

SCIENTIFIC AND USEFUL.

THE LONELY MAN.

There are 1,400,000,000 people living on the planet which we inhabit. And yet there is now and then a man who wonders what the rest of us will do when he dies. There are people in "society" who honestly think that all the world closes its eyes when we lie down to sleep. There are men who fear to act according to their own convictions, because, perhaps, ten persons in a crowd of 1,400,000,000 will laugh at them. Why, if a man could only realize every moment what a bustling, busy, fussy important little atom he is in all this great ant hill of important, fussy little atoms, every day he would regard himself less, and think still less of the other molecules in the coral.

ROBERT J. BURDETTE.

A Buffalo doctor says that the street cars of that city, which are unwarmed, are responsible for many cases of pneumonia.

Celluloid has recently been used as a substitute for copper in sheathing the hulls of vessels, and has been found to answer the purpose admirably.

That unsightly excrescence commonly called a wart can be removed by touching it several times a day with castor oil. This is the simplest known remedy.

The Transatlantic Steamship Company (French) has equipped all its vessels with apparatus for spreading oil on the waves during storms, having thoroughly tested its efficacy.

Dr. Gross, of Geneva, has lately experimented with himself in hanging. His experiments established that the sensations were only warmth and a burning in the head, without convulsions.

A new musical instrument, the Calvi harp, the invention of M. Dietz, of Brussels, has passed a successful private trial. It has a keyboard like a piano, but the mechanism plucks the strings like a harp instead of striking them. Any pianist can play it.

Ice can be so secured that it will not lose 25 per cent. of its weight in six days, even in a room the temperature of which is 80°. This can be done by placing the piece of ice in a bag, and then in a box containing enough barley chaff to surround it with a layer five or six inches thick.

Prof. Elisha Gray's new telantograph is said to produce at one end of the wire an exact fac-simile of the writing of the message sender at the other end. An artist may draw a picture with the pencil in Chicago and it will be reproduced synchronously by the pencil in New York.

Instead of weighing in pounds and ounces a newly-invented scale indicates the value of articles weighed. For example, if a man buys butter at 40 cents a pound an indicator is placed at 30. This so adjusts the scale that the lower indicator shows the value of any weight of butter at that price that is put on the scales.

To remove a foreign body from the eye, wrap dry white silk waste around and thoroughly over the end of a wooden toothpick, brush with this carefully over the part of the eye where the substance is lodged, and it will become entangled in the silk. Bits of steel or any other sharp substance which may become imbedded in the eye-ball may be removed by this means.

Herr Karelin made some interesting and valuable experiments during the eclipse at Jurjewitz. He found that one-sixtieth of a second was long enough for a plate to be exposed during a solar eclipse in order to obtain a good negative. He also obtained a photographic landscape during the eclipse, and from a comparison with the time required to obtain a similar result during the full moon he concluded that the light during the solar eclipse was fifty-six times as bright as at full moon.

A simple method of accurately cutting a bottle is to place it upon some level foundation and fill it with linseed oil to the point at which you desire the line of separation to occur. Then take an iron rod of as great a diameter as will pass into the bottle make it almost white hot and dip it into the oil. After the lapse of a few moments a sharp crack is heard, and the bottle is found to be as neatly cut as if with a diamond. If the bottle is very thick, and the cracking sound not heard in a few seconds, a little cold water thrown on the outside will accomplish the desired result.

The other day an old lady came to me with the request to saw a ring from one of her fingers. It was her wedding ring, which she had never had off since she was married forty-five years before, and she was delighted to hear that I could remove it without cutting it. I wound the finger round from the top downward with flat rubber band, which seemed to push the flesh down almost to the bone. Her hand was then held above her head for a few moments. Then the bandage was quickly taken off and re-wound on the finger. After repeating this operation three times I was able to remove the ring with ease.

It has long been a question with scientists whether flying fish actually fly, or are only carried forward through the air by the impulse which they give to their bodies while still in the water. Prof. Mobins expresses an authoritative opinion and claims that they are totally unable to fly, for the reason that the muscles which move the pectoral fins are not sufficiently large to bear the weight of their bodies in the air. In birds the average weight of the muscles which are concerned in the movement of the wings is one-sixth that of the entire body; in bats one thirteenth, while in the flying fish it is only one thirty-fifth. He affirms, therefore, that the impulse to the propulsion of the fish in the air is delivered while they are still in the water.

It appears that Professor Plateau, of the University of Ghent, while trying to observe the effects of the irritation of the retina gazed steadily at the sun for twenty seconds, the result being that chronic irido-choroiditis developed, ending eventually in total blindness. A number of cases are known in which choroiditis and retinitis occurred in persons who had observed an eclipse of the sun. The single flash of a sun reflector has been known to cause retinitis, and other temporary visual disturbances of a functional character have been frequently noted. M. Reich has described a curious epidemic of snow blindness, which occurred among a body of laborers engaged in cleaning a way through the masses of Passanaur and Mteti, in the Caucasus; the rays of the sun reflected from the vast stretches of snow on every side, produced an intense glare of light, which the unaccustomed eye could not

support without the protection of dark glasses. A few of the sturdiest among the laborers were able to work with impunity, but the majority suffered so much that among seventy strongly marked cases, thirty were so severe that the men were absolutely unable to continue work or to find their way home, and lay prone on their faces, striving to hide their faces from the light and crying out from pain. Recovery was gradual but complete.

A writer in *Chambers' Journal* describes a "curious new industry," the possibilities of which cannot at present be estimated. It is nothing more nor less than the manufacture from air of oxygen for application to various uses. Methods of extracting oxygen from the atmosphere have long been known, but they have not been sufficiently practical to make it an article of commercial value. By what is known as the Brin process, however, oxygen is now being made at a cheap rate and in large quantities, and, we are told, it is certain to have a great commercial future. It can be used as an illuminator, and it is expected that it will prove of immense value to physicians, as it already stands high as a remedial agent. The Brin Oxygen Company have a system by which milk can be charged with oxygen as it comes from the cow, before it starts on its travels, and its benefit to children and invalids under such application is incalculable. Milk treated in this way, it is claimed, is rendered not only free from disease, but richer and improved in taste. It will also when oxygenated remain fresh and pure for a fortnight. The new industry is still only in its infancy, and it may be that the extent of its possible development is not yet even dreamed of. It may be even possible some day to apply it practically to dilatory legislators. An oxygenated Senate, for instance, would be a pleasing novelty, provided its artificial activity did not all run to talk.

TWO BACKWOODS BOYS.

They Stand Their Ground Against Two Catamounts, and Kill Them Both.

PINE CREEK, Pa., April 12.—Two boys, Willie Chambers and Frank Weston, have been trapping skunk during the winter for a furrier in Philadelphia. They have caught and shipped over two hundred since the first of January. On Friday they were going to a trap of their own on Trout Run, when they were confronted by an enormous catamount that sprang out of the bushes and crouched down in front of them a few feet away. The boys had a single-barreled shotgun, and Weston fired at the catamount, lodging the charge of shot in its body. The animal jumped up and ran away for a short distance; and then turned and made a dash at the boys. Weston clubbed his gun and hit the catamount with the stock as it leaped toward him. The blow stunned the animal for a moment, when it renewed the attack. Young Chambers had in the mean time procured a heavy club, and the two boys pitched in, and after a severe fight, in which the clothing was torn from both of them by the sharp claws of the catamount, they succeeded in killing it.

They shouldered their trophy and went on to their trap, where they were surprised to find another catamount, this one fast by one leg in the trap. It was ferocious, and sprang forward to attack the boys, hampered as it was by the trap. The force of the jump snapped the chain by which the trap was fastened to a sapling, and before the boys had recovered from their astonishment the catamount sprang on young Weston and fastened its claws in his shoulder. Before it could seize him by the throat Chambers struck it a blow with the butt of the gun, knocking it loose and breaking the gun. The catamount then turned on Chambers. The flesh was stripped from the Weston boy's shoulder, but he went to his companion's aid. With the club and the gun barrel the two boys killed the second catamount, but not until they were both badly hurt. They started home with the two big animals they had killed, but became so weak from loss of blood that but for the appearance of a peddler, who was driving in the direction of the boys' home, and who took the boys in his wagon, they would not have been able to get there, and would doubtless have perished in the road. The boys are 12 and 14 years old.

The same day, in the same locality, Henry Clapham killed two catamounts within a mile of the place the boys had their fight with their second one.

Against Trusts.

The New York *Herald* says:—The bill prepared by the Trust Investigating Committee and introduced in the Senate at Albany is a sweeping measure. It declares that it shall be unlawful for any person, company or corporation to enter into a combination or agreement to limit the production or raise the price of any necessary of life, or to establish a monopoly or prevent competition in the case of such a commodity. It further declares that it shall be unlawful to put the management or control of a corporation in the hands of trustees for such purpose. A violation of the Act by a person is a misdemeanor. A corporation that violates it is liable to forfeit its franchises in this State.

Twelve hundred immigrants arrived in Winnipeg last week.

We fear that agriculturists, or anybody else, who look for an advance in the price of wheat are doomed to disappointment. Manitoba, the Western States, India, Russia, in fact all the sections of the world that share our markets, report immense stocks in store that are rather increasing than diminishing. The trouble is that in Russia and in India the cost of growth is so low that their prices rule the market and make the production of wheat in America much less profitable than is warranted by the amount of capital invested and labor bestowed. In five Russian ports alone two million quarters are in stock, so that with this year's crops there will be unprecedented quantities for shipment. Townspeople, of course, glory in the markets, but what do our farming friends say? In the House of Lords the other day Earl de la Warr, speaking on the existing agricultural depression, drew a desperate picture of things. He declared that the farmers of Great Britain had lost £600,000,000 in ten years; that 40 to 50 per cent. of the landowners of the kingdom were unable to live in their own houses; and that nearly a million of agricultural laborers were out of employment. All this was due, he hinted, to the fact that foreign wheat-growers were able to take their produce duty free into English markets.

SCIENCE AND RELIGION.

BY GAIL HAMILTON.

Popular books regarding the spiritual world have not generally professed to be anything but works of the imagination, and, of course, have no more than a literary value. The latest book, "Light on the Hidden Way," professes to deal with facts. In assuring us of the truthfulness of the writer, Rev. James Freeman Clarke has done all that can be done, all that is necessary to do in that direction. What remains is to judge from the narrative itself of its reasonableness.

Of all pretended communications from the spiritual or unseen world this is the only one I have seen which carries moral force enough to account for itself. The assumed spirits which it describes dwell entirely on character. Whatever their source, this woman, whose days are filled to overflowing with practical duties and common round of cares, has given us ideas of duty and truth which are harmonious with the latest conclusions of the deepest thinkers, and which seem to me to be far in advance of popular spiritual belief, perhaps because they touch the very basis of morality.

When the author was a girl of 10 years she had set her room in order one Saturday morning, and, being in haste for her play, had swept and dusted around the rug. As she started to go she saw her father standing on the rug and looking down on it intently. Raising his solemn eyes to hers, he told her to lift one end of it. And then, in her mortification, he charged her to remember that no act or thought is hidden, and that every slighted duty is a sin against the ideal life.

THERE ARE NO TRIFLES IN CONDUCT.

"Pretty small doings for an angel!" is the general if not universal verdict. That is because our moral perspective is not correctly adjusted. Nothing is small that bears on character. Fidelity to duty, irrespective of the size of the duty, is fit work for all worlds. If we suppose that the relations of earth are continued beyond earth, that fatherly love exists beyond the grave, what more natural than that a father, keenly discerning right and wrong, as the unblinded spiritual eyes must, should attend his little fatherless and motherless earth-child to guide her tender feet in the right path? The only probability against it is that it is seldom seen. I should far sooner expect that it would always occur than that it would never occur. There are a thousand indications that the presence of a pure departed spirit may be felt by a spirit still involved in matter. There is no inherent probability that the pure spirit is incapable of discerning or influencing the spirit not yet cleared from matter.

It might require some courage to give so simple a narrative to a world that demands from the unseen universe impossible tidings. We forget that we are yet in a stage of existence in which knowledge is communicated only through the senses. In a certain way, therefore, we can learn only what we knew before. Spirits themselves can not, on any conceivable theory, communicate to us what is not recognizable through the physical senses. In every attempt by any revelation no one has gone beyond the symbolism of this world. Imagination can create new combinations. It never creates material. All, therefore, which any revelation can do is to use this world in its best types as indicative of the other, and elucidate moral truth which is eternal, that is, which has no relation to time. This modest seer touches with firm hand a great truth, without misgivings, without even self-consciousness.

Another principle of the widest scope is presented with the same light, firm touch; the light, passing touch of one to whom it has been given, and not the eager grasp of one who has found it after extraordinary, life-long seeking. When asked what seemed to her the most impressive fact disclosed by the unseen life she hesitates a little, in certain childlike fashion, and then says perhaps it is the perfect order of the universe. Under this order each soul finds its exact level and place by an unerring law as that which crystallizes the snow and paints the rose and holds the stars in their orbits. Thus she discerns the unity of moral and material law.

THE LIFE AFTER DEATH.

Following this line of law, her friends of the unseen world teach what the highest reason we can exercise seems to teach, that there is nothing in death to change a sinner into a saint except that the clear spiritual eye, "the unclothed soul," is forced to see its own condition and pass judgment on itself. The stain of sensual life shows instantly all its blackness in the white light of the spiritual atmosphere. A reaction from the belief in a literal hell to a comfortable but deadening assurance that death will make all right receives from these spiritual advisers no countenance. "Hell-fire" hardly is too strong a word for them to use for the light of heaven, only that it is a purifying rather than a punitive flame, but it brings an almost intolerable pain to him who has loved and lived in darkness. And it brings an unexpected joy to the soul which has gone further than it knew in the attainment of noble character.

Two of these surprised spiritual sufferers, who learned their evil deeds only after they had passed from earth, were men who had left ample endowments to public institutions, but

WHOSE RELATIVES WERE ABANDONED

to need and distress. Most miserable of all who came to this seer were such as these—self-constrained to watch constantly the hardships and anxieties which they themselves might have averted, unreconciled to their own helplessness to aid where once aid was in their power; held back from progress by unavailing regret and remorse, driven into a hell of unrest.

The communications of these assumed spiritual beings teach a God of science, of logic, of the devoutest religion; teach a gospel of purity, of human service, of stern fidelity to truth and duty. They are in perfect and impressive accord with the highest conclusions of the intellect, the tenderest aspirations of the heart, the sternest dictates of the conscience. To this extent they demand recognition.

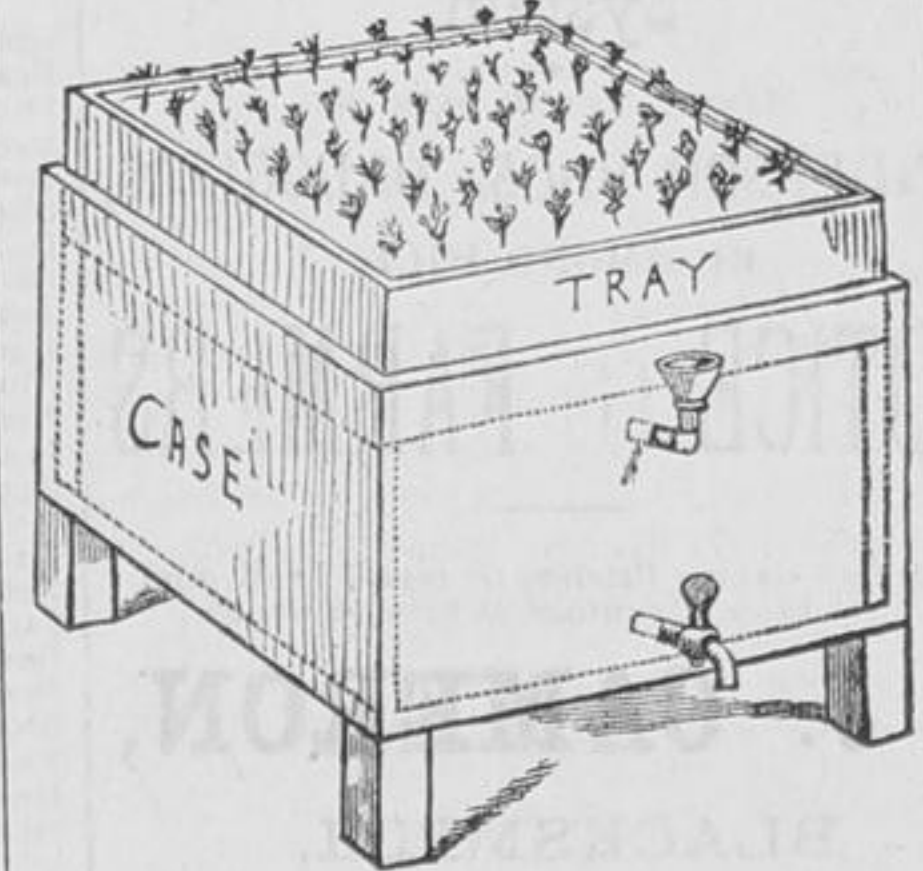
What in the history of the visible world forever bars it from conscious connection with the invisible world? Progress has always been in that direction. The epic of civilization is the epic of spiritualization. The mass of rough stone has become artistic beauty, family consecration, religious worship. Space has been overcome by spirits upon the earth.

It is but a single step onward, onward, to annihilate space beyond the earth, to penetrate the earth, quality itself. We hold in our grasp that most subtle and strong of forces, electricity, utilizing, but in nowise comprehending it. There is a spiritual body as a natural body. The mutual relations of the two are but dimly discerned, but slightly understood. There is nothing in the past to demonstrate or to indicate that the world of matter has reached its utmost refinement, or that its relations with the world of spirit have attained their closest intimacy.

Propagating Case and Trays.

One of the chief difficulties that the amateur propagator meets with in rooting cuttings of many kinds of plants is a lack of bottom heat. Top heat he can get easily enough; but bottom heat is the key to success in propagating plants by cuttings, as every gardener and florist well knows.

I represent at Fig. 79 a sketch of a "propagating case" that, judging from my own ex-



perience with it, will meet all the requirements of the amateur florist, and enable him to compete successfully with the best appointed greenhouse in the world in rooting a limited number of roses and other favorite or high-priced plants. It is simply a box 10 inches deep, and as long and wide as may be desired. The box is made of inch thick stuff, and in it is placed a galvanized iron or tin tank 10 inches deep, and three inches less in diameter than the inside of the box. The one and a half inch of space between the tank and the sides of the box should be packed with sawdust. At one side is a filling tube, as shown in the sketch, and a faucet for drawing off the water. A few plant trays, four inches deep and large enough to closely fit inside the upper part of the case over the tank, are needed. They should be made of half-inch stuff. If desired they may be made one or two inches deeper and have a glass cover to fit over the top.

Put about three inches of sand, or fine friable soil in one of these trays, set the cuttings in it, fill the tank with hot water, and keep it hot, or quite warm, by drawing off a portion daily and replacing with more that is boiling. In a few days the plants in the tray will be rooted and it can be taken out and another filled with cuttings put in its place. After the plants in the first tray have hardened off a few days they may be potted, or transplanted to the open border. If it is desired to root the plants in thumb pots, set the pots close together in the tray and pack with sand or moss, and they will root quite as readily as on the greenhouse bench.

With a small propagating case like this and a few plant trays to match, an immense number of cuttings can be rooted for the house or borders. It is also well adapted to starting plants of all kinds from seed, especially those of a delicate nature. In starting seeds it is best to have a glass cover on the tray arranged so it can be drawn aside a little at a time as the plants come up. All seedling plants must have abundance of light and air to prevent them from becoming drawn, or damping off.

Will There be Trouble?

In spite of the proclamation of the Lieutenant-Governor of British Columbia, warning the seal fishers of that province to maintain the peace in Behring's straits, there is grave cause for apprehension that trouble will arise if the huge monopoly, at present protected by the United States government, attempts to interfere with the operations of Canadian boats as it did last year. A number of sealing vessels are reported to have started out from British Columbia and Nova Scotia, all manned by men determined to resist seizure by American cutters plying in the interest of the fur company that rules everything in that region with an iron hand. The Governor of Alaska has denounced this monopoly in the most unmeasured terms for its treatment of people who make the slightest attempt to thwart its purposes; and what he says only confirms the opinion that has prevailed for some years as to the outrages committed by this corporation, which pretends to be acting under the laws of the United States and with the sanction of the authorities at Washington. Americans, Canadians and Indians have suffered too many indignities at the hands of the Alaska Fur Company, and it seems hard to blame any of the sufferers if they now take the law into their own hands. This the Canadian victims of the monopoly, it is said, propose to do, and they have put for the grounds prepared to contest the claims of their oppressor. The State Department at Washington should take notice and put a veto upon the measures taken in Behring's Sea to lock up the treasures of those waters for the benefit of a corporation that has seized upon property that is not owned by the United States. If the Governor of Alaska is to be believed, no time should be lost in stripping the pirates composing the fur company of the power conferred upon them, under a misapprehension, by the United States. No American statesman can honestly defend the tactics pursued in Behring's Sea to exclude Canadians from the sealing grounds, and no one competent to form an unbiased opinion has visited Alaska and come away without deciding that the Alaska Fur Company, conducted as it is, is in the highest degree inimical to the welfare of that Territory.

One hundred years ago the town of Wilton, N. H., passed the following vote: "That the town provide one barrel West India rum, five barrels New England rum, one barrel good brown sugar, half a box of good lemons, two loaves of loaf sugar, for framing and raising said meeting house."

In Case of War.

The probability of war breaking out between Canada and the United States is, of course, very remote, but this fact does not prevent the discussion in military circles across the border of the bearing upon such an event of the relative positions of the two countries. The March number of the *Journal of the Military Service Institution* contains a paper by Lieut. F. M. Woodruff, of the United States regular army, dealing with "Our Northern Frontier," and discussing the present and potential military strength of this country. As the paper received first prize in a competition at the institution, it may be accepted as a fairly accurate statement of the views of the military authorities at Washington on the subject.

Lieut. Woodruff states that the possible arms-bearing force of the Dominion consists of militia, which, if turned out to the last man, would produce "about 900,000 effectives for active service," though it would be practically impossible to place so great a number under arms. After giving some details respecting the organized militia force, and calling attention to the insufficiency of its training, he says that the weakest point in the organization is its lack of a "nucleus of a transport system." He admits, however, that during the recent outbreak in the North-West the troops were moved to the front with remarkable rapidity. Canada's chief advantage, our writer says, lies in the possession of admirable railway and inland navigation systems. By means of these English troops, sent out by steamers of the Cunard, Guion, White Star and Inman lines, could be quickly distributed at important points throughout the country. The part which the English fleet of gun-boats and cruisers would play is thus described:

"Forty-three of these vessels draw less than seven feet of water, and some would immediately pass through the Richelieu River and Chambly canal to Lake Champlain; this naval force would be auxiliary to a land force that would approach the frontier of New York from Montreal. From Halifax and St. John, N. B., a strong naval force would threaten the important cities from Eastport, Me., to Hampton Roads, and so absolutely defenceless are all these cities that they would be placed under tribute. England would send some of her fleet to occupy Gardiner's Bay, at the Eastern end of Long Island, the occupation of which would be of the highest strategic importance as it would furnish the enemy with a secure harbor for his transports, and it would serve as his most important base of operations. From St. John England would send a land force into Maine, and thus secure control of the railroads even as far as Portland, where she would already have had some of her ironclads. From Bermuda she would send her vessels to lay the cities of the South Atlantic and Gulf coast under tribute, and finally from Victoria she would send them to San Francisco and Portland, Oregon. On the entire frontier the only point at which the United States possesses the whole advantage is Minnesota and Dakota, where we could quickly send a force to invade Manitoba, and cut off communication with the extreme West. In addition to the bases of operations named, Kingston, Toronto and Hamilton would serve as bases upon Lake Ontario for naval operations; and as every effort would be made to keep the Welland canal intact, they would also serve as bases for operations on Lake Erie. The Ordnance stores and war material possessed by the English and at the disposal of Canada and the perfect system of navigation and railroad communication from Montreal which is only fifty miles from Rouse's Point would soon place the whole of Northern New York under control of the enemy. This would include the two frontier railroads and the city of Ogdensburg."

Up to this point Lieut. Woodruff concedes the advantage to the enemy, but he holds that as the United States could arm and equip 20,000 men every week matters would soon be "evened up." In the meantime the following programme would probably be adopted by our neighbours:

"Regular troops would be massed at four or five points on the frontier, viz., at St. Vincent, Minn.; Detroit, Mich.; Buffalo, Ogdensburg and Rouse's Point, N. Y. Upon the declaration of war the troops should be ordered to occupy and hold at all hazard Windsor, opposite Detroit; Fort Erie, opposite Buffalo, and Prescott opposite Ogdensburg; a bold dash by some picked men would probably give us the possession of the four bridges across the Niagara River, viz., the Suspension bridge, Cantilever and the International bridges, and the small Suspension bridge. The troops taking possession of Fort Erie should make a desperate effort to reach and destroy the Welland canal, or disable it as much as possible; and the troops from Ogdensburg should attempt the destruction of the Point Iroquois Junction and Galops canals; the latter is only seven and three-eighths miles below Prescott. That this might be done by a fearless commander is highly probable, for it was along this portion of the frontier that the Fenian raids were successfully made. The troops from Detroit should construct earthworks at Windsor, and also occupy Sarnia and Courtwright, and the commanders at these three places should be made to understand that there was to be no such thing as withdrawal or surrender. The troops from St. Vincent should move to Winnipeg, and hold that point to sever connections by the Canadian Pacific with the extreme West. Troops should be sent to Bangor, Me., to concentrate there a large portion of the National Guard of that State, and if any delay occurred in the operations of the Canadians, these troops should at once move towards Vanceborough, and if possible MacAdam, N. B."

The men being thus placed in position in this game of war, our military readers may find it interesting to carry on the subsequent moves and to endeavor to ascertain which side would come off victorious. Those, however, who do not take a professional interest in such matters will find Lieut. Woodruff's paper chiefly suggestive of the immense damage to the material interests of both countries which a war between Canada and the United States would entail.

Chicago has a thrifty street car conductor who has been raising mushrooms in his cellar and selling them to the several large hotels for the past year. The man is a sturdy young Irishman, and he learned the trade of a gardener in Dublin. Last March he raised four pounds daily to every square foot of bed and sold them at a good price. He was seven years in solving the climatic problem, but at last succeeded, and now raises a product far superior to foreign grown mushrooms.