullers.

One of the simplest and best of tack pullers is made of an old file three-quarters | bed-time," he said as he headed for the of an inch wide, the end slightly flattened. and turned up, and a V-shaped opening made in it as shown herewith. Where the



tacks are driven down firmly the plan in is best, as then a hammer can be used to drive the claws under the head of the tack. eight feet wide; where more than a single For common use the one provided with a line of travel is required the metalling handle as in a will prove very convenient and easier on the hands, the long leverage allowing shingle nails to be readily

Division of the Sexes.

One of the most remarkable churches is to be found at Freudenthal, in the Black Forest. It is built on such a plan that the men are unable to see the women, and so that the loose earthmay be consolidated | vice versa, for it is composed of two wings, white it is still moist. The roller should | which meet at an angle where the pulpit pass many times over the softer portions of stands. The right wing is allotted to men. the road, and where the road is very dry and the left one to the women of the con-

MR. AND MRS. BOWSER.

Just as the Bowser family had finished dinner the other evening a boy rang the bell and delivered a package. Mrs. Bowser answered the bell in person, and as she re-entered the sitting room with it in her hand she said :

"This seems to be for you, and I guess it's a bottle."

It was a quart bottle. Mr. Bowser slowly removed the paper and then held the bottle up to the light and shook it and

"Yes, he said he'd send it over this evening. I think I'll take a dose right

Bowser with a tinge of sarcasm in her Noxious Weeds. Chapter 202, R. S. O.,

demanded as he bristled up and glared at situation more painful for him, but she her over the bottle. "For your personal gave him words of sympathy and condolbenefit, however, I will say that there is nothing patent about it. It is a compound | upstairs to bed that she said : prepared in the laboratory of the most noted chemist in the country. I suppose the formula has been copyrighted, but they don't patent such things the same as they do washing-machines."

"What use are you going to make o

"What use! It is just like me to pay \$3 for a bottle of invigorator and then chuck it into a rat hole or feed it to the cats, isn't it? I've felt the need of it for the last two months."

"I didn't know that you were run down in health," persisted Mrs. Bowser.

as he ceased shaking the bottle. "That years old. shows what sort of a wifely wife you are? Some wives are not blind when a husband loses five pounds of flesh a week and has a dozen undertakers itching to measure him that anything was wrong! If the doctor till morning it would be quite a surprise to | dom should repudiate him. you, wouldn't it !"

"I danced around, did I? I said I felt German accent. coltish, did I? Never, Mrs. Bowsernever! Why on earth you want to sit there and talk such stuff and nonsense is more than I can make out! That's your policy, however-opposition. If I was dying you'd oppose my taking anything to restore me to health. Are you anxious for me to die? Do you want my life insurance on which to cut a swell? Have you tried mourning and found that it improved your looks? Woman, I demand to know why you use me thus!"

In his excitement Mr. Bowser got up and dropped the bottle and picked it up and walked about, with his face very red and his toes inclined to crack.

"If you didn't buy so much stuff I shouldn't say a word," explained Mrs. Bowser, as he finally came to a halt. "You are always getting tonics and sarsaparillas and blood-purifiers and invigorators and two you set the bottle away and never touch it again. I was looking through the cupboard yesierday, and I found --"

"That will do, Mrs. Bowser-that wil do !" he interrupted as he waved the bottle around his head. "You talk about my buying stuff. In the last year I have bought just one bottle of cough medicine. Two it or not?"

will do you any good." "Any good! What's it for except to do me good! I'm not taking it to blow my tead off, am I? A noted physician doesn't send an invigorator out into the world to kill off h s fellow-men, does he? The ob a man of a man."

Mrs. Bowser had no more to say. She was sorry she had said as much as she had. Mr. Bowser was bound to take that invigorator whether or no, and the best way was to hope it would do him good, though there wasn't a bealthier and more robust man in town.

"I'll take a dose now and another at basement, "and if you don't see a change in me even by to-morrow morning then I'll be disappointed."

He went downstairs, pulled the cork out of the bottle and took his dose, and when he returned upstairs he sat down to his events, which he does not specify. Dr. proprietor of it. newspaper with a self-satisfied look on his face. Ten minutes later he patted himself on the lower button of his vest and exclaimed:

"By George, but that stuff went to the right spot! I feel better'n I have felt in a whole month. You'll see me a new man in about a week !"

That was ten minutes later. Twenty the world in 1899. minutes later Mr. Bowser gave a sudden start and laid his hand on his stomach. " Is it still going to the right spot?" aske i Mrs. Bowser.

"Say! I have a pain and I feel queer!" he answered as he stood up. "Couldn't be anything wrong about that invigorator, could there ?" "Of course not. A noted physician

world to give his fellow-men pains and queer feelings, does he ?" "Ooch ! By gum, but the room is whirling around and I can't keep my feet on the

floor! I believe I've been poisoned!" " Here-lie down on the lounge," said Mrs. Bowser as she helped him over. "You are sure that was invigorator, are you ?" "It must have been. Great Scot! but

see how I sweat !" "Let me go down and get a look at the bottle."

She was back in thirty seconds with the PURELY CANADIAN NEWS. bottle in her hand, and as she held it out toward him she asked :

and his our rather sain him to be

"Did you order a bottle of Dandruff Eradicator this afternoon !" "Y-yes !"

"Well, here it is, and you've taken a big dose of it in place of the invigorator !" You never even stopped to see what the stuff

"And I'm-I'm poisoned!" he gasped as he drew up his legs and threw up his

"Perhaps not. As you haven't over forty hairs and not a scale of dandruff on your head perhaps this is to remove the dandruff from your stomach !" "And will I die!"

"I hope not. You lie still while I get the sweet oil and mustard."

For the next hour Mrs. Bowser doped and dosed and plastered, and Mr. Bowser | Bay. "Is it a patent medicine?" asked Mrs. kicked about and groaned and took on like a sick child. By and by the eradicator seemed to have finished eradicating and he began to feel easier. Mrs. Bowser "Suppose it is a patent medicine !" he | could have said lots of things to make the ence instead. It was not until he was so far relieved that he was slowly creeping

> "Of course your lawyer will see my lawyer in the morning and arrange about the alimony and the custody of the child !"

> Mr. Bowser sat down on the stair step and looked down at her for a minute. Then he sighed and groaned and went Mrs. Bowser had floored him for the first time in a year.

PERSONAL POINTERS.

A Few Items About Some of the Great Folks of the World.

Dr. Felix Vulpius, who died in Weimar the other day, was the nephew of the wife "Oh! you didn't !" he hotly exclaimed of Goethe, the poet. He was seventy-three

> China's Emperor gets up at 4 o'clock to study English and Manchu before breakfast which is at five. He makes up for it by going to bed at sundown.

The Earl of Jersey owns a margarine for a coffin, but you haven't discovered factory near London which turns out 175,-000 pounds of butter substitute per day. Think of the Earl of Jersey making oleo- park. was to drop in and say that I couldn't live margarine. Every Jersey cow in Christen-

Old Jules Simon is quoted as saying that "You were dancing around the other day the young German Emperor speaks French and telling how coltish you felt, and so I like a Parisian, whereas the first Napoleon At "Bob's" home are many chickens, and naturally supposed your health was all spoke it all his days with an Italian accent, and the third Napoleon with a strong

> The last census showed that 1,834,000 Austrian men have the name Franz, the names next in popularity being Johann, 1,384,000; Josef, 1,085,000; Leopold, 584,000, and Wenzel, 448,000. There are 1,780,000 Annas, 1,652,000 Marias, and 1,260,000 Elizabeths.

Although the Baroness Burdett-Coutts is eighty-one she is one of the liveliest women in London. So youthful is her dress that it is criticised as being more in keeping with a young woman just "out" in society | burg brass band. than one whose years of life are numbered. One dress that she wore at a recent entertainment, a costume of red velvet, cost her \$5,000.

To the credulity of the Russian peasant there is apparently no limit. A swindler named Overko Skoda has just been sentenced to a long term of penal servitude at cures for this or that, and after a dose or Saratoff for inducing a large number of them to sell what little they possessed and join him in emigrating to Jupiter, Needless to say that he fled with the large sum of money he secured on the pretext of buying the tickets. Most of his victims had everything packed, and were ready for immediate departure.

Speaking of Sir Henry Irving, it is abandoned for want of money. doses of it effected a cure and I put the interesting to recall that under Queen bottle away. If you found ten thousand Elizabeth a statute was enacted, reading bottles in the cupboard you put them there | that all common players, all jugglers, yourself. We will drop all that and speak | tinkers, peddlers, and petty chapmen of this bottle. I am all run down. I have should be taken, adjudged, and deemed through Ottawa on their way home. chills, fever, cold sweats, insomnia, lassi rogues, vagabonds, and sturdy begtude and general debility. If I go on I am | gars should be stripped naked, and a dead man inside of two months. If I be whipped until his or her body take this preparation I am restored to be bloudye, and sent streighte way to health inside of two weeks. Shall I take | the parish where he was borne. Nor was an actor freed from the danger of being "Why, yes, of course, if you think it publicly whipped until the reign of George

A Paris Police Court the other day was filled to overflowing by the admirers who crowded there to hear barah Bernhardt take an oath. An action for recovery of a debt alleged to be due was brought against ject is to invigorate-tone up-cure-make her by a horse-dealer, who had petitioned that she might be put upon oath. The judge asked her whether she could swear that she had paid the bill. The great tragedieune, raising her hand according to the French custom, replied, "I swear it." Admirers say that she was never more natural. Judgment was accordingly given in her favor.

Dr. Falb, the astrologer, who is really a very able man apart from his hobby for predicting future events, announces that the end of the world, prophesied by him to take place in 1896, has been indefinitely Sigl, the rabid Bavarian Secessionist, wants to know if the proposed German Gag laws (Umsturz Gesetz) have anything to do with the matter. He also ment ons in his Vaterland, Munich, that the prediction is nothing new. In 1544 Pere Philippe Olivarious of Citeux says in his writings that Paris would be destroyed in 1896 and

Time Thrown Away.

Clara-What's the matter, dear? Dora-It's too much to bear. Mr. Faintheart hasn't proposed yet. Clara-But you told me you wouldn't

marry him. Dora-Ot course I wouldn't. But after himself. doesn't send an invigorator out into the all the time I've wasted on him, I think he might at least give me a chance to refuse

No Need of Alarm.

Man of Family-My dear, a rice trust has been formed, and there is no telling how soon rice may go up. Better lay in enough to last a year at least.

Average Housewife-Very well, I'll send out and buy two or three pounds.

INTERESTING FACTS ABOUT OUR COUNTRY.

Gathered from Various Points from the

Atlantic to the Pacific. Fevers prevail at Lovering. Midland has a boom in building. Melbourne has a new brass band.

London is overrun with tagless dogs. Watertown is to have a military band. Kingston has about 60 female bicylists. Petrolea has a "Young Sports" Club. A \$20,000 dock is to be built at North

Glencoe is to have an Oddfellows new

Bears are plentiful in the country dis-The Berlin-Waterloo Hospital is com-

pleted. Belleville needs more school accommo-

Kingston has organized a Philharmonic

Ailsa Craig is troubled with pigeon

A Baptist Church is being erected at Carboro'. David Vader committed suicide near

Calgary. The Fonthill Baptists are buying a

parsonage. Bush fires prevail in several sections of Ontario.

The Berlin Saengerbund has been incorporated.

St. Paul's Church, Caledonia, has a new pipe organ. A Napanee girl rides her bicycle clad in

A band of white caps is said to exist in etrolea.

The Colonial Conference last summer cost \$9,435. The Nanaimo, B. C., Council is in finan-

cial trouble. Parry Sound is reaching out after a public

Last year 21,000 tons of shipping was built in Canada. In April 370 settlers went into the

Alberta district. A bear at Lovering recently carried off an 80-pound pig.

Walkerton's population is 237 more than that of last year.

Rev. John Reynolds, of Maidstone, is to be superannuated. The village of Harrow has a new fire

engine and outfit. London will issue \$36,500 debentures for school purposes.

.The Buctouche and Moneton railway is re-opened for traffic. It is proposed to re-organize the Amherst-

The Hubbard House, Clayton, has been enlarged at a cost of \$12,000.

The Dunkards have just held their annual feast at Victoria Square. Valers' post-office is closed because no one will serve as postmaster.

The Catholic Church at Walkerton is being enlarged and renovated. A man at Ingersoll was fined \$20 and

costs for gambling on Sunday. A Government life saving station is to be established at Fort Gratiot.

Blanshard township, Perth county, is without a single liquor license. The Newsboys' Home, London, had to be

An attempt was made to wreck a G. T. R. train at Chatham last week. A carload of Chinamen recently passed

At Florence, West Middlesex, M. V. Morrill's store was damaged by fire. A freight ferry is to be established between Port Hope and Oak Orchard, N. Y.

Montreal hotelmen are about doing away with " runners " on boats and trains. The first girl in bloomers who rides a

bicycle in Petrolea will get a prize of \$50. A Woodstock policeman had a girl ar-

rested for calling him "a snoopy beggar." Much valuable timber in north-western Manitoba was destroyed by fire last year. Mr. and Mrs. Charles Carpenter, formerly of St. Thomas, have been divorced in Montana.

The population of Gravenhurst is 64 greater than that of last year, when it was The Montreal monument to its founder

De Maisoneuve, will be unveiled on Dominion Day. Robert Pringle, of Chicago, formerly of Seaforth, made \$40,000 in two weeks in

wheat speculation. Rev. Dr. Burns, for many years principostponed in consequence of unforeseen pal of the Hamilton Ladies' College, is now

Leader Haycock, M. P. P., will address a number of meetings in Bruce and Grey counties this summer.

The three chief officers of the Royal Society of Canada are natives of the Maritime Provinces. The president, Dr. Bourinot, is a native of Cape Breton ; the vicepresident, Archbishop O'Brien, belongs to Prince Edward Island; and the secretary.

Dr. George Stewart, is a New Brunswicker.

Solemn Truth.

One business man met another on the street. The second man seemed downcast. and had a look as if he were ashamed of

What is the matter ? asked the first man Well to put it briefly, said the other, I have been speculating in stocks. Indeed? Were you a bull or a bear?

Neither-I was an ass.

Sunburnt, of Course.

I wonder why when husband goes, Good Mrs. Noggles said, A fishing every day or two, It makes his ness so red ?