EDUCATIONAL NOTES.

CANADIAN. In the Kingston schools it has been de ided to allow afternoon recess.

The Rev. J. F. German, M.A., has been appointed Inspector of Schools in the City of Winnipeg, Man.

The death is announced of J. J. McKenzie, Esq., M.A., Ph.D. The deceased was Professor of Physics in Dalhousie College, Nova Scotia.

A theological professorship in connection with the Anglican cathedral at Frederic-ton, N.B., is about to be established by the Society for promoting Christian knowledge. The Canada School Journal for March contains a portrait of Mr. Benj. Cronyn, late chairman of the Board of Education, of London, Ont., with accompanying biograhical sketch.

The Ottawa Public School Board have authorized their managing committee to introduce the kindergarten system into their schools, but action is at present de-ferred on account of the depression of the

In Strathroy a school mistress was brought up before a J. P. for an assault on a pupil. The stick with which the teacher struck the boy, caught him in the face and drew blood. The charge is dismissed, and very properly too.

The Board of Trustees of the Napanee High School, have set an example which we trust soon to see followed by other High School boards. They have appropriated a sum of money for a reference library, which is soon to be purchased.

The Stratford High School only received \$41.50 of the last apportionment on in-spection. This gave rise to an animated discussion, the general management of the school and the qualification of the teachers coming in for a thorough overhauling.

coming in for a thorough overhauling. The Professors of Victoria College, Dr. Nelles, Dr. Burwash, Dr. Wilson, Mr. Bain and Mr. Reynar having indicated their sympathy with the objects of the Northumberland Teachers' Association, have been elected honorary members of that body.

The Goderich High School Literary So-The Goderich High School Literary So-ciety seems to be a flourishing institution, and we would be glad to see similar ones established in connection with other High Schools and Collegiate Institutes. The Society gave a most successful public en-tertainment at the beginning of this month, and it was very well attended by the town-

The people of Goderich think they ought to see their Public School trustees deliber-ate. The place where the Board meets is felt to be too far away for the general pub-lic to put in an appearance at their meet-ings. The Board, by a narrow vote, deled that it could not consistently with reputation for modesty move any further down town.

At the East Middlesex Teachers' Asso ciation, the President, Inspector Deamess, gave an interesting address on the subject, "A Public Officer in loco parentis," re-ferring at length to the subject of corporal punishment. The opinion of Locke, John-son, Horace Mann, D. D. Page and others were cited showing its necessity, while at the same time the principle, "the mininum of punishment is the maximum of ex-ellence," was strongly advocated.

The Canada School Journal says that in The Canada School Journal says that in the Province of New Brunswick, during the school term ending October 31st, 1878, there were 1,343 public schools in operation in the Province, and 1,384 teachers and as-sistants. For the corresponding term of 1877 the numbers were 1,305 schools and 1 340 teachers. It is gratifying to note the 1,349 teachers. It is gratifying to note the steady increase in the population attending en we re

THE WERKLY MAIL TOROXIO, ITIDAY, MARCH H. 197. THE WEEKLY MAIL TORONTO, FRIDAY, MARCH 21, 1879.

SOMETHING NEW IN FARM MACHINERY

A REMARKABLE INVENTION.

much less expense by machinery.

During the season of 1877 a few hundred

sample machines were made of this new

style, known in the United States as

of a large and commodious warehouse 300

complete Machines per day.

"Whiteley's New Champion," but christened in Canada the Toronto Mower, a much larger surface, and proportionately

in honour of this city The great-er part of the year, however, was upon each. Machines which have run five

spent in perfecting arrangements for future seasons show no indications of wear what-

trade. Extensive additions were made to ever on the cogs, and, as far as we can

their factories, giving them a shop almost judge, a pair of wheels could not be worn

feet long. These shops are connected by dinary smoothness. The cutter bar is

700 feet in length by 70 in width, exclusive out in a lifetime.

and so well adapted to suit the require-ments, that the cost and labour of gather-A **BEMADER ADDER LITTERTION.** Canada is so thoroughly an agricultural country that whatever invention relates to the improvement of this branch of her industry should be accepted as a blessing for the common good of all. The rapid strides of improvement that have been made in the rapid strides art of farming within the past few years, have kept well apace with that taking place.

In this issue of *The Mail* we devote a page of our space to the illustration of a new style of Reaving and Mowing ma-chinery that deserves particular notice. This peculiar implement was first intro-duced into Canada about two years ago by the in other pursuits. The old way of sowing the seed in the ground, broad-cast by hand. is now more evenly and better sown with The sickle and cradle are laid by, and in a the

THE NEW MECHANICAL GEAR FOB DRIVING THE KNIFE.

NEW MECHANICAL POWER.

instead of two or three, as with other machines, thus distributing the wear over

It runs without noise, and with extraor-

gear, or stopping the knife. The bar may contact with obstructions, as is also be folded and secured for leaving the quick kind of mowing machines.

There are always eleven doos in contact.

few years will be exhibited only as curiosi-ties of the past age. Reaping and Mowing machinery has been so micely perfected, TORONTO BEAPER AND MOWEE COMPANY. This concern was organized under the Dominion laws incorporating joint stock single strong bolt, and can be quickly re-This concern was organized under the Dominion laws incorporating joint stock companies, during the menth of September,

single strong bolt, and can be quickly re-moved to repair or sharpen. The value and importance of malleable shoes upon the finger bar is now gener-ally acknowledged as most desirable. The knife is constructed with the ex-tension of the section projecting in rear of the knife back, for the purpose of sup-porting the knife, the definition of the stat is so common on other Reapers. The "New MECHANICAL GRAR" has been suc-cessfully applied to the Reaper, the same as made on the TORONTO MOWER. This oreates a reliable power to drive the knife, and does away with the clattering noise and vexations breaks incident to the old style of machines. A MODEL MOWER.

A MODEL MOWER.

extending from this vibrating disc to the

knife gives the requisite motion, and this is

and guards a perfect shearing action. The heel of the knife is riveted to the Catalogue :back in such a manner, that in case of wear or breakage it can be easily replaced and is the only perfectly enclosed gearing actly like every other piece of its kind in a it is by far the by a new one, with but little trouble or

expense. The connection between the knife and driving mechanism is self-adjusting, and will take up all the slack caused by use, and at the same time is so constructed as to form a universal joint between the knife and driving arm, thus avoiding any twist or torsion upon the moving parts. This link connection moves at all times within the width of the shoe, and cannot possibly be injured by stones, stumps, or

obstructions. The material used in the constructio of this machine is of the very best character, the important wearing parts being cast steel, malleable iron, cold-rolled iron and wrought iron ; the material employed being selected with special reference to the greatest strength and least weight. To insure a more perfect manufacture of this machine, special machinery has been invented and fitted up expressly adapted to its manufacture. Each mower is carfully tested before

being sent out, by placing the machine upon iron trustles, and running it at a speed of ten miles an hour, or about three times faster than it would run when ordinarily cutting grass. By this seven field without the necessity of the driver test any defective parts are discovered and repaired before the machine leaves the leaving his seat. The perfect control which

1.21

the driver has over the bar adapts the factory. THIS NEW COMPANY has placed new, and valuable machiner costing many thousand dollars, in the works, and under the efficient manage factory. machine for use in the worst kind of mowing, readily clearing trees, stone heaps, or other obstructions. It can be thrown out of or into gear with the foot, and when thrown out there are no cog wheels in contact. ment of Mr. L. H. Lee, their fact The fly-wheel, which gives steadiness to the motion of the cutters, also acts to receive the thrust from the knife, and re-

ment of Mr. L. H. Lee, their factory presents an appearance and produces a class of work not surpassed on this con-tinent, and rarely equalled. THE OFFICES OF THE COMPANY are amongst the finest in Canada, supplied with all modern improvements, connected by telegraph with all parts of the Dominion, and ably conducted by Mr. Stilwell, the Secretary of the company lieves the gearing from the sudden shock consequence of being on what is termed a gimbal joint, like a ship's compass. An arm er jar which is noticeable in all the rattling brivate railways with the six different roads operated by two levers, one for foot, the and pounding noise upon the old style of entering the city. The company manufac-other for hand, and may be raised bodily driving mechanism ; and, different from tures its own knives and sections and cut. to a height of twelve inches horiting apparatus complete, as well as all other parts belonging to the machines. They are now manufacturing at the rate of 20 all the machinery there is, except a small Secretary of the company. fly wheel, which assists in giving regularity

and steadiness of motion. The gimbal joint The season just * passed has placed th movement is extremely pretty, and has the advantage over ordinary gearing, that quite By reas concern in the incredibly short time of two years at the head of the manufactures of

grain and grass cutting machinery in Canada. Their productions for 1878 were almost one-half of the entire product of the country. The popularity of this new mower is un Many other builders of the old style of nachines are abandoning their may capital to other purposes. This company has opened up trade for their machines in Australia, Newfoundland, Manitoba and Great Britain in a man ner that bespeaks for them in future the bulk of the home trade of agricultural machinery. Among the recent enterprises in Saint John, New Brunswick, is the es-tablishment of a Maritime Branch Honse by the Toronto Reaper and Mill 200 Mower Co., of Teronto. This concern has just fitted up a very desirabl place at Nos. 5 and 6 North Wharf, which they have stocked with samples of their famous Toronto Mowers and Reapers.

platform is carried to the rear of the machine, thus relieving a painful affliction that is so common on other Reapers. The in use, and, at the same time, accomplished million ; or, in other words, the parts are without any casing, extra weight or fixperfectly interchangeable, so that new parts can be supplied which will always fit

perfectly. This is a great consideration, sepecially when using machines far from The operator has such perfect control over the cutting apparatus, that the ma chine seems nearer a thing of the heir place of manufacture.

As to strength, we believe it canable of The position of the driver is the very vithstanding any strain which two horses best, easiest and most convenient where he can watch the operation of the machine and can bring to bear upon in It will run very slowly, or stop and start well without backing, in the heaviest grass, and so far handle, and control it with the greatest

11

freedom. All the parts can easily and quickly be found that it will not do. It is the opinion The following description of the Mower and Reapers is taken from the Company's freedom. All the parts can easily and quickly be taken apart with a common wrench and a Catalogue :-- familiar with the machine since it was The gearing is enclosed within itself, machine is made on special tools, and ex-



CUTTING APPARATUS.

The Cutting Apparatus is connected to a projecting arm from the bearing of the main axle in such a manner that it may raise and fall at either end in mowing over the ground, but entirely independent of

Without leaving his seat, the driver can the pole or main wheels, and without in raise the cutter-bar bodily, or set it at an the least affecting the driver on his seat. angle, to adapt it to the most varying The draft of the team is not upon the conditions, and can throw it in or out of pole, but through a draft rod directly congear at pleasure ; or he can fold it and nected to the cutting apparatus, which dissecure it for leaving the field ; in short, penses with the need of any small carrying wheels for the finger bar, as the weight of he has a perfect control over the machine, through levers worked either by hand or the cutting apparatus can thus be regulated upon the ground sufficient only to cut a By reason of its light draft, and simpli- smooth stubble.

TORONTO MOWER CUTTING OVER ROUGH AND STONY GROUND. ce, owing chiefly to the fact that | four times as many teeth are simultaneously city of construction, this mower is rapidly engaged, thus distributing the wear over a becoming a favourite among the farmers.

what few bearings there are, work under very light motion and strain. The driving wheel in the Toronto Mower larger surface, reducing the friction. The loss of power by the friction of the is keyed to the main shaft and revolves with it. This has forty-two cogs ; a similar mechanism is indeed very small, as is attested by a pair of such mitre wheels bevel wheel with forty-four cogs gears into it, but instead of revolving it makes a suchaving been in use for five seasons and showing hardly any wear. cession of rapid serpentine vibrations around the face of the wheel, and this it does in

at the present time about 22,000 pupils more than there were ten years ago, and some 9,000 more than there were five years

ago. The North Hastings Teachers' Associa-tion held its usual half-yearly meeting at Madoc on the 27th and 28th ult. Mr. Hughes, Public School Inspector, Toronto, was present and took part in the proceed-ings, as also did Messrs. Chas. Killer, Kirk, Thompson, Rev. Mr. Kenne, Rev. Mr. Wishart and Miss Ludlew. The following officers were elected :--President, W. Mac-intosh, I. P. S.; Vice-President, Mr. Thompson. Secretary. Geo. Kirk, Trac. Thompson; Secretary, Geo. Kirk; Trea-surer, Miss A. Cowie; Librarian, Miss J. Riddel; Council, Messrs. J. W. Rodgers, Morton, Tulley, L. Tait, E. Conovan, J. M. Henderson, and Misses Ludlow and Riddel. The next meeting will be held at Madoc on

Mr. A. P. Knight, Rector of the Collegiate Institute, Kingston, discussed in a paper read before the Literary Association of Chalmers' church the subject of "Higher Education." He contended that Ontario had no right to support higher education of any kind; because (1) it is an education of any kind, because (1) it is an unjust interference with the rights of in-dividual citizens; (2) It is class legisla-tion; (3) The direct benefits from a State college are largely local. The duty of the Government to supply facilities for higher Government to supply facilities for higher education before any voluntary colleges and schools were established was ad-mitted, but after they existed, their state aid should be withdrawn. The University of Toronto, he says, is for a class selely— the wealthy—and the School of Practical Science for a class—engineers. The argument that Provincial colleges send forth a stream of educated men who exert a refining and elevating influence on society is issed with contempt, though it seen o us to be one of most vital importance in the present state of this country. The question is an interesting one, and ably handled, though we think the conclusions are not warranted by the premises.

FOREIGN.

In West Virginia there are 3,216 free schools. The value of school property is stimated at \$1,714,599.

Eight hundred and fifty thousand dollars of appropriated school money in Vir-ginia has been diverted to other purposes. The air in the school rooms in New York on recent analysis yielded on an average 20 parts of carbonic acid in 10,000, while the air in the prisons averaged only 14.7 ! The Duchess of Leeds is a member of the school board of Stapleford, England. She was elected on the formation of the board, over a year ago, and has been very constant in her attendance. She was elected.

The Kingdom of Prussia annually expends the immense sum of \$18,000 for its educational interests. Last year 56,680 teachers were employed. It is stated that at least 8,000 more teachers are need-ed. The average salary paid to teachers is

The Chinese are an educated people and value education. They have preserved what is perhaps unique, an unbroken list of their graduates for 500 years. Those who walk through the corridors of the Temple of Confucius may read carved into lofty stone slabs, the principal classics of their literature.

The New York State Library report for The New York State Library report for 1877 gives the number of volumes in it as 104,010, of which 3,238 were added during the year. Among the foreign works are many of those of Wm. Prynne, a voluminous writer and distinguished law-yer statesman of the 17th century. He was a great opponent of Lord Coke and was dignified by Charles II. with the title of the "Cato of the age." The following statistics taken from the

The following statistics taken from the articles of a correspondent of el Magisterio Español, show the material progress made in Spain within the last thirty years :- In 1846 the schools were 15,640; the scholars, 1846 the schools were 15,640; the scholars, 663,631; the expenses, in money and ma-terial, 18,143,897 reals. In 1870 the schools were 28,117; the scholars, 1,410,-476 kinds, 79,073,980 reals. Thus in twenty-four years there has been an in-crease in the number of schools of 12,477; of scholars, 746,845; of expenses, 60,930 -083 reals; being about 80 per cent. in the schools, and much more than 100 per cent. in the scholars, and much more than 300 per cent, in school expenses. cent. in school expense



WHITLEY'S NEW TORONTO REAPING MACHINE WITH MECHANICAL GEAR.

This new Reaping Machine has been pro- | incurring thereby expensive delays and | cast-iron, increased strength is obtained, duced especially to meet the great demand severe loss to ripened crops. In the con- and much of the unnecessary weight disfor a light draft Reaper, combined with struction of the trength and durability. Within the past few years there have especial attention has been directed tostrength and durability.

been a large number of "Light Reapers" wards combining the greatest possible brought out, each of them possessing sonic good points of excellence, but as a rule that is, to strike an average between the they have proven to be too light; com-posed as they were of frail material they one side, and the frail, light-constructed the factory for the field, enables the mannwere too delicate to withstand the severe machines of recent growth in the opposite facturers to offer the Toronto Reaper to the strain imposed upon them during the past season, and the result was, that the benefit sary that the implement should be almost that they will find in this machine what arising to the farmer in running a low draft wholly built of steel, malleable and wrough has been so badly needed-a good substanmachine was largely overbalanced by the iron, and by the substitution of the strong- tial Grain Harvester, easy to handle and Machine that will cut a swath of five feet breaking down in mid-harvest of his Reaper, est malleable for the old style of common ght in draft.

NEW ARRANGEMENT FOR RAISING AND LOWERING THE GRAIN WHEEL.

Nor HIT TODACT MARTING. There is no pittane to become obstructed many poweria machine in operation. There are no bit is real to catter to realize a mathine in operation. There are no bit is real to catter to realize a mathine in operation. There are no to track to catter the realized is no other assoring to many power is new mechanical more turable and easy running that machine in operation. There are not the first from dirt. All yuck running machinery wall general to the cost of a mare time to be accomplicity of the realized is no other association of the first machinery as of the realized is new mechanical more turable and easy running that machine in operation. There are not the first from dirt. All yuck running machinery wall general to use on more turable and easy running that mathine in operation. There are not the realized in easy forms of the statistic of the sta ON THE TORONTO MACHINES, | in fact, one of the great features | There are no boxings or bearings to wear sists of a strong made Malleable Iron Rake produced by the farmer is to be accomplish-

The Toronto Company will ship, i bulk to Saint John, all machines for the Newfoundland, Magdalenand Prince Edward Island, Cape Breton, Nova Scotia and New Brunswick trade, and from this point the machines are re-

pensed with. The tree use of steel and come, that the Company is compelled to open up a Branch House there as well as in Montreal, in order to promptly supply their trade.

VALUABLE FEATURES ON THE TORONTO

The difficulty heretofore with all Single Reapers was the enormous side draft and heavy weight, incident to one wheel harvesters. These two faults have been completely eradicated in the Toronto Reaper, and the farmer is supplied with a Reaping without a pound of side draft, while the machine itself will not exceed in weight

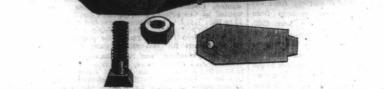
the smallest pattern of the ordinary combined machines, cutting an average swath of only four feet. An examination of the cut of the

reaper will show the peculiar attachment of the tongue to the main frame This arrangement, together with the new style of Castor Wheel used at the outer end of the platform, evenly balances the machine, and completely overcomes 'any side draft that would occur.

The MAIN FRAME of this Reaper is made of the best quality of Wrought Iron. The great strength of the frames forms a solid basis, on which to attach the shafts and gearings.

ALL THE SHAFTS are made of Cold Rolled Iron. The Finger-bar, Knife and Pitman connections are made o Steel ; all of the smaller castings of the finest quality of Malleable Iron. In fact the component parts of this machine are carefully selected from the best of materials for their strength and dura. bility, while the finest mechanical skill is employed toward producing the lightest draft and strongest Reaper. THE POWER TO DRIVE THE RAKES CON-

MOWER. The selection of machinery with which



MALLEABLE IRON GUARD FINGERS AS USED ON THE TORONTO MACHINES.

Both shoes on the finger bar are mal- | front or cutting edge. By this arrange- | The pitman connection with the knift leable iron. The guard fingers are bolted ment the sections can be held down upon and driving mechanism is self-adjusting, shipped to their local agencies. During the past season a large number of ly removed to repair or sharpen, as desired. feetly, and producing the desired tilting or turning of the guards up or down these implements have been sold in this The guards are all alike upon the bar and shearing action. The sections are all is done by means of a lever conveniently eastern trade, and so popular have they be- upon any machine, and are perfectly in- alike, from one end to the other, and arranged near the operator, whereby the upon any machine, and are perfectly in- alike, from one end to the other, and arranged near the operator, whereby the rechangeable. The knife is very plain in construction. the knife is malleable iron, and riveted on or up instantly, while cutting.

The sections are riveted upon a plain steel the knife heel. If a section, a knife back This plan of attaching the knife to the back, and project in the rear of the knife or heel gives out, each part is separate from power is admitted by all manufactures to back or bar, by which means the knife is the other and can be easily and quickly rebe the most perfect arrangement in suspended upon its rear edge, and upon its | paired with but little expense.



TORONTO MOWER PASSING A TREE WITHOUT STOPPING THE KNIVES OR TEAM.

the work of harvesting the various crops produced by the farmer is to be accomplish-the success of a farmer depends, te a market, it has been the constant aim of the market, it has been the constant aim of the

TORONTO REAPER & MOWER CO., TORONTO,

THE SELECTION OF A REAPER AND | first cost of a machine-reliable in every | The price of any article of merchandise way-is a matter of minor consideration is regulated by the cost of production and when compared with the value of the crops | its actual value to the purchaser. From

