

THE SCIENCE OF BANKING.

ECONOMIZING OF OUR MONEY EXPANDS CANADIAN COMMERCE.

Monetary Institutions Which Refuse to Discount Mercantile Bills in Times of Trouble Draw Upon Themselves a Run for Deposits.

Within the past twenty years many changes have taken place in the manufacturing and farming industries. "Waste nothing" is the motto, and the word "refuse" is known no more. It is now seen that everything is of use if taken to the right place, or put to its right purpose. The making of many small gains is now considered a safer and more profitable mode of business than aiming at a few large ones. The successful operator in stocks or options in grain is the one who is content with small gains.

The economizing of our money as much as anything else is the agency which is giving to Canadian commerce its enormous expansion. The appliances of banking have a similar effect on the country. The banks have economized enormously the wealth of every country in which, like our own, they have been well developed. Private banks, in several ways, are a benefit to the country, especially if the proprietors are wealthy men, for this is requisite to ensure confidence; but the introduction of the joint stock system gave the private institutions their death blow. This system gave to banking an immense expansion, and also

INCREASED THE AVAILABLE CAPITAL the country. It is in Scotland that economy of capital is in its most perfect form, and Canada is closely following in its footsteps. Here every little town has its bank, branches of the parent institutions in the capital. Each of these branches becomes a reservoir for the spare money of the surrounding district, and farmers, farm laborers and country storekeepers deposit their money in the bank. The managers of these branches, living in the midst of their customers, and knowing well the character and circumstances of those they deal with, lend aid to any of their clients who are in need of it and who are deserving of confidence. In this way the depositor, instead of keeping his money in a strong box or a stocking as formerly, receives interest on his savings, and is so much richer, and the industry of the country is helped along by the advances which the bank managers make on moderate terms.

The greater part of the surplus money in each district is transferred to the central banking institutions, where it is employed in the discount of mercantile bills and in many other ways which develop industry and expand commerce. The spare money of the country is transferred to the chief places of industry, and side manufacturing, which gives employment to many men. This, it is claimed in Scotland, is the reason that the country has made such rapid advances.

BANK DEPOSIT.

The essential requirement of good banking is security for its depositors. Individual traders, whose failure or success only affects themselves, may employ their money in any way they like, but a bank trades with other people's money and the consideration of the public, who place their money in a bank as security. The science in banking consists not in employing money at the highest rates, but in the safest manner, and in Canada this is generally done. The explanation of the large dividends paid by successful banking institutions is that they obtain a profit on their depositors' money as well as on their own. The capital of a bank may be two or three million dollars, that amount being liable to be called up, if necessary to meet engagements, but only a part of that sum is paid up. The larger the capital the greater is the security for depositors, and the greater the security the greater is likely to be the amount entrusted to the bank's keeping. On the other hand, the smaller the amount of capital paid up the greater will be the percentage of profits to the shareholders.

The sole object and advantage of paper money is that it economizes gold. In ordinary times it is found that an amount of specie, one-third or one-fourth of the issue of notes is more than sufficient to maintain the convertibility of these issues. The ability of banks to redeem their notes in gold in time of panic is a myth. The bank of England itself could not at any time redeem all its notes in gold. In fact, paper money would be of no use at all if an equal amount of gold were to be kept in the banks.

The whole system is based upon the maintenance of the ordinary relations of credit and without the maintenance of credit no amount of gold that the banks can command will ever suffice to secure the

CONVERTIBILITY OF THE NOTE.

In times of panic the demand upon banks is a serious one. The run is for deposits, and no bank can pay its deposits at once, whether in gold or in notes. But it is easy to see how this run for deposits is occasioned. The ordinary business of banking consists in the discount of mercantile bills, in the purchase of the current debts of commerce. A manufacturer supplies a merchant with \$5,000 worth of goods and receives from him (or draws upon) for the same amount, and as the merchant's money is nearly all invested in his business, the bill is not made payable until the lapse of such time, three months generally, as may be required by him to sell at least a portion of the goods which he has purchased. The manufacturer in like manner, having his capital invested in his business, and not being able to wait till the three months have expired, takes the bill to the bank and gets it cashed, receiving the \$5,000, less the interest for three months at the current rate. All commerce is carried on in this way, and a great economy of capital is effected.

When the bank refuses to discount a general crash follows. In ordinary times when credit is good a merchant may afford to wait a little before getting his bills cashed, for at such time he is little pressed

by his fellow merchants to whom he is indebted; but in times of a commercial or monetary crisis he cannot wait. Every man then, to secure himself is pressing his debtors for payment and if the banks at such times refuse to discount bills as usual nothing but bankruptcy can be the issue, even for firms which are perfectly solvent. The banks when they take the course, which they generally do in the first period of a crisis, doubtless act from a good motive. They think of

SECURING THEIR OWN SAFETY,

they think of the increasing scarcity of gold, and by refusing to discount the ordinary amount of bills they seek to lessen the amount of their own liabilities. In case a run upon them should arise they seek to lessen the amount upon which the run can be made. The very means which they take to prevent a run, produces a run. When the commercial community finds that it is impossible for them to get their bills discounted they call up every dollar of their deposits. When they cannot get money in one way they must get it in another. The general public, catching infection, join in the run on the banks, and the result is, if the monetary institutions continue to refuse discounts, that the banks, after a feverish scramble among themselves for the possession of the small stock of gold, stop one after another or by agreement simultaneously, as was the case with the New York banks several times.

DISCOUNTS IN CANADA.

Canadian banks are ever ready to lend aid to deserving merchants, and through their help many firms have been carried through a troublesome period. Across the line at present there is a cry against the withdrawal of gold from the treasury. This is used as a fear factor in the speculative share market, and on it the value of many securities take a big drop. The banks, in their eagerness to get gold, forget that the public are watching their deposits and will make a run as soon as they refuse to discount the bills of solvent business men.

A WONDERFUL MEMORY.

Remarkable Case of a Blind Man's Mental Energy and Retentive Power.

A correspondent of the Scientific American tells of a remarkable case of the development of the memory in a blind person, Professor John A. Simpson, of Raleigh, director of music in the North Carolina institution for the education of the blind, though blind from childhood, is one of the best educated men in the state. He is a graduate of the institution he now serves, as also of Trinity College, North Carolina, from which he received regularly the degrees of A. B. and A. M., notwithstanding there were at that time, some twenty-five or more years ago, no embossed text books of any value; and hence he was compelled either to have the prescribed course of studies read to him, or to copy the books laboriously by the use of an embossed alphabet. His studies there and since were of necessity carried on largely without the help of teachers, and he was thus forced to compare one authority with another and otherwise test his own work at every step. In this thorough manner he has gone over the whole field of pure mathematics, from algebra to quaternions, omitting nothing and working out every problem mentally.

In the same way he has mastered several ancient and modern languages, and has by his own work accumulated a very valuable manuscript library in Latin, Greek, French, German, Italian and Spanish. His life has been devoted mainly, however, to music; his task being to train his blind pupils to become teachers of the sighted, and in this he has been eminently successful. As pianist of a local philharmonic society, he has accompanied entire cantatas, masses and oratorios without errors and with finished precision. Once, when a school-boy, he multiplied mentally, without the aid of any apparatus whatever, a number consisting of twenty figures by another number equally large. At another time he committed to memory the whole of Milton's "Paradise Lost." He has frequently read very difficult pieces of music while sitting at the fireside and then gone to the piano and performed them without leaving out a note. He can readily detect, locate and rectify any ordinary defect in a pipe organ; take the largest and most complicated of them to pieces, repair their most delicate parts, and tune them to exactness; and he is frequently called upon to do such work in the city.

A Cure for Headache.

"An excellent and never-failing cure for nervous headache," said an apostle of physical culture, "is the simple act of walking backward. Just try it some time if you have any doubt about it. I have yet to meet the person who didn't acknowledge its efficacy after a trial. Nobody has as yet discovered or formulated a reason why such a process should bring such certain relief. Physicians say that it is probably because the reflex action of the body brings about a reflex action of the brain, and thus drives away the pain that when reduced by nervousness is the result of too much going forward? As soon as you begin to walk backward, however, there comes a feeling of everything being reversed and this is followed by relief. The relief is always certain and generally speedy. Ten minutes is the longest I have ever found necessary. An entry, or a long narrow room makes the best place for such a promenade. You should walk very slowly, letting the ball of your foot touch the floor first and then the heel, just the way, in fact, that one should, in theory, walk forward, but which in practice, is so rarely done. Besides curing nervous headache, there is no better way to learn to walk well and gracefully forward than the practice of walking backward. A half hour of it once a day will do wonders toward improving the gait of any woman."

Murderous Provocation.

I'm very peacefully cared
And I seldom care to spat—
Yet somehow always am inclined
To shoot the theater hat.

ABOUT THE HOUSE.

A Woman's Time.

Housewives are always complaining about having "no time" for this or that pleasure or recreation. They have no time for reading, no time for visiting, no time to play with the children; in fact, no time for anything but the same old drudgery day in and day out. Why should a woman be nothing but a domestic drudge? It is not necessary, nor does it follow as a consequence that she must be dull, dowdy, and old-fashioned. It never was intended that she should spend her entire life in caring only for bodily wants, utterly neglecting the needs of the higher nature. To keep in touch with the world by reading good papers, to get better thoughts and purer purposes by reading good books, to keep up the old acquaintances, both by visiting and letter writing, and, best of all, to keep herself looking well, should be the duty as well as the pleasure of every housewife.

If the work could be so arranged that an hour a day at least could be secured for reading, for a walk or a drive, the used-up energies would be recruited, and both body and spirit benefited. There is no gain in a constant work, work without that aid. A woman ages soon enough without that aid. It is not a waste of time to stop for a while. To shut herself up from all society and to make a slave of herself on the plea of "no time" is a sacrifice that few women are called on to make for their families. Much of the drudgery of woman is due to their weak indulgence of children in idleness. They will slave that their children may have pleasures and advantages they never had. Let mothers teach the young to share her work, and let her take time to enjoy something of God's good world.

In the Kitchen.

When cleaning time comes, just the ordinary every day cleaning time, not the semi-annual, dreaded, general cleaning time, then the housekeeper needs a carpet sweeper for use all over the house. She also needs an ostrich feather dust brush, a double dust brush, a flat end dust brush, a floor brush, a wall brush, a window brush, a plush furniture brush, a baluster brush, and the new dusting mitten on sweeping day.

About her sink she needs a wire soap rack, for it will save soap and keep it clean and dry; a soap shaver, for soap does not taste well, and a cooking knife if used for this purpose is apt to carry the disagreeable flavor; a bottle of household ammonia for two thousand uses; a box of pulverized borax for almost any number.

Chamois skins, for they are the best polishers; sponges, for they do the work better than cloth; a cake of sapolio for scouring purposes; insect powder and bellows for the eradication of pests; a dish mop, for sometimes one wishes to use water hotter than the hands will bear or for other reason may not wish to immerse the hands.

A bottle cleaner and swab, for shot or potato dice while effective are slow; pot chains, for they scrape a pot bottom effectively and wear neither fingers nor nerves; proper stove brushes, for they save elbow grease.

A box of nails of assorted sizes for use when wanted; tack lifters, for they save patience and other household utensils; tack hammers, for they save thumb nails.

A heather sink scrub, for the cleaning up place must be cleaned too; dish pans, dish drainers, dish towels, for these are a matter of course; and accidentally it occurs to me that the furnishing of a modern kitchen are both numerous and expensive.

An Aid in Sweeping.

Sweeping is usually part of the heaviest work in the course of the week, and we gladly welcome any hint which would tend to ease our labor. The true science of sweeping the most untidy room is to do it with a stout parlor broom and raise not so much as "a sneeze of dust." No matter whether a carpet or matting or a nice wood mosaic is the floor covering, the work can be accomplished with absolute neatness and despatch by laying a band of well-dampened wheat or sawdust along one side of the floor and sweeping it over and over clear across the apartment. The sawdust quietly lifts up every mote and bit of lint which the broom sets stirring before it has time to float off into the air, and so protects furniture and the sweeper as well. Such a process can be carried on in a sick room without the least inconvenience to the invalid, and in this event, or where nurseries or school rooms are cleaned, it is wise to sprinkle a little disinfectant in the sawdust. Where the wheat is used it can be washed and dried in the wind, and so used indefinitely.

Milk-Rising Bread.

On 1 cupful of fresh milk, 1 tablespoonful of salt, a lump of soda as large as a pea pour 1 quart of boiling water. Let cool; when lukewarm add flour to thicken quite stiff, set in a kettle of just warm water, which should be kept at an even temperature and not allowed to get either cold or hot. It takes 6 hours for this rising to become light. If it should become too thin before getting light, add a little more flour. In mixing the rising use a dish considerably larger than needed, as room must be given it to rise. When light add 1 quart of warm sweet milk, 1/2 teaspoon soda. Mix, mold well, having it just stiff enough to handle nicely and form at once into loaves. It will rise quickly. Rub over with melted butter or lard just before baking. Salt rising is made in the same way, simply omitting the milk.

Jellied Apples.

Pare and core a dozen firm, sour apples. Put them in an earthen dish and fill all the holes with sugar, using 2 cups. Pour a pint of cold water over them, cover, and bake in a quick oven until the apples are tender. Take the apples out of the syrup

carefully, do not break them, and put them in a glass dish. While you are preparing the apples have 1/2 cup of gelatine soaking in a little cold water. When the apples are done dissolve the gelatine in a pint of boiling water. Add it to the apple syrup and pour all over the apples. When the jelly has hardened beat the whites of three eggs very stiff, add 1/2 cup of powdered sugar and a few drops of lemon extract. Pile it on a plate and color a golden brown in the oven. Slip off the plate and cover the glass dish with it. Serve with whipped cream, sweetened and flavored with vanilla.

PERSONAL POINTERS.

Items of Interest About Some of the Great Folks of the World.

The income of the industrial population of Great Britain has grown in 50 years three times faster than the population itself.

A footman in a nobleman's house in England has testified in courts that while his pay was \$250 he received \$3,000 a year in tips from guests of the family.

A record cricket match was played at Thornton Heath, Eng., on August 20. One of the contending elevens was composed of a certain Mr. Bacon and his ten tons.

The old rectory at Greasems, in which Wordsworth lived from 1811 to 1813 while engaged on "The Excursion" has been torn down. It was built in 1687.

M. Louis Coulon, a distinguished French lawyer, has a beard nearly eight feet in length. Unfortunately he stands less than five feet six inches, and is compelled to wear his unique adornment in coils around his neck.

The Duke of Sutherland has added to his love for yachting a taste for engine-driving. He is actually having a private train built for himself. He is an expert engineer, and delights in locomotives. On the first trip of the new train the young Duchess is to be permitted to drive the engine.

Admiral Count Louis Hayde, who is now 96, is the only person living possessing the portraits, set in diamonds, of the three Russian Emperors, Nicholas I., Alexander II., and Alexander III., which are granted to high Russian officials on the occasion of the Czar's coronation. He hopes by living until next April to add to them that of a fourth Czar, Nicholas II.

Henry Howe, a member of Sir Henry Irving's company, is the oldest actor in the world. He is eighty-four years of age, and has been an actor since he abandoned his creed as a Quaker, fifty-six years ago. He played at the Haymarket, London, for over forty years. Queen Victoria asked for his autograph in 1892. He is in fine health and is very young in spirit. He has played with Irving for thirteen years.

Edward, the Saxon King of England, was designated the Confessor on account of his personal piety. After his death he was canonized, and his shrine in Westminster Abbey is still an object of reverence. Once a year, on the feast day of this saint, the Cardinal and Roman Catholic prelates and clergy of England are permitted to enter Westminster Abbey in procession, and before the shrine of St. Edward to hold a service of silent prayer.

A singular case is reported from Durham, England. A woman named Elizabeth Ball pleaded guilty to the charge of manslaughter, she having killed one of her daughters. She was in the kitchen of her house with her two daughters, and told one of them to do something. The girl made an impertinent reply, and the mother in a rage threw a poker at her. The girl dodged, and it struck her sister, with fatal results. The woman's lawyer pleaded for her discharge on the ground that the killing was accidental, and that his client had not intended to hurt the dead girl. She was discharged.

The Princess of Wales is one of those ladies who never take any repose after they are up and dressed for the day, and who always travel in a bolt upright position, with bonnet on, no matter how long the journey. It is a habit the Princess acquired as a girl, when she and her sisters were not allowed to be comfortable for fear they might spoil their clothes and make themselves untidy. Economy of the most rigid sort prevailed in the family, even to positive discomfort, but one would imagine a future queen could drop into luxury without the least effort. The Princess' lady-in-waiting has a hard time of it, as etiquette commands her to also sit bolt upright and keep her bonnet on, no matter how much the head under it may ache from the long journey.

Solid Shot Abandoned.

The use of solid shot in warfare has been practically given up. The projectile of today is a conical shell of steel, hollow, and sometimes loaded with powder so as to explode, or by a time fuse. It is wonderfully different from the shell of twenty-five years ago. In those days one could watch the projectile as it sailed through the air in a graceful curve, at length bursting. There was even time to get out of the way, under favorable circumstances. But the new style of shell moves at the rate of a little over half a mile a second. On striking a metal target its energy being transformed instantaneously into heat, it becomes red-hot, and a flame is actually seen to burst from the point struck. Such a projectile's moves, one might say, in a straight line, and its impact at a distance of a mile seems almost simultaneous with the discharge of the gun. Such a shell, passing near a man, would tear his clothes off, merely from the windage. If it comes very near, though without hitting him, it would kill him. He drops dead without a sign of a wound. Whereas, an old-style shell would burst into a few pieces, the modern projectile flies into a myriad of small fragments, each of them moving with tremendous velocity. It may easily be imagined that half a dozen 6-pound Hotchkiss shells finding their way into a vessel would scatter death and destruction in every direction. Protective armour, owing to its great weight, can be placed only over the ship's vitals—that is to say, along the middle part of the hull near the water line, so as to cover the machinery. In future battles gunners will direct their fire against the unarmored ends of an opposing vessel,

DANGEROUS COLONISTS.

EMIGRANTS WHO THREATEN TO RUIN THEIR IMPORTERS.

The Australian Rabbit Plague—A Fatal Mistake—Desperate Remedies—English Sparrows—Feathered Gypsies.

A few weeks ago the farmers of Wellington, New Zealand, held a mass meeting to devise means for abating the rabbit plague; and, at the close of an effectual debate, vented their disappointment by burning "Pinquique" the fool who ruined 10,000,000 acres of good farming lands by introducing the irrepressible rodents. The total damage caused by the ravages of the burrowing "conies," as the colonists call them, has been estimated at a sum far exceeding the aggregate of all the Government and municipal taxes, yet it might be questioned if the folly of importing the little pests is not exceeded by that of the emigrants who saddled North America with the nuisance of the English sparrow. In Great Britain, where conies were already found by the first Saxon settlers, their over-multiplication is prevented by the activity of foxes and hawks, and it would have required all the sagacity of a naturalist like Darwin to foresee the consequences of carrying the pets of sport-loving youngsters to a land where the only native mammals were rats and tree opossums. The mischief caused by the small relatives of the hare in Western Europe is comparatively trifling; but every observer of common intelligence ought to have known that the pleasure of seeing our farms attacked with old world farm yard birds would be a thousand times outweighed by the noisiness and destructiveness of

FEATHERED VAGRANTS.

that multiply faster than field mice and combine all the objectionable qualities of thieving cats and yelping curs. In the course of the last fifty years the winged rats have driven away ten or twelve species of our native birds that made a speciality of destroying noxious insects—especially the hairy caterpillars that chew our park trees into broomstraws. The American cuckoo, or "raincrow," feasts on those leaf devourers wherever he can find them, and evades the pursuit of the hawk by haunting the densest foliage, but is too fond of peace to stay in a neighborhood infested by the quarrelsome little wretches that make up the lack of individual strength by the tactics of their co-operative attacks.

The New Zealand farmers have tried to exterminate their rodent tormentors by expensive methods. Whole counties have consented to abandon grain-culture for a number of years to starve the evasive little rabbits that have learned to commit their depredations after dark and pass the daylight hours underground. Deep ditches with tin-lined pit-falls have been dug around square miles of ground at community expense, and as a last remedy former grainlands have been planted with an unfruitful weed known as broom-ferr that will get as dry as tinder in mid-summer, and when fired will scorch the ground 4 inches deep, precluding the possibility of that special area affording sustenance to any animated creature for the next twelve months.

DESTRUCTION OF FIELD MICE.

Gunpowder arguments avail but little, and experience has proved that forests, however efficacious in a dry, rocky country, dislike to follow the windings of a coney-burrow in a wet, peaty soil, like that of the New Zealand fernbrake. The farmers have also tried wholesale poisoning and advertised extensively for an available suggestion, in the hope that some inventive genius might hit upon a plan like Prof. Hirt's recipe for the destruction of field mice. That receipt was founded upon the discovery of a method for propagating a bowel disease, harmless to dogs and domestic poultry, but promptly fatal to small rodents. Like M. Pasteur in his hydrophobia nursery, Prof. H. kept a number of mice on hand for the purpose of evolving the de ied virus, which he then diluted with water and poured over thin slices of bread. After being thoroughly impregnated with the microbe fluid the slices were dried and reduced to a coarse powder, which the experimenter scattered in the neighborhood of the mouse holes. In some fields where the little rodents congregated like their larger relatives in a "prairie dog town," the crumbs generally disappeared within an hour, and the next morning the ground could be seen covered with the corpses and mice that had been attacked with the epidemic in the course of the night, and left their burrows in the agony of burning thirst. Australia could afford to pay \$500,000 for a specific of that sort, but their liberal prize offer still goes a-begging.

Progress of the Flying Machine.

Great strides have been taken within the last two years in the development of the powers of the flying machine. Hiram Maxim maintains that he can now lift 28 pounds per horse-power; but that with improvements soon to be matured he looks to raise this figure to 50 or 60 pounds. This would enable a machine to take a flight of 500 or 600 miles. In using his perfected machine Mr. Maxim will dispense with the railway track at present used, and a short run over a moderately level field will give enough velocity to give the machine its start. As far as landing is concerned, very little shock will be felt, as the aerial navigator will touch the ground while moving forward, and the machine will be brought to rest by sliding on the ground for a short distance. Mr. Maxim regards this as the only way to make a successful descent. If the machine were stopped in the air and allowed to fall directly to the earth without advancing, the shock, as he quaintly says, "though not strong enough to be dangerous to life or limb, might be sufficient to disarrange or injure the machinery."