

The Municipal World

Published Monthly in the Interests of

the Municipal Institutions of Ontario



Vol. 5. No. 1.

ST. THOMAS, ONTARIO, JANUARY, 1895.

Whole No. 49

Municipal Debentures Wanted

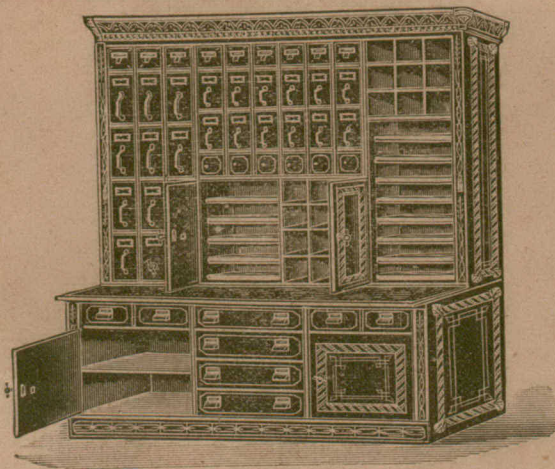
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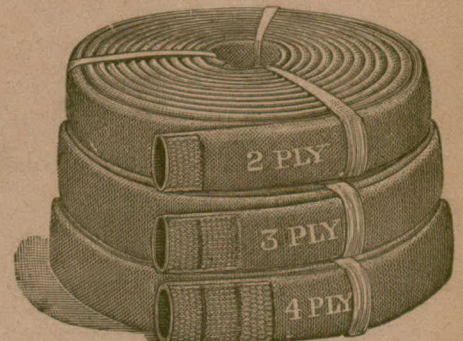
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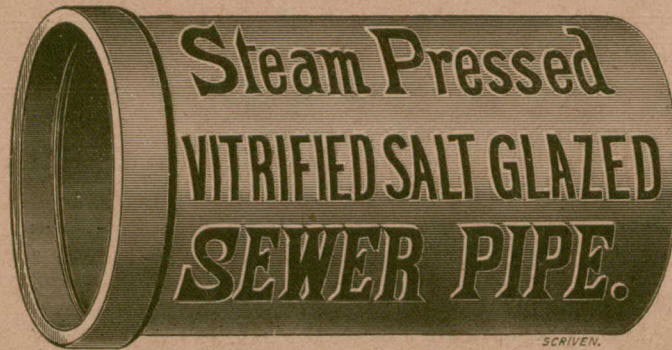


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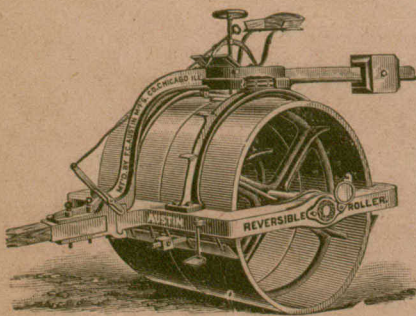
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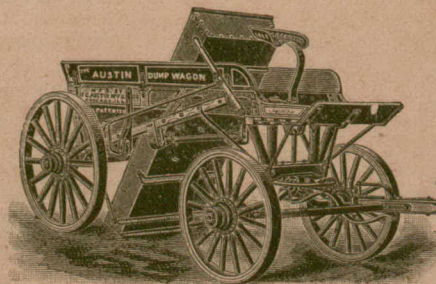
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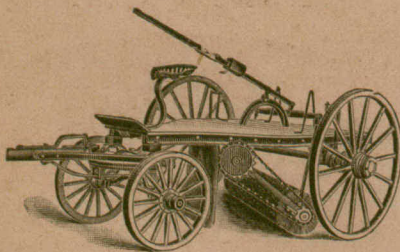
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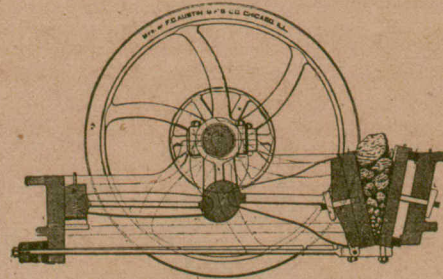
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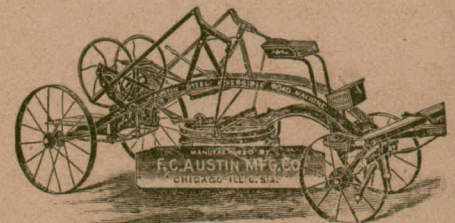
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THE MUNICIPAL WORLD

Published Monthly in the Interests of Every Department of the Municipal Institutions of Ontario

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CALENDAR FOR JANUARY AND FEBRUARY, 1895.

Legal, Educational, Municipal and Other Appointments.

JANUARY.

1. New Year's Day.
By laws for establishing and withdrawal of union of municipalities for High School purposes take effect.—H. S. Act, Section 7 (1).
Trustees' Annual Report to Inspectors, due.—P. S. Act, Section 40 (13).
By-Law establishing Township Boards takes effect.—P. S. Act, Section (54).
Separation of Junior Township takes effect.—Mun. Act, Section 28.
2. Polling day for Trustees in Public and Separate Schools.—P. S. Act, Section 102 (3); S. S. Act, Section 31 (2).
3. High School open, second term.—H. S. Act, Section 42.
Public and Separate School open.—P. S. Act, Section 173 (1); 173 (2); S. S. Act, Section 79 (1).
5. Trustees' Report on Truancy to Department, due.
7. Election day.
10. Last day for Clerks to make return to Bureau of Industries under Debentures Registration Act, R. S. O. Chap. 186.
Clerk of municipality to be notified by Separate School supporters of their withdrawal. S. S. Act, Section 47 (1).
14. Annual Reports of Boards in cities and towns, to Department, due.—P. S. Act, Section 107 (12).
Names and addresses of Separate School Trustees and Teachers to be sent to Department.—S. S. Act, Section 28 (12).
Annual Report of High School Boards to Department, due—H. S. Act, Section 14 (12).
Names and Addresses of Public School Trustees and Teachers to be sent to Township Clerk and Inspector.—P. S. Act, Section 40 (10).
Annual Reports of Separate Schools to Department, due—S. S. Act, Section 28 (18); Section 32 (9).
Minutes of R. C. S. S. Trustees' annual meeting to Department, due.
15. Application for Legislative apportionment for inspection of Public Schools in cities and towns separated from the county, to Department, due.
Last day for making returns births, deaths and marriages, registered for half-year ending 31st December.—R. S. O., Chap. 40, Section 6.
Last day for Treasurers of Municipalities indebted under Municipal Loan Fund Act, to make return of Taxable Property, Debt and Liabilities to Provincial Treasurer.
16. First meeting of Public School Boards in Cities, Towns and Incorporated Villages.—P. S. Act, Section 106 (1).
21. Councils of Townships, Villages, Towns and Cities to hold their first meeting at eleven o'clock a.m.—Mun. Act, Section 223.
Trustees of Police Villages to hold their first meeting at noon.
By law withdrawing from Union Health District takes effect.
Members of Free Library Boards to be appointed by Councils in Cities, Towns and Villages.—Free Libraries Act, Section 3.
Councils to appoint members of Local Boards of Health.—Public Health Act, Section 40.
Appointment of High School Trustees by Municipal Councils.—H. S. Act, Section 11, (3).
22. County Councils to hold first meeting at 2 p.m., at County Hall or Court House.
County Treasurer to submit to county councils, report of the state of non-resident land fund.—Assessment Act, Section 220.
31. Last day for all councils to make returns to Bureau of Industries, of the debt of their corporations.—Mun. Act, Section 382.

FEBRUARY

1. Last day for Railway Companies to transmit to Clerks of Municipalities statements of Railway property.—Assessment Act, Section 26.
Last day for Collectors to return their Roll and pay over proceeds—Assessment Act, Section 132.
Last day for County Treasurer to furnish Clerks of Local Municipalities with list of lands in arrears for taxes for three years—Assessment Act, Section 140.
6. First meeting of Board of Education at 7 p.m., or such other hour as may have been fixed by resolution of former Board at the usual place of meeting of such Board.—Public Schools Act, Section 106; High Schools Act, Section 13.

The Municipal World

PUBLISHED MONTHLY

In the interests of every department of the Municipal Institution of Ontario.

K. W. MCKAY, EDITOR,

A. W. CAMPBELL, C. E. } Associate
H. F. JELL, Solicitor. } Editors

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THE MUNICIPAL WORLD,

Box 1252, St. Thomas, Ont.

ST. THOMAS, JANUARY 1, 1895.

With the present issue we enter upon the fifth year of publication. Our thanks are due to the many councillors and officers who have favored us with their support, and assisted in making the "World" an authority on all questions relating to our system of local government.

THE MUNICIPAL WORLD occupies a unique position, being the only paper of the kind published. Its subscribers are the representatives of the people in every part of the province. All questions submitted referring to municipal matters are fully answered. We explain in a practical way devoid of technicalities the many problems of municipal engineering with which councils have to deal.

Every legal decision of interest is noted, and practical suggestions relating to Municipal work appear each month. New Legislation is explained and improvements in the present laws suggested. Our subscribers are kept informed on all matters of general interest to councils. Every municipal appointment appears in a calendar specially prepared each month.

We invite correspondents to use our columns for the discussion of municipal topics.

* * *

The Good Roads papers commenced in this issue, were prepared by A. W. Campbell, C. E., editor of the Engineer Department of THE MUNICIPAL WORLD. They contain the best information available on the subject. All estimates and prices may be relied upon. Members of councils will find them a valuable guide in determining all questions of road construction and maintenance.

A reference to the road laws in other countries on page 11 of this paper shows, that in the United States, the good roads agitation has brought about the passing of new laws in many states. The tendency of reform in roadmaking is to divide roads into two classes, viz.: township and county. This is most desirable when permanent road improvement is undertaken. Among other questions to be considered in solving the road problem is that of the term for which township councillors should be elected. Under the present system, councillors do not have an opportunity to display their ability to carry on municipal work in an economical manner. This could easily be remedied by extending the term of office of township councillors. School trustees are kept in office three years, one being elected each year, the result being that experienced men always form the majority. In the townships, if the reeve and one councillor were elected each year—the councillors retiring in rotation, experienced men would always be found at the council board. Municipal office would then be accepted by many who object to the annual election. Road and bridge improvement, which now cost one-third of all taxes collected, would be carried on in a uniform manner. A new member with ideas would have men of experience to advise him, and an economical management of every department of the municipal service would be the result.

* * *

Every municipal council in Ontario will receive an invitation to send a delegate to the annual convention of the Ontario "Good Roads Association" to be held in Toronto on the 7th and 8th, of February.

The question of good or bad roads is important to every community. The results of our present system are not satisfactory except in a few municipalities where the roads have been maintained under efficient supervision.

The object of the convention is to obtain the best information from every part of the Province, discuss reforms proposed, and if possible decide what should be done to procure better roads.

* * *

Many members of councils are inclined to give all municipal offices to the lowest tenderer and pay no attention to the statutory enactment that "No council shall assume to make any appointment to office, or any arrangement for the discharge of the duties thereof by tender or to applicants at the lowest remuneration." The duties appertaining to any position and the time necessary to properly perform them should first be ascertained, and a reasonable remuneration therefor decided on. When this is done, consider the qualifications of the best men available for the position, irrespective of personal or local considerations, and then make the appointment.

The question of a clerk's duty as custodian of municipal records was recently brought forward in the York township council, where it was stated that a ratepayer, against whom the council had a suit pending, had been allowed to look through the records and accounts and take copies of them. In matters of this kind the clerk is directed by section 247 of the Consolidated Municipal Act, which provides that any person may inspect any documents in the possession of, or under the control of the clerk. It is not to be supposed that in any action at law a municipal council would desire to withhold information for the purpose of enforcing a claim against an individual. This is very often the case when private individuals are concerned, and each is endeavoring to maintain his position, whether right or wrong. A municipality should not commence legal proceedings unless the best information or official records show their claim to be a just one. Municipal records should always be open to inspection.

* * *

Reeves and deputy-reeves should see that the certificates entitling them to a seat in the county council are in proper form. Section 65 of the Municipal Act will direct them in this matter. The section is positive that no reeve shall take his seat until he has filed his certificate. This is the evidence of the right of the person presenting it to a seat in the county council. The county clerk is, in the first instance, made the judge of its legal sufficiency. It is advisable in all cases to have the certificates and declarations prepared in duplicate by the clerks of the local municipalities; one copy to be mailed to the county clerk and the other to be handed to the reeves and deputy-reeves to be taken by them to the county clerk at the first meeting of the council. This precaution is necessary because, very often, papers mailed fail to reach their destination, and on the other hand members of the county councils sometimes forget to bring their certificates with them.

* * *

The Kingsville waterworks system has been completed at a cost of about \$20,000. The work has been carefully carried out in all its details, under the supervision of W. Newman, C. E. of Windsor. Clerk W. A. Grenville will be pleased to answer all inquiries, or show visiting officials the works at any time.

Looking on the Bright Side.

Said the police judge to the prisoner, a defeated candidate just after the recent election:

"Your wife has left you, you have had your head broken, and your eyes blackened, and your front teeth knocked out, and you have spent the night in a cell."

"Well, your Honor, its a poor heart as never rejoices,"—[Texas Siftings.

Assessors.

The assessor is the most important official to be appointed at the January session of local councils. On the correctness of his work a great deal depends. He must value all the assessable property within the municipality on an equitable basis, so that no one will be imposed on in the payment of taxes.

In addition to this he should pay particular attention to securing a correct return of the population. If this is overlooked the municipality loses probably an amount equal to the assessor's salary in the matter of legislative school grants, which are apportioned in proportion to the population. Again, the assessor must be careful to put on the roll the names of all who are qualified under the Manhood Franchise Act, as well as all owners, tenants, householders, farmers' sons, etc. If this duty is neglected the council is put to the expense of courts of revision of the assessment roll, and more especially the voters' list, a few complaints against which will cause expenses sufficient to pay the usual salary of three or four assessors.

Another duty is to be sure and enter a correct description of all lands assessed in the roll, whether resident or non-resident. This is more important where the original lots have been subdivided into town lots, as many of them are generally vacant, and if returned to the county treasurer for non-payment of taxes, with an imperfect description, he is unable to enter them up in his books until this omission is attended to, and in some instances this also results in a payment to the clerk or other official for extra services.

The dogs must not be omitted, and unless the assessor is careful to give no notice of his arrival he will overlook many of man's "most faithful friends," who have been consigned to the cellar or other secure place by those who delight in defrauding their municipality out of the dog tax. There is still another important matter that assessors generally never think of. Section 42 of the Assessment Act authorizes them to demand a statement in writing from any person assessable in respect to personal property in the municipality. It is a general complaint that many wealthy people now escape payment of taxes on income, money, etc. They are generally the influential residents who have no difficulty in securing a continued assessment at "last year's rates." They will think twice before giving the assessor an incorrect statement in writing as section 45 provides a penalty for so doing.

Many of the complaints of inequality of assessment may be remedied if assessors would avail themselves of the authority conferred by the Act. Councillors acting in the best interests of their municipality will appoint a competent assessor. It is not necessary to appoint a man simply because he made application for the office. Encourage the most competent

man you can find to apply for the position, and we think sufficient reasons have been given to show that he should be appointed at a salary sufficient to pay him for the time necessary to discharge his duties carefully.

Election of Warden.

The election of warden in many counties occupies more time than should be devoted to that purpose. The ballot system of appointment is the cause, and although an unauthorized method, it has become general and is provided for in the by-law regulating proceedings of the council. Doubts, however, may be raised as to the legality of such a by-law in the absence of express statutory authority. A municipality cannot invest itself with any powers beyond those so conferred or in conflict with the common law. Open voting is only recognized by the common law and by parliament in the election of speaker.

The law of Ontario is so specific in all cases that if the use of the ballot in the election of warden had been intended it would have been so expressly set forth. On the contrary, section 226 which provides for a casting vote, shows that the ballot was not intended, as such casting vote must necessarily be given openly. A by-law providing rules and regulations, governing the proceedings of a council applies only after its organization.

If any member of a council objects to the ballot and claims an open vote, the ballot should be stopped, as any election in that way would then be illegal without a doubt. The election of warden cannot be proceeded with until a majority of the whole number of the council is present. The clerk acts as presiding officer, receives the nominations, and when a candidate receives a majority of the votes of the members present he should be declared elected.

Keep Cattle off the Highways.

Chief Justice Armour made a statement at Kingston the other day that should be brought to the attention of every man in the province who owns live stock. The statement was regarding the responsibility of such owners for damages caused by animals owned by them and was made in connection with a case before the court. A man who had been thrown from a buggy as a result of a collision with a cow on a rural highway, brought action to recover damages against the township. The plaintiff was non-suited, the judge holding that the municipality was not liable, but the owner of the cow was. Then his Lordship referred to the fact that a freight train had been derailed and three men killed in Northumberland county owing to a stray cow getting on the track, and said that the owner of the animal in that case would be held answerable to the estates of the men killed. Farmers had better, in view of this declaration, keep their cattle at home.

Pedlars' Licenses.

The Elgin county council, at its last session, decided to petition the Ontario Legislature to amend subsection 3 of section 495 of the Municipal Act, so that it will read as follows:

Words in *italics* are changes suggested.

3. For licensing, regulating and governing Hawkers, *Pedlars*, or Petty Chapmen, and other persons carrying on petty trades, *and every other trading person or persons*, who go from place to place or to other men's houses, on foot, or with any animal, bearing or drawing any goods, wares or merchandise for sale, or in or with any boat, vessel or other craft, or otherwise carrying goods, wares or merchandise for sale, and for fixing the sum to be paid for a license for exercising such calling within the county, city or town, and the time the license shall be in force

In case of counties for providing at the discretion of the council, either the treasurer or clerk of the county, or the clerk of any municipality within the county with licenses in this and the previous subsection mentioned, for sale to parties applying for the same under such regulations as may be prescribed in such by-laws:

Provided always that no such license shall be required for hawking, peddling or selling from any vehicle or other conveyance, any goods, wares or merchandise to any retail dealer or for hawking or peddling any goods, wares or merchandise, the growth, produce or manufacture of this province, not being liquors, within the meaning of the law, relating to taverns or tavern licenses, if the same are being hawked or peddled by the manufacturer or producer of such goods, wares or merchandise, or by his bona fide servants or employees having written authority in that behalf; *and if the manufacturer or producer of such goods, wares or merchandise, is at the time entered upon the assessment roll of the municipality in which the same are being hawked or peddled, in respect to income or personal property in the same manner and to the same extent as required and provided by subsection 9a of section 489 of this Act, as amended by section 7 of chapter 50, of 57 Vic. in respect of transient traders. (a) This subsection shall apply to and include all such persons as aforesaid who sell, or offer for sale, goods, wares or merchandise, or carry and expose samples or patterns of, or take orders for any such goods, wares or merchandise, to be afterwards delivered within the county to any person not being a wholesale or retail dealer in such goods, wares or merchandise.*

It is a general complaint that the business of country merchants is unjustly curtailed by foreign agents who continually invade their territory, reap the harvest, and depart without paying for the privilege. Under the present law, municipal regulations are practically inoperative, and it is believed that the amendments suggested, if put in force, will remedy all defects.

CORRESPONDENCE.

This paper is not responsible for opinions expressed by correspondents.

All communications must be accompanied by the name of the writer, not necessarily for publication, but so that the publishers will know from whom they are received.

Impounding of Cattle.

To the Editor of THE MUNICIPAL WORLD:

DEAR SIR,—Referring to your opinion, re animals impounded, in THE WORLD for November and December, I think there was a case, Crow vs. Summers, decided in 1882 or 3, where it was held by the full bench in the court of appeal, "that any by-law of a municipality establishing the height of a lawful fence was ultra vires; that there can be no such a thing as a "lawful fence," other than a fence constructed according to an award of fence-viewers under the Line Fences Act; that no one was compelled to construct or maintain a fence at all, except an award fence; that no one was compelled to provide for keeping out his neighbor's cattle, but only for keeping in his own, and consequently, no matter whether there was a fence or not, the owner of cattle trespassing on other lands was liable for damages sustained in consequence of such trespass, and such cattle were liable to be impounded and fees and damages collected the same as if there had been a so-called lawful fence." This municipality has acted on that decision since and has now no by-law establishing a lawful fence, and I believe other municipalities act on the same principle. It would seem by inference, if this is correct, that fence viewers would be required to act no matter if there was a fence or not.

As this is a matter of some importance, and as there seems to be considerable diversity of opinion, even among the legal profession, as to the application of the Line Fences and Poundkeepers Acts in the matter of 'lawful fences,' perhaps you could look the matter up and give the readers of THE WORLD something authoritative on the subject.

"S."

[In Crowe vs. Steeper and Williams, it was decided that a by-law must be reasonably clear and unequivocal in its language in order to vary or alter the common law.

A municipal council, by by-law, passed pursuant to the Municipal Act, enacted that certain descriptions of animals (naming them), and all four-footed animals known to be breachy, should not be allowed to run at large in the township, and provided for fixing the height of fences. The plaintiff's cattle strayed from the highway into the lands of the defendant Williams, whose fences were not of the height required by the by-law. He distrained them and they were impounded, defendant Steeper being the poundkeeper. In an action of replevin, it was held that as the by-law did not affirmatively authorize these cattle to run at large by negatively providing that certain other classes of

animals should not be allowed to do so, the plaintiff was liable at common law, and under R. S. O., chap. 195, for the damage done, irrespective of any question as to the height of defendant's fences.—ED.]

Boards of Health.

Members of local boards of health are entrusted with unlimited authority. Section 49 of the Public Health Act, authorizes the treasurer of a municipality to pay the amount of any order issued by the members of the local board or any two of them for services performed under their direction. This may seem unreasonable when the red tape connected with the ordinary expenditure of public money is considered. We believe that an appointment as member of a local board of health should be looked upon as one of the highest honors a municipal council can confer. When a contagious disease breaks out, the health and business interests of the municipality suffer in proportion to the efficiency with which the health regulations are carried out. Councillors should carefully consider this and appoint only the most capable men.

At the last session of the county council of Grey a resolution was passed authorizing the forwarding of a memorial to the Ontario Legislature, asking that in case of a vacancy by death or otherwise of the reeve of a township that the remaining members of council be empowered to fill the vacancy from their own number, without the expense of a new election.

It is a noteworthy feature of the present municipal reform wave that cities with large councils want the number reduced, and cities with small councils want the number increased. More than a change in numbers is evidently required.

"My friend," said the truly patriotic citizen, "you are becoming prominent in politics."

"That I am," replied the local leader. "I trust you will adopt as your motto the good old phrase, 'be sure you're right, and then go ahead.'"

"Not exactly, though you're guessing pretty close. De motto of our association is, 'Be sure you get ahead; ye kin make it right afterward.'"

Sullivan bought a goat, for which he paid \$5. Shortly after he received a tax bill on the goat of \$8. He called on Rafferty, the assessor, and said:

"Why do you tax me \$8 on my goat when I paid but \$5 for him?"

"Well," said Rafferty, "I have carefully read what the statute says, and it reads: 'Whosoever owns property abutting on the street shall be taxed \$2 a running foot.'"

Municipal Insurance.

The Aurora *Banner* referring to the Canadian Underwriters Association and the deficiencies in fire department required to be supplied, in order to retain their present rating in that Town, states:

The demand made by the association in this matter is simply outrageous and unreasonable for a town of this size and cannot be complied with. It would be much cheaper to go back to a lower rating. The association we understand is determined to enforce these regulations in every town where there is a system of water-works. The result will be that a petition will be presented to the local legislature at no distant date, asking for an act of municipal insurance, empowering municipalities to provide a sinking fund for insurance. We venture to say there has been more money paid out during the past year in this town for premiums on insurance than the companies have paid for loss of fire for the past ten years. We hope to see an agitation commenced shortly which will not end until municipal insurance is fully established, and the insurance companies compelled to withdraw from the towns at least.

The Stratford council has been considering a notice received from the Underwriters Association stating that the classification of the town would be reduced to D after January next unless certain deficiencies in their fire department were supplied.

This is only one of many instances in which the association has exercised its authority. They are always on the safe side when demanding additional equipment for fire protection at the expense of municipalities. The profits of fire insurance companies are thereby increased. The agitation for legislation to allow councils to contest fire insurance should receive a strong support, as the profits from policies in force in every urban municipality would more than maintain an efficient department and pay fire losses, and the surplus would not go to increase the dividends of the companies, the great majority of whose stockholders reside in other countries.

Publications Received

Popular Information as to Division Courts by W. H. Higgins, of the office of the Inspector of Division Courts.

This is a useful and convenient addition to division court law. It is concise without the learned annotations and reference to decided cases which make their works on Division Courts so cumbersome to the lay mind. It contains also the latest division court rules, prepared by the board of county court judges under the statute, and a list of the clerks and bailiffs throughout the province with their respective divisions, together with a tariff of their fees. The work is exceptionally well indexed. Prepared as it is by a gentleman of wide experience in such matters, this book should be in the hands of every clerk, bailiff and lawyer in the Province.

Messrs. Hart & Riddell, Toronto, are the publishers. Price, bound in cloth, \$3, half calf, \$3.75.

Good Roads.

The Good Roads Agitation.

ORIGIN.

With the dawn of civilization, many centuries ago, the first road was constructed, and the agitation for better highways, first for military, and then for commercial purposes was introduced.

A short reference to the road making of the ancients, from which our systems have to a large extent been gradually evolved will not be out of place.

The earliest roads about which anything definite is known, are those of ancient Rome, one of which, the most celebrated, "The Applian Way" was commenced 312 B. C.

When Cortez conquered Mexico, the ancient capital was approached from various directions by paved roads from two to three miles in length and thirty feet in width. And in Peru Spaniards found among other indications of civilization, a net-work of highways superior to those in any other country. It is on historical record that there were over 1700 miles of these roads, and that they were paved with large flags and free stone, and in many places set in asphaltic cement. With the disruption of the Roman Empire came a period at which road-making and maintenance became neglected, and seems to have fallen into general disuse until about the 12th. or 13th. Century when the streets of large towns were protected by stone, laid in a gravel or concrete bed. In many continental cities this method of street paving is yet adhered to. The bad state of the roads in England in 1685 is referred to by Macaulay the English historian who states "that it was by the highways that both travellers and goods generally passed from place to place, and these highways appear to have been far worse than might have been expected from the degree of wealth and civilization, which the nation had even then attained." The roads in England were at that time in a much worse condition than those of most European countries, and they were sometimes almost impassible. About the middle of the last Century, some decisive steps were taken for improvement in both construction and maintenance, and shortly afterwards much improvement was effected by the introduction of the systems of Telford and Macadam. During the present Century much has been done to improve the highways of Europe, more especially in France and Great Britain. A great deal has been said about the inferiority of the roads of this country, compared with those in England and the neighboring countries of Europe.

By way of explanation it should be stated that, before railways and steam navigation were invented, all the mails had to be carried over the common roads, and there were no other means of communication. These roads were commercial highways of the country, so that for many years roadmaking was a most important department of parliamentary care in these countries. It is said that in 1816, there were in England and Wales alone 25,000 miles of turnpike road, and this was just at the commencement of modern scientific road-making. The English people had become accustomed to them and they were looked upon as a necessity.

In Ontario the early settler began the agitation for improved highways while chopping his way through the forest. He had hardly established a settlement when steam navigation and transportation by rail came into existence, and so attracted all the traffic. This for the time checked our progress as road-makers. Had railroading and navigation by steam been deferred for another half century, we would have been advanced farther in the science of road-making. But it was not to be expected in a country so extensive in advantages, where

the temptation is so great for the population to spread over immense territory, that it would be possible to make roads everywhere, such as would be looked for in thickly populated countries, so we need not be discouraged.

For several years past the public press has been pointing out the necessity for reform in road-making. Men most acquainted with the details have been clamoring for reform. The people are ready for the change, if satisfactory plans are submitted for carrying out of the work. The result of this agitation, was the formation of The Good Roads Association, at Toronto in February last, and as an association, we desire to interest you in the best information concerning this most important subject. We have assisted largely by way of bonuses in building our magnificent Provincial Railway System, and should now turn our consideration to the important question of road-making, and endeavor to create an interest among the municipal road-makers throughout the province, and obtain an expression of opinion, which in a short time will be so decided that our representative law makers and councillors will have to give heed.

When the subject shall have been discussed in County Councils, in township meetings, in Farmer's Institutes, and in Provincial Road Conventions, a final conclusion reached, and that conclusion sent back to the councils and confirmed, we shall then have come as near as possible to a proper solution of the problem.

No person or association in the land can afford to neglect a movement so vital to the country's progress and prosperity; few, indeed, in addition to their concern in the general welfare, have some special interest, direct or indirect, in the condition of highways.

The organization that will solve the good road problem will secure a notable place in the history of civilization. The best thought is required in developing or choosing a plan of action, and the solid support of the people when a plan is found.

Loss Through Bad Roads and Gain Through Good Ones.

It is impossible to refer definitely to the losses occasioned to any community through bad roads. The public treasury suffers owing to the present extravagant system of road maintenance, to which must be added the large amounts paid both in the way of law costs and damages to persons who have suffered loss through accidents caused by non repair and bad condition of the roads. That bad roads make large demands on private funds is admitted. In comparison, the economic benefits of good roads can readily be shown by their cheaper maintenance, greater and easier facilities for travelling, less cost for repairs to vehicles, a proportionate relaxation of strain upon our horses, a consequent saving of time, to say nothing of the comfort to be derived therefrom by those using the roads. The increase in land values will more than pay for the permanent improvement of roads and this increase will be greater if the county system of road improvement is adopted.

Apart from the acknowledged interest in good roads of the builders of wagons, carriages, bicycles, fraction engines, and implements, and carriage owners, horse breeders, etc., and that of all merchants and manufactures, in respect to the cheap and speedy distribution of goods and better collection of raw materials and money returns, there are many great semi-public institutions whose interests are deeply involved.

Railroads, in the equal distribution of their traffic through the seasons, securing constant employment of their force and equipment; telegraph and telephone companies,

in the extension of country service; newspapers in the expansion of their circulation through free delivery that will follow good roads; banks and bankers, in the quicker movement of capital in country business; and all philanthropic associations and individuals in the provision of employment sufficient to "abolish poverty," or at least want and starvation, for a generation.

The fertility of tillable land is constant and it is the accessibility to market that fixes its value. Ontario's wealth in agriculture is owing to the facilities for transportation afforded by her network of railways. The resources of our country would be almost useless without, such means. The same law by which the railway gives value to real estate also applies when a good road completes the system from the farm to the station. With good roads the owner can come and go when he gets ready; he can sell his produce when the prices are best; he is not compelled to wait the pleasure of sunshine or shower, and go "when the roads are good," nor is he compelled to force his produce upon an unwilling market at whatever price a crowded warehouse, elevator or railroad may dictate. He can profitably employ his teams at all times of the year; time will be saved, business will be regular, teaming can be done when the farm does not require attention, larger loads can be drawn in less time, the price of all products would be that allowed by the law of finance—supply and demand. We would no longer be at the mercy of greedy speculators and glutted markets, and the farmer would take his rightful place in the business world and increase profits by decreasing the cost of production.

The construction at once of a complete and thorough system of county roads for a Municipality, or several contiguous Municipalities, has many advantages. It brings into the locality, to be paid out for labor, and afterwards used in improving and increasing the value of the taxable property of the county, the amount required for the improvement. As soon as the system is completed there is a large increase in the marketable and taxable value of all the farms, and the people at once come into the enjoyment of the comforts and advantages which are derived from good roads. The work, the large amount of which makes it practicable to adopt a thorough system, can, therefore be much more economically conducted than when it is carried on in a fitful and irregular manner, insuring at the same time the almost certainty of better roads. The annual tax now levied for the improvement of roads would be then levied to pay interest on the bonds, and to keep the roads in repair. In some portions of the country it is, of course, more difficult and expensive to construct and maintain good roads than in others. Any enterprise which reduces the cost of transportation, and increases the value of land, should commend itself to all. It would be difficult to devise a scheme that would contribute so largely to the general prosperity as money judiciously expended in the construction of first class roads.

The Statute Labor System.

Statute labor or the road-tax system of personal service and commutation, though nearly universal among us, is unsound in this principle, unjust in its operation, wasteful in its practise, and unsatisfactory in its results. Borrowed from similar road labor systems of England and France, it is like them, a remnant of the times when one of the duties by which land was held, was the obligation to make the roads passable for the troops of the Lord of the Manor, and while we do not advocate the abolition of statute labor which is wholly controlled by your local municipal councils, we wish to say that a wise and well regulated system for carrying on the repairs of roads, and of maintaining the greatest degree of efficiency, is as important as their judicious construction.

When the country was new, and the people were not in a position to pay money tax for

uilding and repairing roads, it is quite easy to understand their reason for adopting the statute labor system, as they did the system of making bees for chopping out a piece of forest, or cleaning up a fallow. But as their financial position improved, they realized the fact that it was not profitable enough to spend days, possibly weeks, to repay by day's work the time put in for them by men whose services were little better than useless. As time went on, they became aroused to this fact, as well as to the fact that one-half the value of their time in money, paid to good workmen, would secure the same amount of work performed in a better manner. The statute labor system should be as readily and perfectly discarded as the old system of invited labor. It is unfair because it recompenses inferior hands the same as those who are good workers, it places all classes of workmen on the same basis, it compels each man to work on the public roads for so many days. The actual cost of maintenance is greater than under any other system. Though the township pays no money to maintain these roads, their maintenance costs the rate payers an enormous amount of labor, which represents to them so much money. The payment of taxes in this way is not profitable, in that taxpayers thereby shirk their duties to such an extent that the roads suffer from neglect and mismanagement. It allows property owners to impose on their township by substituting inferior hands, while they draw the same compensation for them as that received by able bodied workers. This fact is too well known to need description, and that it has been tolerated, suggests a doubt that as a people we are not destitute of humor. Any sensible man would not attempt to defend the present system, which is only upheld by custom, for the want of a better plan. It is a waste of time to advocate the commutation of statute labor until some better system is formulated, and the people shown that it is to their advantage, to adopt it.

VALUE OF STATUTE LABOR.

The value of labor, or any other commodity is generally determined by the amount of money necessary to purchase it. This is applicable to statute labor. In the first place, the path master is elected without the first thought as to his fitness for the position, and when he has learned something of his duties, another takes his place and begins to give the public the benefit of his experience on the road. It is principally where roadmaking materials are plentiful, and the character of the soil is such as to require but little drainage, that statute labor, inefficiently directed, will succeed in making a fairly passable road, the cost of which is never considered. If the people would only take the pains to ascertain from intelligent path masters their estimate of the value of the labor under their control, as at the present performed, we would venture to say that they would be surprised to find that a sum of money equivalent to the statute labor commuted at \$1 per day, would, if expended on business principals, perform double the work in a more efficient manner. At present but few municipalities have adopted the commutation system. We have the opinion of Mr. W. J. Graham, Reeve of Caradoc, in whose township the statute labor of two wards is commuted at 70 cts. per day. In a letter to the Secretary of our Association he states "that the benefits are so apparent in the extra amount of work performed, and the style and manner of road construction that the difference between commutation statute labor and the old system would not bear any comparison whatever." We can show more road improvement under the commutation system and of a far superior class of construction than we could under the old system of statute labor in three years. In short the inhabitants of these wards have come to the conclusion that the old system of statute labor has served its usefulness, and that better results could be obtained at a commutation of 25 cts. per day. Thomas Teall, Reeve of South

Grimsby, in which Township the commutation system has been in force in the unincorporated village of Smithville for some time states." I unhesitatingly recommend the commutation of all statute labor, especially in unincorporated villages, and though the old system of roadmaking has done good service in the past it should give way to a more progressive mode for the need is great." The details of the system in force in the township of Caradoc are as follows: The commissioner of each ward is appointed and has placed to his credit the number of days statute labor commuted at 70 cts. He divides his ward into 4 sections and transfers to each a sum representing the number of days statute labor. The Commissioner selects some person of intelligence in each district to carry out his views and gives him the power to hire and discharge all parties working on the roads. No person is engaged except able-bodied men, and teams are required to haul one yard of gravel at a load. The overseer of the district gives each person working under him a certificate of his time to the commissioner, when the party is paid upon signing the pay sheet. In the wards where we have commuted the statute labor, pathmasters are not appointed as formerly. The township advances the amount of the commutation, and the work is performed in June, the commutation being collected in the fall at the time the other municipal taxes are collected.

In South Grimsby a different plan was adopted for the unincorporated village of Smithville. The money is collected by a collector appointed by law and expended by a commissioner on the different road divisions as they existed in the village before being set apart for this purpose, each division getting as near as can be the amount paid by it.

The condition of the roads, which is so important an element of the wealth and comfort of the community, should not be allowed to remain at the mercy of the indolence or false economy of the various small townships through which the roads pass. In one township its public spirit, wealth and pride, may induce it to make a good road; in the adjoining township a short-sighted policy, looking only to private interests in its narrowest sense, may have lead the inhabitants to work upon the roads barely enough to put them in such a condition as will allow a waggon to be slowly drawn over them.

The pathmasters, who have the direction of improvements and repairs, should be liberally compensated for the time and attention they give to the work. Gratuitous services are seldom efficient. At best, they are temporary and local, and dependent on the whims, continued residence and life of the party, and, if the compensation be insufficient, the same evil exists only in a less degree. Skill, labor and tile cannot be obtained and secured without being adequately paid for.

When men of suitable ability, knowledge and experience, have been once obtained, they should be continued in office. By the present system of annual rotation, as soon as the pathmaster has learned something in his year's apprenticeship, his experience is lost and another takes his place, and begins in his turn to take lessons in repairing roads at the expense of their condition. In other occupations an apprenticeship for some years is thought necessary before a person is considered qualified to practice with his own capital, while a road overseer, the moment he is chosen, is thought fit to direct a work requiring much science at the expense of the township's capital of time, labor and money. The fundamental principal of the road tax is a false one. Its contemporary custom of requiring rents to be paid in kinds has long since been found to be less easy, and equitable than money rents. Just so is work paid for by the piece preferable in many respects to compulsory labor by the day. Men are now taken from their peculiar occupations, in which they are skillful, and transferred to one of which they

know nothing. A good plowman does not think himself necessarily competent to forge the couler of his plow or put together its woodwork. He knows that it is truer economy for him to pay a mechanic for his services. But the laws assume him to be a skillful road-maker—a more difficult art than plow making—and compel him to act as one, though his clumsiness in repairing a plow would injure only himself, while his road blunders are injurious to the whole community. Skill in any art is only acquired by practical and successful experience aided by the instructions of those who already possess it. An artisan cannot be extemporized.

Labor by the day is always less profitable than that done by the piece, in which each man's skill and industry receive proportionate rewards. Working on the roads is generally made a half holiday by those who assemble at the summons of the overseer. Few of the men or horses do half a days work, the remainder of their time being lost in idleness, and perhaps half of the even actual working time being wasted by its indirections.

The commutation system operates very unfairly and severely upon those who commute, for they pay the price of a full day's work, and their tax is therefore doubled.

Road Laws

A reference to the United States special consular reports on streets and highways in foreign countries shows that very little information may there be obtained that will in any way assist us in suggesting legislation necessary to provide ways and means for the construction of good roads.

Bryce, in his American Commonwealth, states that one of the chief functions of local government in the United States is the making and repairing of roads and bridges. These prime necessities of rural life are provided for by the township, county and State authorities, according to the class to which a road or bridge belongs. That the roads of America are proverbially ill-built and ill-kept, is due partly to the climate with its alternations of severe frost, heavy rains and long droughts; partly to the people, who are too busy and too eager to use their capital in private enterprise to be willing to spend freely on highways, partly to the thinness of population. In many districts railroads have come before roads, so that roads have been less used and cared for."

The older laws and systems of road-making established in the States of the Union were similar to our present laws, and are interesting as failures; and while it may be profitable to discuss them, a reference to the new laws which have already been adopted in many States as a result of the good roads agitation, will direct us to new ideas worthy of consideration. Nearly all of these laws were passed during 1893, excepting those of New Jersey, which date from 1888.

CALIFORNIA.

In California the county council has a general supervision of roads in the irrespective counties. Their duties are to open up new roads and take charge of such roads as have become highways by usage, dedication or abandonment, to abolish all roads not necessary, and to levy a property tax for road purposes. This tax is collected each year, to be apportioned to the special road districts entitled thereto, and kept by the treasurer in separate funds. Each county is divided into separate road districts, and each member of the council is an ex-officio road commissioner in his district. It is his duty to see that all orders of the council pertaining to roads are properly executed. These ex-officio commissioners are paid for their services twenty cents per mile one way for all distances travelled by them in the performance of their duties. The roads are repaired by contract, and let to the lowest

bidder. The advertisements for all bids specify the road or roads upon which the work is to be done, the kind or character, and the extent of the same, so as to plainly indicate to the bidders the work to be paid for, and when necessary a county surveyor furnishes profiles and specifications for the work. When completed the work is inspected by a committee of the county council, and no payment is made until it has been inspected by them, except that thirty per cent. of the amount of the contract may be advanced after the work is at least one-half completed.

The road commissioners are not allowed to have any interest directly or indirectly in any contract under their control. This system is adopted for all work in the construction and maintenance of highways.

INDIANA

In Indiana a county council, upon petition of fifty freeholders of any township, may submit the question of road improvement to the electors. The petitioners are required to pay all costs of election, and the construction of the roads is let to the lowest bidder. Debentures are issued to cover the cost, running from one to five years. These debentures and interest are paid by special tax upon the property of the townships, towns and cities along the road in proportion to the cost of the road in each. Improved roads may be built on main lines, and their cost assessed upon the lands within two miles on each side. They are in charge of a superintendent appointed by the council, who is paid \$1.50 per day for time actually employed, and are kept in repair by the county in which they are located, the money for this purpose being raised in the towns, cities and townships interested. The rate for this purpose is limited to one mill on the dollar.

MASSACHUSETTS

In Massachusetts, which is rather a small State, a highway commission of 3 members appointed by the Governor has charge of all State roads, and upon petition of a county council may adopt any road as a State highway if the Legislature makes appropriation therefore, except that the grading and bridging is required to be done by the county council. These highways are afterwards maintained by the State under the supervision of the commissioners.

NEW HAMPSHIRE

In New Hampshire each township is a highway district, and all subdivisions have been abolished. The construction and repair of the highways is in charge of a township commissioner, the expenses are paid by a rate of not less than two and one-half mills on the dollar, and not more than \$50 per mile of road per year.

NEW JERSEY

In New Jersey the township roads are under the management of the township council, and debentures are issued for grading, macadamizing and improving the same. The county council may designate certain roads as county roads, and improve the same, the expense of which is paid—one-third by the county, one-third by the State, and one-third by the local municipalities through which the roads run. When the owners of two-thirds of the land bounding on any public road undertake to pay one-tenth of the cost of improving such road, it is the duty of the county council to cause such improvements to be made. The appointing of overseers of highways has been abolished, the township council appointing a competent person to superintend all the making and repairing of roads.

An interesting experiment was made in building good roads by the people of Union and Essex counties, N. J. The pecuniary benefits resulting from this work are summed up in a report from the board of freeholders of the former county, which states that the total outlay has been nearly \$350,000, and there are now nearly forty miles of Telford and Macadam road in the country.

The beneficial effect of the roads is seen in the fact that property in Union county alone has appreciated in value far more than the cost of the roads, as the assessment shows. The county issued \$350,000 worth of road bonds, the interest on which must be met annually; yet there has been no increase in the county tax rate, because the increased assessment easily produces enough revenue to meet this charge. Very few of these roads have been built more than a year, and most of them only a few months; but already the people appreciate the advantages flowing from them.

Such practical evidence as this will certainly encourage roadbuilding.

NEW YORK

In New York the county council may adopt the county road system, and designate as county roads highways not within an incorporated village or town. These roads are required, as far as practicable, to be leading market roads of the county. A county engineer is appointed, and these roads are then maintained at the expense of the county. The engineer and council have full supervision of the construction and maintenance. In all counties adopting the county road system, statute labor is abolished and the money tax system adopted for the repair of the township roads.

WISCONSIN

In Wisconsin the township councils have full supervision and control of the highways, which are constructed and maintained under the supervision of a competent superintendent, who, when appointed, holds his office for three years unless sooner removed for cause. This superintendent has the same charge over the highways as local overseers formerly had. All taxes assessed for making and repairing roads are paid in money, and collected at the same time and in the same manner as other taxes. This law may be changed at any time that the electors' vote decides that the highway taxes shall be paid in labor instead of money for the ensuing year. Statute labor is then performed under the supervision of a superintendent appointed by the council. Under the act, unless a vote is taken every year to provide for working out the tax, the repair of all public roads is provided for by general tax throughout the township.

SUMMARY OF STATE LAWS.

Here then we have the examples of different authorities controlling the construction and maintenance of highways.

In California, where the township system is optional, the county council constructs and maintains all roads.

In Indiana the roads are maintained by the townships; but the county council may assume control of particular roads when so authorized by vote of electors of municipality interested, the local municipalities paying all expenses.

In Massachusetts we find a combined system of county and State roads.

In New Hampshire the township councils control and maintain all roads.

In New Jersey, where it is said the greatest advance has been made in roadmaking, we find the townships in charge of the roads, while the county council may select certain roads for improvements, at the joint expense of the State, county and township.

In New York the county and township authorities maintain the roads, each providing for the expense of the roads under their control. Statute labor is abolished in all local municipalities when a road is assumed by the county.

In Wisconsin all roads are controlled by the township authorities. Statute labor is abolished, although it may be performed any year if a majority of the electors by vote so decide.

In all States the tendency is to abolish statute labor and divide the roads between county and township authorities.

Alignment.

In nearly every work on road construction, the author lays down two distinct rules; first make the lines as nearly straight as possible, and when changes of line occur connect them by regular curves of proper radius; second when the line is intended to be straight, let it be absolutely so. These rules are in a very large degree considered obligatory their violation does a great deal towards spoiling the beauty of any landscape through which it is necessary to make a road. A great many in following fixed rules and principles regard beauty as a thing unworthy of consideration, and fine trees of a century's growth are ruthlessly cut down, and hill sides marred by deep and ugly cuttings when by making a slight bend in the road, and following the contour of a hill with its natural and irregular curves the road would be given more beauty and expense could often be saved.

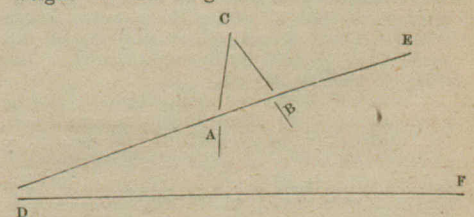
A consideration of the natural conditions ought to be among the determining elements of a line of road, the capability to seize upon and make the most of these natural conditions ought to be one point of decision. The aesthetic elements in the problem of making a road are not necessarily at variance with practical considerations.

Let road makers consider this question, consider how much beauty might be preserved, and added to our landscapes especially in suburban communities without the sacrifice of any reasonable utilitarian requirement. It is the want on disregard for beauty without any corresponding gain which should be protested against.

Grades.

In forming a road bed the grade should in all cases be reduced as far as practicable. The extra exertion a horse must put forth in overcoming a heavy grade is great. This can generally be lessened even in ascending steep hillsides by giving the centre line of the road a zig-zag direction, connecting the straight portion by circular arcs. The grades of the curved portions should be reduced, and the roadways also at these points widened for the safety of vehicles descending rapidly. The increased width of the road bed at the curves in the lines of the road should increase in proportion to the sharpness of the curve; the increase should be one half where the angle in the line is ninety degrees. The grade of the road should be regular between the changing points.

When a weight is drawn up an inclined plane the resistance of the force of gravity or the weight to be overcome is such a part of the whole weight as the height of the plane is to its length. If, then, a load rises one foot in every twenty of its length, a horse drawing a load of one ton is compelled actually to lift up one-twentieth of the whole weight, i. e., one hundred pounds, through the whole length of the ascent, besides overcoming the friction of the entire load. In the following diagram D E represents the inclined plane of the road, upon which rests a waggon, the centre of gravity of which is supposed to be C. Draw C A perpendicular to the horizon, and C B perpendicular to the surface of the hill. Let C A represent the force of gravity or the weight of the wagon and its load. It is



equivalent in magnitude and direction to its two rectangular component forces, C B, and

BA. CB will then represent the force which the wagon presses on the surface of the road, and A B the resisting force of gravity, i. e., the force (independent of friction) which resists the ascent of the wagon, or which tends to drag it down the hill.

To find the amount of this force from the two similar triangles, A B C, and D E F, we get the proportion; C A is to A B, as D E is to E F; representing the length of the plane by I, its height by H, and the weight of the wagon and load by W, this proportion becomes, W, A B : I, H. Whence A B equals $\frac{W H}{I}$.

That is the resistance of gravity due to the inclination is equal to the whole weight multiplied by the height of the plane divided by its length. If the inclination be one in twenty, then this resistance is equal to one tenth of W.

In this investigation, trifling sources of error have been neglected, arising from part of the weight being thrown from the front axles to the hind ones in consequence of this inclination of the traces, from the diminution of the pressure of the weight owing to its standing on an inclined surface, and from the hind wheels bearing more than half the pressure in consequence of the line of gravity falling nearer them.

The results of experiments fully confirm the deductions of theory as to the great increase of draught upon inclinations. The following data has been established:—

Calling the load the horse can draw on the level.....	100
On a raise of 1 in 100 a horse can draw only	90
“ “ 50 “ “	81
“ “ 44 “ “	75
“ “ 40 “ “	72
“ “ 30 “ “	64
“ “ 26 “ “	54
“ “ 24 “ “	50
“ “ 20 “ “	40
“ “ 10 “ “	25

In round numbers upon a slope of 1 in 44, or 120 feet to a mile, a horse can draw only three-quarters as much as he can upon a level; on a slope of 1 in 24, or 220 feet to the mile, he can draw only one-half as much, and on a slope of 1 in 10, or 528 feet to the mile, only one-quarter as much. This ratio will vary greatly with the nature and condition of the roads, for although the actual resistance of gravity is always absolutely the same upon the same inclination, whether the road be rough or smooth, yet it is relatively less on a rough road, and does not form so large a proportional part of the whole resistance. Thus, if the friction upon a road were such as to require upon the level a force of draught equal to one-fortieth of the load, the total force required upon an ascent of one in twenty would be one-fortieth plus one-twentieth, which equals three-fortieths. Here, then, the resistance of gravity is two-thirds of the whole.

If the road be less perfect in its surface, so that its friction equals one-twentieth, the total force upon the ascent will be one-twentieth plus one-twentieth, and here then the resistance of gravity is one-half of the whole.

If the friction increases to one-tenth, the total resistance is one-tenth plus one-twentieth, and here the gravity is one third of the whole. We thus see that, on a rough road with great friction, any inclination forms a much smaller part of the resistance than does the same inclination on a smooth road on which it is much more severely felt and proportionately more injurious just as the gaps and imperfections which would not sensibly impair the value of a common knife would render a fine razor completely useless.

The loss of power on inclinations is indeed even greater than these considerations show, for besides the increase of draught caused by gravity, the power of the horse to overcome it is much diminished in even a greater ratio than that of a man, owing to its anatomical formation and its great weight. Inclinations are particularly injurious where a single steep slope occurs on a long line of road which is

comparatively level. It is in that case especially important to avoid or to lessen this slope, since the load carried over the whole road, even the level portions of it must be reduced to what can be carried up the ascent. Thus, if a long slope of 1 in 24 occurs on a level road, a horse can draw up only half of the load he can carry over the level portion.

The bad effects of this steepness are especially felt in winter when ice covers the road; the slippery surface causes danger in descending as well as increased labor in ascending. The water also runs down the road and gullies it out, destroys its surface and causes a constant expense for repairs.

It is very important never to allow a road to ascend a single foot more than is reasonably unavoidable. If a hill is to be ascended the road up it should nowhere have a change of grade; but it should be located and have such cuttings and filling as will secure a gradual and uninterrupted ascent the whole way.

In forming excavations the inclinations of the side slopes demand particular attention. This inclination will depend on the nature of the soil and the action of the atmosphere and internal moisture. In common soils, such as ordinary earth formed of a mixture of clay and sand, or compact stony soils, the side slopes would withstand very well the effects of the weather with a greater inclination, although it is best to give them one and a-half feet base to one foot perpendicular; the roadway will by this arrangement be well exposed to the action of the sun and air, which causes rapid evaporation of the moisture on the surface.

Pure sand and gravel may require a greater slope, according to circumstances. In all cases where the depth of the excavation is great, the base of the slope should be increased. It is not usual to use any artificial means to protect the surface of the side slopes from the action of the weather; but it is a precaution which in the end will save much labor and expense in keeping the roadway in good order.

The simplest means that can be used for the purpose consists in covering the slopes with good sods, or else with a layer of vegetable mould about four inches thick, carefully laid and sown with grass seed. This means will be amply sufficient to protect the side slopes from injury when they are not exposed to any other causes of deterioration than the wash of the rain and the action of the frost on the ordinary moisture retained by the soil. The side slopes form usually an unbroken surface from the foot to the top. But in deep excavations, and particularly in soils liable to slips, they should be formed with horizontal cuttings, termed benches or small terraces, which are made a few feet wide, and have a ditch on the inner side to receive the surface water from the portions of the side slopes above them. These benches catch and retain the earth that may fall from the portions of the side slopes above them, besides rendering slides less liable. When side slopes are not protected, it is well in localities where stone is plentiful to raise a small wall of dry stones at the foot of the slopes to prevent the waste from being carried into the roadway.

In excavating through solid rock which does not disintegrate on exposure to the atmosphere, the side slopes should be made perpendicular; but as this would exclude to a great degree the action of the sun and air, which is essential to the keeping of the road in good order, it will be necessary to make the side slopes with an inclination varying from one foot base to one foot perpendicular, to two feet base to one foot perpendicular, according to the locality, the inclination on the south side, in northern latitude, being greater to expose better the road surface to the sun's rays.

Slaty rocks generally decompose rapidly on the surface when exposed to moisture and to the action of the frost. The side slopes in this material may be cut into steps, and then be covered with a layer of vegetable mould sown in grass seed, or else the earth may be

sodded in the usual way. The soils which are liable to slip are the stratified soils, which have a dip or inclination to the horizon. These slides are caused by the action of the frost or from the pressure of the water which insinuates itself between the strata. Soils formed of alternate strata of sand or clay are of this character, particularly if the clay is of a nature to become semi-fluid when mixed with water. Drainage is the best system to adopt as a preventative in cases of this kind to stop the surface water from running down the slopes and to cut off all springs which run towards the roadway from the side slopes. A ditch constructed on the uphill side of the road will answer to cut off the surface water, as it will prevent it reaching the slope. It frequently becomes a very difficult task to secure side slopes where slides are caused by the action of springs. Drains formed of broken stones covered with good sods, laid with the grass side down to prevent the drain from becoming choked with earth, will prevent the action of water if the sources can be easily reached by excavating into the slopes. Where the sources are not isolated, and the whole mass appears saturated, the drainage may be effected by excavating trenches at intervals to a depth of a few feet into the side slopes, and filling them with broken stones, or else a general drain of broken stone may be made throughout the whole extent of the slope by excavating into it. The drain should be arranged like an ordinary retaining wall, with buttresses at intervals extending into the earth farther than the general line of the drain. In forming embankments the side slopes should not be less than one and one-half feet base to one foot perpendicular. The surface water from the top of the roadway should not be allowed to run down the sides of the hill, as it would soon cut them into gullies and destroy the embankments. To prevent, as far as possible, the settlement which takes place in fills, great care should be exercised in making them; the earth should be laid in successive layers of about five feet in thickness, and each layer settled with heavy rammers. This method, on account of the great expense, is seldom resorted to; but where the fill is carried out from one end, taking the work forward on a level with the top surface, there is a want of compactness in the mass, and it is better to form the outside of the embankment first, and to gradually fill in toward the centre so that the earth may arrange itself in layers with a dip from the sides inward; this will in a great degree counteract any tendency to slip outward.

The perpetual advantage of an easy grade should be secured at the beginning. Straight lines are the best on light grades, and are also the cheapest. It is economy, however, to secure easy grades at the expense of straight lines where such grades are otherwise unobtainable, because the perpetual advantage to all users of the road more than off-sets the disadvantage to the land-owners from ill-shaped fields.

Drainage.

A road bed cannot be rendered satisfactory unless great care is taken with the drainage of the road surface and the formation of proper gutters and side ditches, and also the drainage of the road bed and adjoining lands. Where the road is to be constructed on a wet and retentive soil, a perfect system of underdraining must be provided, by cutting trenches diagonally across the road bed and discharging into the side ditches. These trenches should be from eighteen inches to two feet deep, and about one foot wide across the bottom, with a slight side slope outward. In these should be constructed porous drains composed of clean, coarse broken stone, brickbats, or some other suitable material. The trenches should be filled up to the level of the subgrade. They should be placed much closer when in loose soil. They should have a good fall and a free outlet. In

constructing roads in rural districts open ditches should be cut on each side of the road bed continuously at a distance of about twelve feet from the sides of the metaling. They should be of a size and declivity to readily conduct all water that will flow on the road or reach it from adjoining lands. They should be of sufficient depth to provide for the drainage of the foundation, at least eighteen inches below the subgrade. The strips of ground between the road and the open ditch should be properly graded to conform with the crown and grade of the metting, and should be seeded and as much as possible kept in sod. This serves on a country road the same purpose as a curbing on city streets. It will always be clean, pleasing to the eye, and very largely assists in preventing mud being carried on the road metting. Besides this, uniformity in the crown will always permit of teams passing each other. In wet seasons our roads are nearly impassible, because there is no system of drainage and no outlets for water, and usually the centre of the road is the lowest part of it. The ditches being used for the drainage of surrounding fields. In many sections of the country the ditches are choked, and are not in a condition to do the work expected of them. A drain or two of tile under the road bed would help materially in keeping the roadway dry. Without water there can be no mud.

The location of subdrains when required must be governed by the nature of the soil. When this is gravelly and pervious to water the open ditches on each side of the road, even if sixty six feet wide, are sufficient for draining the road bed; if there be any springs under the road, especially if they rise under an impervious soil, a subdrain leading directly to the side ditches will be required. Should the road be on a side hill a deep open ditch on its upper side may be sufficient. In such a case the surface water from the water table on the lower side of the road should be conducted across and under the road by an ordinary dry stone culvert.

Whenever water with or without frost is liable to render the foundation of the road insecure, provision must be made against it. There are perennial springs that anyone can see, and basins of rock, hardpan or clay, which become springs in wet weather. These are very apt to cause trouble when cuts have been made. The chances are too numerous for specification. Simple land drainage will improve lines of highways in frosty regions. Three inches of sand along the line of a wet meadow, underdrained, furnishes a dry foot path, and when it is overgrown with grass, thatch roofed as it were, frost never softens that sand, and we see illustrated the effect of solid stone floor roofing upon a ridge of drained clay highway.

In St. Thomas the engineer constructed one short street with flake stone foundation and gravel covering; and being anxious to keep the cost as low as possible, it was thought unnecessary to go to the expense of draining the foundation.

This piece of road was a valuable lesson. When all the other streets are hard and dry this is wet and spongy. During construction it was so dry that it would have apparently been a waste of money to drain it. During the wet season the wheels rut readily, while there is scarcely an impression on those that are drained. More labor and money has already been expended on this road which was constructed three years ago than would have been necessary to completely drain it in the beginning. This one example has clearly shown the great importance of perfect draining. Mistakes are often made in not carrying ditches to a proper outlet in the natural watercourses leading from the road into private property. Under the Ditches and Watercourses Act the municipality has the same power as a private individual, when the various owners fail to agree upon the construction of a drain. But municipalities, rather than force an outlet through private lands, end their drainage with imperfect outlets, and damage the road rather

than improve it. The authorities should not care who the owner of the adjoining property is, proceedings should be taken to enforce these outlets, and the owners should be obliged in every instance to pay their just proportion of the cost of such work.

Many a municipality has been prejudiced against road improvement owing to the bad work of contractors or the results of ignorance on the part of its own officials. A municipality may have been enterprising enough to decide to improve some of its roads, and the people may have been generous enough (sensible enough would be better) to have furnished the money, and the money may have been expended. Yet after the lapse of a few years the roads are as bad as ever. It may have been proved that to have maintained these highways in a state of excellence would have cost far more money than the people had to spend on the investment. This has been the experience of a great many municipalities, and the conviction held in these is that macadamized roads are a delusion, and has done much to retard the progress of the movement for the improvement of country roads. The real fault lies in the fact that it was imperfectly drained. Those who have not had much experience are not apt to realize the paramount necessity of maintaining a perfectly dry foundation of earth for their surface of broken stone to lie on. A protracted rain will soften it, and when a heavy load passes over it injurious ruts are sure to be the result. In latitudes where the frost penetrates deep, water in the soil will freeze, and its consequent contractions and expansions result only in the ruin of the road. In order to ensure a permanent road the dirt bed on which the broken stone is to be placed must be thoroughly drained, and after that the mass of stone which forms the surface of the road must be so consolidated and packed that it is practically water-tight. If these important matters are attended to the road will be durable and easily maintained.

All authorities agree that two rules must be followed in order to maintain good roads. First, take the water out; second, keep the water out.

Grading and Constructing of Roadways.

It is a mistake to suppose that narrow roads are the cheapest. Of course when constructing a new road the cost is in proportion to its width but a narrow road is always the more expensive to maintain, owing to the vehicles being compelled to keep more or less to one track, nothing is more destructive. The traffic on a wide road is always more evenly distributed, provided of course, that it is constructed on scientific principles and kept in good repair. There is another very important advantage that wide roads have i.e. They obtain a greater amount of light and air. It will always be found that a wide and open road will be dry, long before a narrow and confined one. When roads, especially mainroads, are laid out, care should be taken to secure plenty of land. The widening of an old road is always a most expensive work, and it is sometimes necessary to destroy trees and remove buildings. The cross section of a road is very important, and a question concerning which there is great difference of opinion. It should neither be too flat or too rounded. In the former case the surface water remains on the road instead of draining off into the side ditches whereas in the latter, owing to its great convexity vehicles can only travel with comfort or indeed with safety in the centre of the road, thereby soon making three tracks there, and, as before remarked, nothing destroys a road sooner. There is another disadvantage, that as soon as the traffic is driven off the centre of the road, a double wear takes place, owing to the tendency of vehicles to slide down the inclined plane by force of gravity and as this tendency is perpendicular to the line of draught, the labor of the horse and

the wear and tear of both wheels and road surface is much increased. The sole object in rounding the surface is to allow the water to run off freely, and it is now agreed that a slope of one or two inches to six feet width, according to the nature of road covering, is sufficient for all roads constructed of good hard material, provided, of course they are kept in good repair. MacAdam says; "I consider a road should be as flat as possible with regard to allowing the water to run off it at all, because a carriage ought to stand upright in travelling as much as possible. I have generally made roads three inches higher in the centre than I have at the sides when they are eighteen feet wide; if the road be smooth and well made, the water will run off very easily with such slope." The drainage of surface water is better obtained by selecting a course of the road that is not horizontally level because then the slightest wheel track becomes a channel to carry off the water, whereas in the case of a level road, it must be apparent to every one that no matter how rounded the surface may be, every track soon becomes a basin to hold it. The road bed should be excavated to the same contour as the finished road is to be, not with any idea of drainage because it must be remembered that as soon as the road becomes subject to rolling or the pressure of heavy vehicles, the road material becomes forced down into the road bed, and the soil in its turn worked up into the covering so that the whole becomes amalgamated, but because by so forming the road bed there will be an equal thickness of material over the whole surface, and if a road is made and maintained according to scientific principles, there is no reason why any one part should have a greater thickness than another. The great consideration in road making is to so construct the road surface that no moisture shall penetrate the foundation, and in this way prevent the formation of mud which would work up into the stone. To insure this there must be a compact and solid foundation. A road must be perfectly smooth both before and after a vehicle has passed over it, but if it sinks in the least this yielding presents a miniature hill up which the vehicle must be raised with loss of power. If the depression were one inch and the wheel four feet in diameter, an inclined plane of one in seven would be formed, and one seventh of the entire weight would need to be lifted up this inch. A road surface of india rubber of the most perfect smoothness, would therefore be the worst possible for traction, though very pleasant for passengers. The wheels would always be in depressions, and the horses would always be pulling up hill. An elastic bottom for a road such as a boggy substratum would, for this reason, cause great waste of draught. A solid, unyielding foundation is therefore one of the first requisites. A road made of broken stone laid on the earth without any foundation is defective. It will always be loose and open, and never consolidate into a compact mass. In winter, the water penetrates, is frozen and breaks up the road. After a thaw and in wet weather the road is a quagmire. At the best after a rain, the semi-fluid soil will rise up to the service and form a coat of mud, and after a drought the looseness of the stones will make them rub off their angles and soon wear out. Nor will any thickness of stone destroy the elasticity of the soil. The central part of the road may be macadamised for a width of only eight feet, which is about the least width that a vehicle can be readily driven on. In such a case it would not be advisable to make the entire roadway less than twenty feet wide, so that vehicles may pass on each side of the central portion, and that the macadamised part may be easily widened in the future.

To provide for constant traffic in both directions, the macadamised portion of the roadway should be sixteen feet wide, as the axles of wagons and buggies are usually five feet eight inches in length, or five feet two inches from one wheel to the further end of the axle. This allows a space of two feet from the further

wheel to the outside of the paved part of the road way. Vehicles could always keep to their own side of the road without going off the paved portion, while it will always give a play of nearly two feet on each side, and of nearly four feet altogether in the width allowed to the vehicle to travel over, thus leaving space enough for vehicles to avoid always going in the same track, and wearing the roadway into ruts.

If any further addition is to be made to the width of the macadamised part, it should be enough to allow three vehicles to pass over it abreast i. e., sixteen feet and seven feet four inches, or twenty-two feet eight inches in all. This is a common width for the paved part of the roadway of this description, as the difference of one foot eight inches can be gained by reducing the two feet of spare width at the outsides by ten inches on each side; however the clear width between the ditches should not be less than twenty-four feet, while a thirty foot roadway will allow four vehicles to meet abreast, and thirty five feet is enough for a regular traffic of four vehicles.

In cuttings or embankments in ordinary loose earth or gravel, the side slopes should be made one and one half horizontal to one vertical; in rock one quarter to one is sufficient; for stiff clay two to one should be allowed and soft greasy clay requires a slope of three to one to be allowed. In the case of ordinary earth when cuttings or embankments are not more than five feet high, a slope of one to one is sufficient, and one half to one in stiff clay.

In the case of embankments, the surface of the ground when it has a transverse slope such as would cause the bank to slide laterally, should be cut into steps before the embankment is commenced. The necessity for this for any particular slope can only be determined by the conditions of the case; water may get in, between the original surface and the made ground and render the embankment very liable to slide. All stumps, brush and vegetable material should be cleared off the surface before the embankment is commenced.

Culverts.

The question as to what kind of material is best for culverts is important to municipal authorities. A large proportion of highway expenditure is for repairing and reconstruction of timber culverts. Timber does not last long in culverts where it is subjected to the varying conditions of wet and dry. Culverts must be maintained in the road grade, and where timber is used we must expect the annual outlay for reconstruction and repairs to be very large. This is not all. The stringers or covering decays so quickly, that accidents happen by a horse or load going through them before the authorities think that the timber in them has commenced to decay. Two or three times the value of a permanent culvert is often paid to settle the damage, or the law is invoked and invariably large damages are given against municipalities, this with the costs of suit which are always large enough, make timber culverts a very expensive part of road maintenance.

PIPE CULVERTS.

The construction of culverts in a permanent manner so as to get rid of the repeated demand for repairs and renewals must be settled.

The use of vitrified collar tile and cement pipe for road culverts has now ceased to be an experiment, and the old box culverts of timber are fast becoming a thing of the past. The cost of culvert pipe is usually a little more than timber, but is soon made up in saving the cost of repairs. Well made pipe of proper strength once laid needs no further repairs, and experience shows that it will last for years. It too frequently happens that when township councils order the construction of culverts under roadways the pipes are brought on the ground, the contract is let to the lowest bidder who invariably has no experience in such work, the ditch is dug to the required depth to carry the water from the channel above, the workmen

place the pipe, sometimes with the hub down grade, or in some cases with the centre of the ditch lower than the outlet, and in this slovenly way the results are unsatisfactory.

The bottom of the trench should be rounded out to fit as nearly as possible the curve of the pipe from the lower surface up to the horizontal centre line. When collar pipe are used depressions should be cut in the bottom of the trench to fit the sockets, so that when the pipe is laid its entire lower surface from end to end will rest solid. If the ground is soft or sandy this



cannot be done, but the same result may be obtained by carefully ramming the loose earth under and around the lower surface of each section of pipe up to its horizontal centre line after it is placed in position. When quicksand is encountered a concrete foundation should be laid in order to prevent the lodgement of debris or ice. A culvert should be built with a good fall. The pipe should be laid with the hub or flange up grade or towards the inlet. When this is done properly it is a matter of no consequence how high the bank is above the pipe, for it cannot be broken by the weight of the earth. If the bank is solid and not likely to cave or slide, the end of the pipes will not require to be protected. If the bank is soft an abutment of some sort should be made to receive the end of the tile, and the foundation of this should extend below the influence of the frost to prevent heaving and settling, which might throw the end of the pipe out of position. These abutments should extend high enough to protect the banks during high water. When stone or brick abutments are too expensive, a good and cheap substitute can be made of cedar plank and posts. These should be constructed with considerable inclination towards the road bed, to prevent the pressure of the embankment from crowding the planks outward. Where gravel is plentiful a concrete for this purpose will be found preferable to timber.

A pipe culvert should have a good fall, and be so constructed that it will drain itself. When required, two or three pipes may be laid side by side, and in case of altered circumstances the capacity of a culvert may be increased by laying additional pipes. In such cases they should be placed far enough apart to secure a solid bed for each. The best pipe should be used, and every care exercised in putting them in. It is a mistake to purchase second class or culled pipe for this purpose, as is sometimes done.

The following table shows the size, capacity and average price of vitrified pipe in car load lots at any railroad station in Ontario.

Diameter (in inches.)	Weight per foot (in pounds)	Price per foot.
	Single Strength.	
6	10	15 cts.
8	16	17
9	23	20
10	34	22
12	44	29
15	63	41
18	84	60
	Double Strength.	
12	1 1/2 " thick	75 cts.
15	1 3/4 " thick	\$1.00
18	2 " thick	1.25
24	2 5/8 " thick	1.75

PRICES OF CEMENT CULVERT PIPE AT FACTORY.

Diameter (in inches.)	Price per lineal foot.
4	10 cents
6	12 1/2 "
8	20 "
10	25 "
12	35 "
14 1/2	55 "
18	65 "
21	95 "
24	\$1.25
30	\$1.75
36	\$2.50
43	\$3.75

In determining the size of the culvert it is necessary to take into consideration the area to be drained. Statistics show the maximum rain fall to be about two inches per hour. One inch of rain fall gives 22,633 gallons per hour for each acre. Experience proves that owing to various obstructions not more than fifty per cent. of the rain fall will reach the drain or culvert within the same hour and due allowance must be made for this fact in determining the size of the pipe required. Severe storms are usually of short duration.

The following table shows the carrying capacity of pipe.

Size.	Three inch fall per 100 feet.	Six inch fall per 100 feet.	Nine inch fall per 100 feet.
6 inch.	129	183	224
8	265	375	460
9	355	503	617
10	463	655	803
12	730	1033	1273
15	1282	1818	2224
18	2022	2860	3508
24	4152	5871	7202

BRICK CULVERTS.

Where the current is rapid and the volume of water so great as to warrant the use of culvert pipe, brick culverts will be found to be economical. The life of the wooden culvert is from four to ten years, and that of a brick culvert from fifty to sixty. A solid foundation is required either natural or artificial but not necessarily a dry foundation, from the fact that good brick culverts have been built when it was found necessary to keep the water dipped out of the pits; a dry foundation is preferable. The material should be first class sewer brick. Any that show signs of softening should be rejected as they will soon crumble. Each brick should be dipped in water, or well saturated before being put in the wall. The sand should be clean and sharp, and be taken from the creek in preference to that from the bank which is liable to contain more or less clay, and will make the mortar soft. The bottom of the pit for the barrel of the culvert should be at least eighteen inches below the bed of the stream, but this would depend on the size of the culvert to be built, and the height of the road grade. Wing walls should be constructed, commencing at least twenty-four inches below the bottom of the culvert, in order that the water will have no chance to get under them, and ultimately undermine the whole structure. The mortar should be composed of two parts of good hydraulic cement and three parts sand. The bricks on the inside of the barrel of the culvert at their front edge should almost touch each other so that there will be very little mortar to wear or wash out, which in time would let the bricks become loose and drop out. The water should never be allowed to wear the bottom of the stream away from the lower end of the culvert. If a fall of the water over the end of the culvert exists it will wear the mortar from between the brick and ruin the masonry. The wing walls should be built three or four inches higher than the top of the barrel so as to hold the dirt overlying the culvert. The walls should be at least eight inches thick, and thicker in proportion to the amount of pressure which they have to withstand. A two inch oak plank should be placed on top of the wall, of a width equal to the thickness of the wall

(To be continued.)

LEGAL DEPARTMENT.

H. F. JELL, SOLICITOR,
EDITOR.

The Drainage Act 1894.

At the close of the meeting mentioned in section 18 of the act under consideration, if the petition for the drainage works should contain the names of the majority of the persons shown to be owners benefited within the area described, the council may proceed to adopt the report and pass a by-law authorizing the work, and that no person who has signed the petition shall be permitted to withdraw after the adoption of the report. In the same section there follows a provision which should have the effect of preventing persons signing petitions for drainage works on vexatious grounds only. It is that, if after striking out the names of the persons withdrawing, the names remaining, including the names, if any, added as provided by section 17 of the said act, do not represent a sufficient number of owners to comply with the provisions of section 3, then the persons who have withdrawn from the petition shall on their respective assessments, in the report with one hundred per centum added thereto, together with the other original petitioners on their respective assessments in the report, be *pro rata*, chargeable with and liable to the municipality for the expenses incurred by the said municipality in connection with such petition and report, and the payment of their respective portions of the said expenses by the persons thus made liable, is made compulsory by the latter part of the section which provides that the sum with which each of such owners is chargeable shall be entered upon the collectors roll for the municipality against the lands of the person liable and shall be collected in the same manner as taxes placed on the roll for collection. Section 19 gives the the council of the municipality in which the land and roads to be benefited lie, the authority, if they should be of opinion that the drainage work proposed in the petition, or a portion thereof would be desirable, to pass a by-law or by-laws for providing for the proposed drainage work, or a portion thereof being done as the case may be. The council is left to judge whether or not the proposed work or a portion thereof would be desirable, etc. If its opinion be in the affirmative, it may pass the by-law or by-laws, but, if of a negative opinion, there is no power to compel the council to do so. The purpose for which the by-law or by-laws may be passed, is for the draining of the area described in the petition by means of drainage work, that is to say, the construction of a drain or drains, the deepening, straightening, widening, clearing of obstructions, or otherwise improving any stream, creek, or watercourse, the lowering the waters of any lake or pond, or by any or all of said means as may be set forth in the petition. Subsection 2 of said section 19 providing for the borrowing of the funds necessary

for the carrying out of the drainage work, is worthy of particular notice. It provides that the council may pass a by-law or by-laws for "borrowing on the credit of the municipality the funds necessary for the work or the portion to be contributed by the initiating municipality when the same is to be constructed at the expense of two or more municipalities," etc. The corresponding subsection of the Municipal Act in force prior to the passing of the Consolidated Municipal Act 1892, provided that the council might pass by-laws for borrowing on the credit of the municipality, the funds necessary for the work, although the same extends beyond the limits of the municipality (subject in that case to be reimbursed as hereinafter mentioned) etc. It would seem from the old section that the council, of the initiating municipality had power to pass by-laws for borrowing the whole cost of the drainage work, but the subsection 2 of said section 19 of the act under review, makes it clear that the council of such municipality is to pass a by-law or by-laws for the portion to be contributed by such municipality. Section 20 sets forth the form of by-law to be followed, and sections 21 and 22 make provision for its publication or service upon the parties interested. The publication must be in some newspaper printed in the municipality, or in the county town, or in a newspaper published in an adjoining or neighboring municipality. In a case that came under judicial notice, it appeared that a proposed township by-law, relating to drainage, was published in a newspaper in a large town and for all other than municipal and judicial business practically the county town, and situate two miles from the county town. There was no newspaper published in the township, or in the county town, or in the next adjoining municipality, but there were newspapers published in several small villages somewhat nearer to the township than the town, but their circulation was much smaller in the township than that of the town paper. It was held that this publication was sufficient, although it is very advisable to publish with the by-law, the notice mentioned in section 21, subsection 1; yet it has been judicially held that non-publication of such notice is not fatal to the validity of the by-law; subsection 2 of section 21, contains a provision to which the attention of clerks should be drawn—namely that the clerk shall furnish the publisher of the newspaper with the names and post office addresses of all persons within the municipality whose lands are assessed for the drainage work, and the publisher shall mail or cause to be mailed to each owner to such post office address the first two issues of the newspaper containing the by-law, and the publisher or person mailing such newspapers shall make a statutory declaration of such mailing, and file the same with the clerk of the municipality passing the by-law.

To be continued.

Legal Decisions.

IN RE WILSON AND THE COUNTY OF ELGIN.

The facts in this case are briefly as follows:—The townships of Dunwich and Aldborough, and the village of Dutton were twenty years ago formed into a high School District, known as the Dutton High School District. Aldborough was never satisfied with this arrangement, and an agitation for its withdrawal from the district has been continually kept up. On three occasions have petitions been prepared and by-laws passed by the Township Council pursuant thereto, in accordance with the provisions of subsection 2, section 7, of the High Schools Act of 1891, and subsequent amendments thereof. But the municipality's legal advisers differed as to whether this was the proper course to pursue, to attain the desired object. As a consequence these by-laws were never acted upon. In January last, the county council passed a by-law withdrawing Aldborough from the said high school district, and one Wilson thereupon moved to quash the last-mentioned by-law before Mr. Justice Robertson. His Lordship, however, held the by-law a valid one. An appeal was then taken to the Court of Appeal for Ontario. This court has recently held that, under section 6 of the High Schools Act, as amended by 57 Vic., chap. 58, section 1 (O), a county council has power to detach a township from a high school district without the consent of that township, or of the other townships included in the high school district in question.

TOWNSHIP OF ELLICE VS. CROOKS
AND HILES.

These cases were recently decided by the Supreme Court of Canada upon reference of an action to a referee under the Drainage Trials Act of Ontario, (54 Vic., C. 51), whether under Sec. 11, as an action for damages from the construction or operation of drainage works, or 519, as a case in which, in the opinion of the court, the proper proceeding is under the act. The referee has full power to deal with the case as he thinks fit, and to make of his own motion, all necessary amendments to enable him to decide according to the right and justice of the case, and may convert the claim for damage, under said Sec. 11, into a claim for damages arising from the construction of the work under a valid by-law, under Sec. 591 of the Municipal Act. In a drainage scheme, for a single township, the work may be carried into a lower adjoining municipality for the purpose of finding an outlet, without any petition from the owner of land in such adjoining township to be affected thereby, and such owners may be assessed for benefit. One whose lands on the adjoining municipality have been damaged, cannot, after the by-law has been appealed against and confirmed, and the lands assessed for benefit, contend before the referee that the land was not

liable to such assessment, the matter having been concluded by the confirmation of the by-law. A municipality constructing a drain, cannot let water loose just inside or anywhere within an adjoining municipality, without being liable for injury to lands in such adjoining municipality thereby; where a scheme for drainage works proves defective, and the work has not been skilfully and properly performed, a proper route not chosen and it is not continued to a proper outlet, and is left unfinished for a long time in an adjoining municipality, where it is carried to find an outlet, so that the water is turned loose, and comes upon land therein. The municipality constructing it is not liable to persons whose lands are damaged in consequence of such defects and improper construction, as *tortfeasors*, but are liable under section 591 of the Municipal Act, for damage done in the construction of the work or consequent thereon. The referee has no jurisdiction to adjudicate as to the propriety of the route selected by the engineer, and adopted by by-law. The only remedy, if any, being by appeal against the project proposed by the by-law. A tenant of land may recover damages suffered during his occupation from construction of drainage work, his rights resting upon the same foundation as those of a freeholder.

IN RE JENKINS AND TOWNSHIP OF
ENNISKILLEN.

A township council, finding that a government drain in the township did not carry off the water, by reason of the natural flow being in another direction, accepted a report made by their engineer, and passed a by-law adopting a scheme for a new drain leading from the middle of the government drain into an adjoining township, where it was to find an outlet. It was held that the proposed drain properly came within the description of a new outlet although not at the end of the government drain, and although the former outlet remained to serve to carry off a part of the water, and so long as the proposed drain was designed merely as an outlet for the water from the government drain, it might under section 585 of the Municipal Act of 1892, be provided for without any petition under section 569, even although it should incidentally benefit the locality through which it should run, nothing being included in the plan beyond what was reasonably requisite for the purpose intended—although a township council is not powerless with regard to the drainage report of their engineer, it is contrary to the spirit and meaning of the act—that two adjoining councils should agree upon a drainage scheme and upon the proportion of the cost to be borne by each, and that the engineer of one of them should be instructed to make a report for carrying out the scheme, and charging each municipality with the sums agreed on; for that would interfere with the independent judgment of the engineer

and pledge each township in advance not to appeal against the share of the cost imposed upon it, to the possible detriment of the property owners assessed for the portions of that share, and where such a course was pursued, a by-law of one of the councils, adopting the engineer's report was quashed. In describing the lands for assessment the north-east part even with the addition of the acreage, is an ambiguous description, and it is a question as to the effect upon the validity of the by-law.

CHRISTIE VS. CORPORATION OF TORONTO.

Section 124 of the Consolidated Assessment Act 55 Vcel., e. 48, (o) only authorizes a distress for non-payment of taxes, of the goods of the person who ought to pay the same, or of any goods found on the premises, the property of or in the possession of any other occupant of the premises which were not the goods and chattels of the person who ought to pay the taxes or of any occupant thereof.

Rules of Order and Conduct of Members of
Councils.

CRABB VS. MOUNT FOREST.

This was a decision given by Judge Chadwick at Guelph upon a motion for an interim injunction applied for by Mr. Crabb, a member of the council of Mount Forest, to prevent interference with his right to be present at the meetings of that body from which he had been excluded under one of the rules governing said council, which reads: "The mayor or chairman may order and cause any members of the council using indecorous language or personalities, or who may refuse to obey the orders of the mayor or chairman when called to order, or who in any way may offend against, transgress or break any of the rules and regulations herein contained, regulating the conduct of members at any meeting of the council or of any committee thereof, to be removed by the chief of police or any other constable from the council chamber or place of such meetings, and such member shall not be entitled to again take his seat at such council or committee meeting until he shall have apologized for his conduct to the council or committee, or shall have withdrawn his indecorous or personal remarks." It appears that at a meeting of Mount Forest council held the first week in October last, plaintiff spoke of certain members as "such characters." The mayor, on the point of order, considered such language a violation of the rule above quoted and demanded an apology. Mr. Crabb refused to apologize or retract these words, and he was removed by order of the mayor. At a later meeting on the 15th, the subject was again brought up and the plaintiff again excluded from the council's deliberations. Hence the action—and on its hearing, Judge Chadwick, after quoting cases and precedents, said

that municipal assemblies have no power, in the absence of express grant, to remove a member for contempt, unless he is actually obstructing the business of the house. The judge held that the by-law enacting the rule was in excess of any authority, and contended that section 283 of the Municipal Act was the only one under which it can be claimed, and this did not give power to exclude from session of council.

The council appealed from the judge's decision, and the final result will be looked for with interest.

Dr. Bourinot, in his work on Procedure of Public Meetings, quotes a rule of the Toronto city council, which provides

"That no member shall resist the rules of the council or disobey the decision of the mayor on questions of order or practice, or upon the interpretation of the rules of the council; and in case any member shall so resist or disobey, he may be ordered by the council to leave his seat for that meeting, and in case of refusal he may be removed by the police, but in case of ample apology being made by the offender, he may by vote of the council be permitted forthwith to take his seat."

The same authority states, in reference to the rules of other councils,

"That although they do not provide in express words for the removal of a troublesome member, it is a power inherent in all such bodies for the preservation of orderly proceedings and the transaction of business."

It would appear from the above that the action of the Mount Forest council in excluding a member for cause was quite within their power at the first meeting, but unless the member gave cause for similar action at the next meeting, he would be entitled to retain his seat. The right to exercise the power to exclude should only exist when necessary for the preservation of orderly proceedings and the transaction of business.

STUDD VS. CITY OF TORONTO.

This was a motion to set aside the verdict and judgment for the defendants in an action under Lord Campbell's act tried before Ferguson, J., and a jury at Toronto and for a new trial. The plaintiff's husband lost his life owing to an accident on Church street, in the city of Toronto, when a new pavement was being laid. The deceased, who was a pedlar, pushed his hand-cart into a hole at the corner of Queen street, and fell and sustained the injuries from which he died. Evidence of Mr. Coatsworth, the defendants' commissioner, was given without objection at the trial, of a statement made by the deceased, to the effect that he knew of the hole and concluded he could push his cart over it, but made a miscalculation. The jury found that the deceased could have avoided the accident by the exercise of reasonable care. The plaintiff contended that the evidence should not have been admitted, and that there was misdirection. The court held that the evidence was properly admitted, and that it was impossible to interfere with the finding of the jury. Motion dismissed with costs.

Municipal Accounts and Audits.

BY A. C. NEFF, CHARTERED ACCOUNTANT, TORONTO.

Even slight familiarity with the financial affairs is calculated to impress one, with the serious condition of the public accounts in the minor municipalities of the province.

Discussion of the subject with those who are interested in any particular town, village or township, almost invariably brings out a confidential remark to the effect that "ours are in bad shape and ought to be investigated."

The recent report of the Bureau of Industries on municipal statistics strongly emphasizes this fact, and shows the difficulty they met with in their compilation. Six pages of short extracts, from remarks made by municipal officials on their returns are published, nearly all of which reveal a weakness in their accounts.

The record usually kept consists of a simple cash account between the treasurer and the municipality, and some means of summarizing the payments under more or less appropriate headings, but without distinguishing expense and revenue accounts from assets and liabilities. The only records of debentures out-standing may be the by-laws which authorized the issues, and the cash book for reference as to payments which have been made on account of them.

The audits are usually of a nominal character, the auditors being satisfied with examining such vouchers and records as may be put before them, and making their chief business the production of the detailed statement and copy which they are called upon by the Municipal Act to furnish. The collector's roll which usually constitutes the largest transaction of the year, is passed by with a very slight test or none at all.

One very important cause for these conditions, and probably the main one, is that the appointment of auditors are made as a matter of patronage, without much reference to ability as accountants, and the salaries paid are too small to warrant sufficient time being given to the work, to do it properly, and there is a want of a uniform system of book-keeping, as a general guide to those who may require such assistance.

Affairs having once become tangled, there is a tendency on the part of the council to shirk the expense of an adjustment, as long as they can, losing sight of the fact that the condition of the books may be causing a greater, though an unseen, expense.

The Municipal Act, 1893, has made a provision, regarding the books of all municipalities except townships:

It enacts that the treasurer shall keep a book known as the cash book, on the left hand page of which he shall enter all moneys received by him, and on the right hand page, the amounts paid out by him. It also provides a journal in which to

enter all debits and credits not consisting of cash. It says nothing about a ledger.

The Municipal Act, 1892, provides that two separate accounts shall be kept, one for the special rate and the other for the sinking fund, or for instalments of principal of every debt. These are to be kept distinct from all other accounts, so as to show the condition of the debt. These I believe to be the only provisions in regard to the book-keeping of the treasurer. There is a section of the Assessment Act which provides that the collector shall specify in his return, how much of the amount paid by him to the treasurer is on account of each separate rate.

Certain reports are required to be made annually to the Bureau of Industries, on behalf of the Provincial Government, and which if taken as an index to the book-keeping, would keep an excellent record of the affairs of the municipality.

They consist of an abstract and a detailed statement of the receipts and disbursements and of the assets and liabilities, and a separate statement of the debenture debt.

Having taken a running glance at some of the existing conditions, I propose, without in any sense setting myself up as an authority on the subject, to make a few suggestions, as to how I would like to see things done, always keeping in mind the requirements of the statutes, and making the whole as simple to keep as possible. In all my work I try to avoid complex forms.

The most convenient form of cash book has printed headings, which includes the bank account, on the left hand page under the head of receipts, the columns are, date, account to credit, from whom and for what received, ledger folio, cash, deposit, total. On the right hand page, under the head disbursements, the columns are, date, check, No. by-law, resolution No., account to debit, to whom and for what paid, ledger, folio, cash, cheques, total.

The chief items which require the use of the journal are the taxes levied in the collector's roll, and which must be credited to the accounts on whose behalf they are levied, for instance, the county tax, special school tax for each school board, special rates to meet interest and principal on debentures, local improvement or otherwise, levies under the Municipal Drain Act and the Ditches and Watercourses Act.

For the ledger, the bank form of money columns is the best.

My idea of a system of ledger accounts is that a trial balance of these accounts should produce, as far as possible, the abstract of receipts and payments, and of assets and liabilities. These must be adapted to the circumstances of the municipality, but would be something like the following.

General taxes with such subdivisions as may be required, taxes returned to county treasurer, licenses, fees, etc., water rates

received, interest and dividends received, government school grant, etc., loans and investments, accounts of bills payable (for money borrowed) debentures sold, subdivided according to the purposes of the debts, say local improvement, municipal works, aid to railways, drainage works, school purposes, bonuses, salaries, printing, stationery, heat, light, etc., street lighting, water supply, and fire protection, law costs, sundry expenses.

Construction accounts as follows: Roads and bridges, streets and pavements, sewers, waterworks, electric light, plant, buildings, board of health, charity grants, county rate, school board accounts, special rate accounts, sinking fund accounts, interest paid on loans, sheep claims.

Property accounts such as, land, buildings, chattels, advances to local improvements, municipal drains, and accounts for cost of survey etc., under the Ditches and Watercourses Act.

Other accounts will of course arise in many municipalities, and some of these will not be required for I have included accounts which meet the wants of both townships and villages or towns. One thing I would strongly urge, and that is, in no case should there be more than one set of books. I have met a tendency to open a special set for the local improvements or municipal drain accounts. The effect is to keep these as though they were no part of the affairs of the municipality, or only a side issue, while in fact they are a very important feature, and should form a part of the main reports.

In order to best serve the financial, the vital interests of a municipality, I consider that no one should be appointed as treasurer who is not capable of keeping a set of double-entry books, and who has not had considerable experience in general financial affairs, beyond what a man can gather in the every-day life of a little store or a farm. And he should exercise the greatest care in keeping a full and a clear account of the source of every receipt, and the "to whom and what for" of every payment. A treasurer who is not capable of doing this, in addition to the harm he does the municipality, runs the risk of, some day, getting himself and his sureties into serious trouble, though his intentions may be ever so honest. And the facts which I spoke of at the beginning of this paper, indicate that it is not so easy to keep correct accounts as a great many treasurers had thought it was.

The auditors should, between them, be better skilled than the treasurer, so as to be able to safely judge of the correctness of the treasurer's methods, and of the accuracy of his statements and reports, and to make reliable suggestions as to improvements which his bookkeeping may require.

A good combination for municipal audit is an expert accountant, assisted by an ex-reeve or other prominent man who is thoroughly familiar with the affairs and the people of the municipality.

The duties of municipal auditors, as laid down by the Municipal Act, may be summarized as follows: To examine and report upon all accounts affecting the corporation for the year ending 31st December, previous to their appointment.

To prepare in duplicate an abstract and also a detailed statement of the receipts and expenditures, and the assets and liabilities of the corporation; make a report on all accounts audited by them, and a special report of any expenditure made contrary to law.

To make a report upon the condition and value of the securities given by the treasurer, showing the cash balance due from him to the municipality, and where it is deposited.

The report of the auditors is finally audited by the council. These are the duties as laid down by the statute: The first one, viz., "To examine and report upon all accounts affecting the corporation," covers a very wide field. First, there is the examination of the receipts, to be satisfied that the treasurer has collected all moneys the corporation was entitled to, and that he has included all in his accounts. Then there is the examination of each payment, to see that there is a properly-vouched-for bill, that the service was authorized, and a legal one, that the payment was authorized and properly receipted for either upon the bill, or by endorsement of the cheque given in payment.

The balance of cash on hand and in bank must be carefully verified. In one municipality whose affairs I examined, the auditors only audited the bank vouchers to see that the money was paid and did not examine the authority for payment. In another this method was reversed, and they only examined the commissioners' orders for payment and did not check the bank account or bank vouchers.

Great care should be taken to see that all special levies have gone to the credit of their proper accounts, as they are in the nature of trusts. Particular attention should be given to the condition of sinking funds, of debts due to the municipality, of the debenture debts and every local improvement or special account which may be current. The original calculations, footings and recapitulation of the collector's roll and the amounts marked paid, should be carefully checked and the balance unpaid compared with the treasurer's accounts. It frequently happens that errors occur between the two officials. The taxes returned to the county treasurer for collection shall also be verified either by a visit to his office or by correspondence. This last item, of course, only refers to townships and villages.

The preparation of the statements which are required is a duty which will be carried out varying with degrees of clearness, according to the skill and judgment of the auditors.

QUESTION DRAWER

SUBSCRIBERS only are entitled to opinions through the paper on all questions submitted if they pertain to municipal matters. Write each question on a separate paper on one side only. When submitting questions, state as briefly as possible all the facts, as many received do not contain sufficient information to enable us to give a satisfactory answer.—Ed.

VILLAGE CLERK—1. Re town clerk's question in your issue of 1st December allow me to ask how he is clerk of a town, if population is only 1157?

2. Further would draw attention to the reply in which you say only one tavern or shop license can be granted.

After reading on page 913 of Harrison's Municipal Manual 1889, foot note N. to section 32 of the Liquor License Act, I consider one license only, either tavern or shop wrong and illegal.

1. It is probable the town had the requisite number of inhabitants when it became incorporated as a town, and the population has, no doubt, since decreased.

2. Although it would seem that the sections of the Liquor License Act referred to, gives the council the power to reduce the number of shop and tavern licenses within the statutory limits, indefinitely, the courts have limited this power in construing the said sections and held by-laws reducing the number of tavern or shop licenses to one, bad, on the ground that they are in effect prohibitory, and tend to create a monopoly, and are therefore contrary to public policy.

E. G. R.—At a sale of land for taxes, the township bought some lots.

1. In selling them again, must the sale be a public one, or can they be disposed of privately by the council?

2. What kind of deed must the council give to the purchaser, a common deed, or one similar to the treasurer's deed?

1. We are of opinion that the council can dispose of the land either by public or private sale, as they may deem most advantageous; keeping in view, however, the original owner's right to redeem within a year from the date of the sale by the county treasurer.

2. An ordinary deed, covenanting only as to the acts of the council while owners, would be sufficient.

F. N. M.—Does the general school rate as provided for in section 109 of the Public School Act, 1891, include ratepayers who are outside school sections and otherwise exempt?

The general rate provided for by section 109 of the Public Schools Act, 1891, is to be levied and collected by assessment upon the taxable property of the public school supporters of the whole township; therefore, if the ratepayers mentioned are not supporters of a public school, they are not liable for their share of the general rate.

J. T. C.—Who is supposed to pay for polling booths used at provincial election—the municipal council or province.

Schedule B of the Election Act, chap. 9, R. S. O., provides that for each polling booth, the actual cost, not exceeding four dollars, is to be paid by the township treasurer on the order of the deputy-returning officer, unless the township council provide polling places at their own expense.

COUNCILLOR.—Is it legal for a township council to refund school taxes to a ratepayer whose residence is over three miles from the school house in his section, and whose children attend school in another municipality.

Yes. It is probable that the trustees of the school section to the school of which the ratepayer referred to sends his children, require him to pay such fees to them as have been mutually agreed on between them as provided in section 172 of the Public Schools Act, 1891.

RLAY.—What mode of procedure is required to have a council legalize a road deviation necessary for the outlet of the residents in another municipality.

The two townships concerned, refuse to be held responsible for repairs or damage; the one, because the said deviation is not in their jurisdiction; the other, because they were not asked to legalize the road when first made.

The above road was built with grants from two counties.

Our correspondent does not state under the supervision of which municipality the road deviation was constructed. If in making the grants for the construction of the road deviation the councils of the counties making such grants, or either of them, assumed the road by by-law, it is a county road, and the county assuming the same is liable for repairs and damages consequent on non-repair. Our correspondent does not state either, whether the road is a boundary line between two townships or, two counties. If the latter be the case, and the road deviation has not been assumed or maintained by the adjoining counties, the adjoining townships are liable for its maintenance and repair. If the said road has been assumed by the respective counties interested, then the latter are liable for its repair and maintenance. If the road deviating is an ordinary concession road in one of the townships, application should be made to the municipal council in which the deviating road lies, for the assumption of the deviating road by by-law, if the deviation be a necessary one, or for its closing up, in the manner provided by section 546, et seq, of the Consolidated Municipal Act, 1892. If any of the public money of the municipality in which the deviating road lies has been expended thereon, or if statute labor has been performed on said deviating road, it is probable such last mentioned municipality would be held liable to repair said road and for any damage occasioned by its non-repair.

SPECIAL NOTICE.—All questions received up to the 26th January will be answered in the next issue.

In School and Out.

Jack—I am more than ever convinced that like produces like.

Jerry—Well?

Jack—Yesterday, at our county poor-house, I saw an old friend who was once a theatrical manager.

Jerry—Go on.

Jack—He said that poor houses brought him to the poorhouse.—Pittsburg Bulletin.

BOOKS.

Jones' County Constables' Manual.
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THE MUNICIPAL WORLD,
St. Thomas, Ont

Political Item.

A small boy in an Austin, Tex., Sunday school was asked.
"Where do the wicked finally go?"
"They practice law for a spell and then they go to the Legislature," was the pat reply of the observing youth.—(Christian Intelligencer.)

BLANK FORMS.

Miscellaneous.

- Declaration of office Section 271.
- Declaration of auditor Section 272.
- Declaration of property qualification Section 270.
- Certificate of appointment of reeve Section 66.
- Certificate of appointment of deputy-reeve Section 67.
- Certificate of appointment of councillor, path-master's schedule or return of statute labor Section 64.
- Notice to attend court of revision Section 57.
- Oath of member of court of revision Section 57.
- Debentures register
- School Census Books, one and two quires Section 14c.
- Notice of appointment to office

Assessment Rolls.

When ordering Assessment Rolls, state number of names you have to provide for, and whether to be bound in leather or cloth.

- Sheets Assessment roll paper
- Sheets Assessment roll paper, non resident
- Assessment notices, township Schedule B, section 47.
- Assessment notices, cities, towns and villages
- Declaration for parties to fill in Section 42.
- Assessor's guides

When rolls are bound, one sheet non resident assessment paper will be put in for each 500 names unless otherwise ordered.

The York County Council at its last session decided to petition the legislative for an amendment to the Municipal Act to require registrars to keep a list of all property changing hands, and forward same to the clerks of the several municipalities in time for use of the assessors in making their assessments.

Electioneering Pleantries.

Apropos of the pleantries exchanged at Birkenhead by certain journalists who write about wine on the "lees" and the "lever" and the "fulcrum," a story may be recalled concerning the election in 1892. At that time there had been a succession of Liberal victories, which were commonly referred to as the "flowing tide," and accordingly one of Mr. Lever's placards requested the electors to "Vote for Lever and the Flowing Tide." As a counterblast to this, his opponent issued a poster recommending the electorate to "Vote for Viscount Bury and dam the Flowing Tide." [Westminister Gazette.]

Municipal Special Audits

Have been a feature of my work. There are many municipalities whose financial affairs are in a muddled condition. I straighten them out and start them off anew. The longer they are neglected the worse they are to untangle.

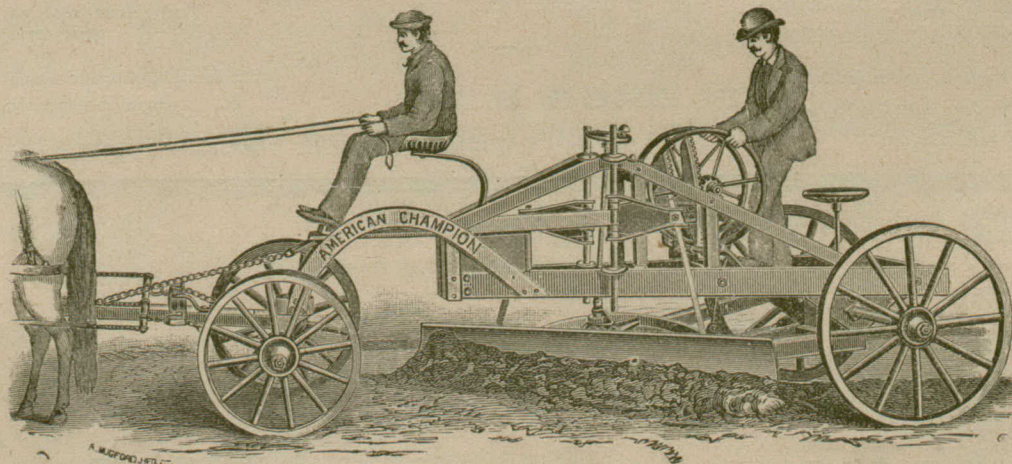
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ROADMAKING MACHINES

In the *Farmers' Advocate*, speaking of Road Machines, W. A. Hale says: "Doubtless there are various patterns of these machines, but the one that I have had several years' practical experience with is called the "American Champion," and, as it is now made in Ontario, can be bought at first cost, without the addition of duty, the price being \$250, and to say that the machine will, in any ordinary township, more than pay for itself in one year, is putting it very mildly. Some of our more enterprising municipalities have purchased one or more of these machines, and have taken upon themselves the principal part of the making and repairing of the municipal roads, giving the residents a chance, whenever possible, of working a part of their road tax in statute labor, and while the roads are uniformly very much improved the annual amount actually expended on them has fallen to from 75 even to 30 per cent. of what it used to cost to keep up an indifferent set of roads by the old method."



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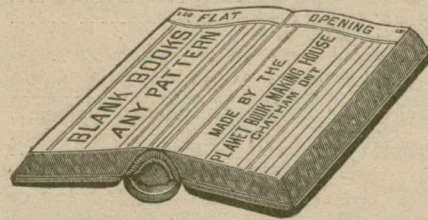
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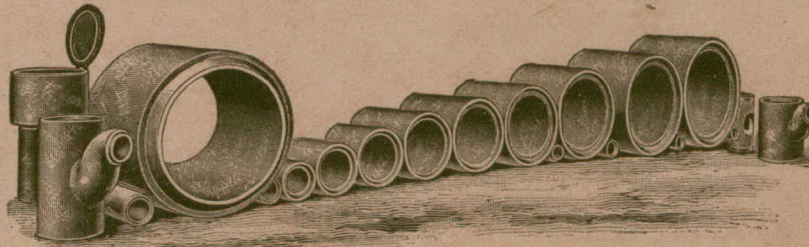
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