COULD NOT CONQUER CANADA.

But an American Officer Tells How He Would Attempt It.

Our System of Rivers, Railways and Canals Discussed From a Strategical Standpoint.

A lecture delivered at the Infantry and Cavalry school, Fort Leavenworth, by Captain Wagner, Sixth United States Infantry instructor in the art of war, and gold medallist, has created considerable talk in Canadian military circles. The lecture is entitled "The Military Geography of Canada," and has been reprinted in the journal of the Canadian Military Institute Toronto. The lecturer in his opening remarks says: "To a student of the art of war, the study of the military geography of any country is an interesting one; but it is, perhaps, only when the study is applied to countries whose interests are closely bound to our own, whose foreign policy may clash with that of the United States, and whose territories may be the theatre of operations of our armies or to those parts of our own land which may feel the tread of the invader—that it becomes to us a study of importance second to no branch of the art of war. Applied thus to the Dominion of Canada, the subject becomes one of great moment to every American officer.

Captain Wagner then goes on to say that to Americans the southern boundary of the Dominion is the only one which requires careful examination; for Canada is unassailable on the north, while she can be attacked on the east and west only by a nation superior to Great Britain in naval powers—in other words, three sides of the irregular quadrangle, which forms the Dominion of Canada, are practically safe from assault. Captain Wagner then gave a description of our mountains, topography products, rivers, canals and railways. He is of the opinion that the Richelieu river, although of less importance than the Welland and St. Lawrence canals, may nevertheless be of great value to Great Britain or perhaps to the United States in case of war between the two nations. Forty-six miles below Montreal is the mouth of the Richelieu. This river is navigable up to Lake Champlain, by means of a dam and lock at St. Ours (14 miles above the mouth) and the Chambly Canal, 12 miles long (32 miles further up), for vessels drawing six and one half feet. A new canal is proposed from Caughnawaga on Lake St. Louis, to connect with the Chambly Canal, thus admitting of quick water transport.

FROM MONTREAL TO LAKE CHAMPLAIN VIA ST. JOHN'S.

The Chambly Canal is to be enlarged to the same dimensions as the Welland, and the new canal is to be constructed on the same scale. The possession of the Richelieu Canal system would give to the British navy access to lake Champlain—a fact sufficient to demonstrate its importance. The captain thinks that while the Canadian canals are admirably adapted to the requirements of commerce, their projectors did not labor under the idea that disputes between the United States and Great Britain were always sure to be settled by arbitration. He thinks the C. P. R., in commercial aspects, one of the greatest in the world at the same time admitting that it is of great strategical value to Great Britain, but nevertheless from the very situation of the road, all the efforts of the British Empire probably could not save it from the destructive forays of the cowboys from Montana and Dakota. As to the Grand Trunk, he says it is evident that the part of this road east of Montreal loses much of its strategic value, as it lies on the wrong side of the St. Lawrence for safety, and a portion of it lies within the United States Territory. He believes that without a naval superiority to Great Britain, the United States' best hope of success must be found in a winter campaign. American troops had endured, in winter campaigns in Montana and the Dakotas, weather of greater severity than they would be called upon to face in most parts of Canada. "Montreal as the connecting link between the ocean and the lakes is a point of immense commercial and strategical value: in strategic importance it is second to Quebec alone." Here is what the Captain says of the French Canadians: "They resemble their Anglo-Saxon compatriots in thrift, but in scarcely anything else. They are slow, conservative, and as completely priest-ridden as the peasantry of Spain or Bohemia. Secured in their own language, laws, and religion by the treaty of Paris in 1763, their manners and customs have remained unchanged, and the Province of Quebec to-day presents the appearance of a portion of France under the folds of the British flag, but it is the France of Louis Qunize and has nothing in common with the Republic of President Carnot. Ever since the conquest of Canada the French Canadians have been loyal to the British Crown, but theirs has been the loyalty of self-interest rather than affection, and has been largely a matter of obedience to their church, which has in Quebec an influence, authority and sway, such as no church has in any other part of the British Empire. Industrious and humble, the typical French Canadian passes a monotonous existence in working hard, saving money, hearing Mass and obeying the biblical injunction to propagate and multiply." Captain Wagner says the weakest spot in the Canadian Militia system is the total absence of any nucleus of transport. The first call he thinks, would bring out about 40,000 Canadian militia. New England, the middle states, Ohio, Indiana, Michigan, Wisconsin and Illinois, could at once oppose them with nearly sixty thousand organized militia; "and there is no reason to believe that an Anglo-Saxon militia man reared on the banks of the St. Lawrence is in any way superior to an Anglo-Saxon militia man born and bred on the banks of the Hudson or the Illinois. The Canadian militia has doubtless improved since the day when the 'Queen's Own' of Toronto ran away from the Fenians: the American militia is certainly better than it was when it fled from the field of Bladensburg. The Canadian active militia would, doubtless, be increased more or less from the reserve. Under the stimulus of victory it might even grow into a formidable army, but under the pressing influence of defeat it would suffer the disintegration of all militia armies in adversity. I am not inclined to underestimate the fighting capacity of the Canadians—their history shows them even to have been a brave and warlike people, but their forces are merely militia which could become really efficient only in the course of many months of successful (or at least not disastrous) war. The military importance of Canada lies in the fact that it is a base for the military operations of

A POWERFUL EMPIRE WHICH CONTROLS THE OCEAN,

and is capable of putting forth great strength on land. There is no doubt that England could, without sacrificing her security in other quarters, place in Canada two highly organized, perfectly equipped and thoroughly efficient army corps and a division of cavalry. She could spare these troops and there is no doubt that she has abundant transportation for them. Great Britain could then begin the American war with some 70,000 regular troops—the best in Europe—and about 40,000 militia. We could oppose this army at first with 25,000 regulars and 106,000 organized militia. Our ultimate preponderance in military strength cannot be doubted; but I do not share the views of those who think the conquest of Canada would be a military promenade for the American army."

"In the selection of an objective it is of paramount importance so to direct our efforts as to isolate the Canadians as much as possible from Great Britain, and to separate the different provinces from each other. Quebec is the most important objective, for its possession to us would prevent the naval or military reinforcement of the British armies or fleets above that point, and history proves that it is the key to the Conquest of Canada. Though we should therefore regard Quebec as our ultimate objective, we cannot make it our immediate one. The old line of invasion, via the Kennebec and Chaudiere rivers, followed by Arnold—difficult to the last degree for his small force—may be regarded as altogether impracticable for the large army that would now be required for the reduction of the strongest place on the continent. The route via Richmond and Arthabaska would lend a flank to the attacks of the British, and expose our communications to assault from Montreal. The only other route is the one adopted by Montgomery—the line via Montreal; and the reduction of that city must be first effected, in order to protect the flank of the army marching down the St. Lawrence. Moreover, that river is desirable for the transportation of heavy ordnance, without which the siege of Quebec would be a farce. Finally the control of the river by vessels of war or heavy floating batteries is necessary, in order that the city may be invested—otherwise the investing army would be cut in two by the stream. We are, then, at first, neither in a position to reach nor to reduce Quebec.

THE CAPTURE OF MONTREAL

is a necessary stepping-stone to the reduction of Quebec. But there are many other reasons why we should choose Montreal as our primary objective. We have already seen that the Canadian canals give entrance to British war-vessels into the Great Lakes. The capture of Montreal would cut Canada in two; it would give us possession of the Beauharnois and Lachine canals, and protect the country above from naval attacks by any vessels except such as might have ascended the St. Lawrence before the surrender of the city; and the ultimate capture of such vessels would be certain. Moreover, it would place us in possession of the metropolis and chief railroad centre of the Dominion, thus causing such embarrassment to the trade of the Canadians as to bring them to a realizing sense of the inconvenience, if not the horrors of war. Finally, it would place us in the best possible position for operating in any direction that military circumstances might require. The operations against Montreal would be of such importance as to demand the efforts of a great army. This army should have its primary base at Albany, a point easily reached by rail or water from all parts of the country. A secondary base would be at Rouses Point The enemy would probably be first met at Fort Isle-aux-Noix near the frontier; and would almost certainly be encountered in force at St. John's as that place is a strategic point of importance, commanding the junction of several railroads, the Richelieu Canal and the Vermont Central Railroad bridge over the Richelieu River. If dilatory mobilization and concentration on our part should give time to the British, we should probably find them strongly intrenched at St. John's; at any rate, in this vicinity would be fought the battle for the control of the Richelieu Canal and the possession of the Montreal angle formed by the St. Lawrence and the Richelieu. Victory here would enable us to hold the waterways as far down as Sorel, would cause the retreat of the British to the Island of Montreal, and would give us possession of the Beauharnois Canal. Proximity to its base, and the fact that its front would cover its line of retreat, would save our army from heavy disaster in case of defeat.

ARRIVED OPPOSITE MONTREAL,

the American commander would find himself confronted by a serious problem. The river here is navigable for the largest vessels of the British Navy, and is a mile and a quarter wide. Just above the city the stream narrows to half a mile, but the water rushes through the narrow channel at the rate of eighteen miles an hour. It goes without saying, that the Victoria bridge would be rendered impossible at the first approach of the Americans. A passage of the St. Lawrence at Montreal by a large army while the river was open, opposed as it would be by a formidable force on land, aided by naval vessels in the river or by the active alliance of nature in the foaming rapids, would require military genius of the highest order, and would be an achievement worthy of ranking with Napoleon's passage of the Danube at the Island of Lobau. But even if our army were baffled for months in attempting the passage, the approach of winter would change matters for the better; and an ice locked river would place the island and city at the mercy of the Americans as surely as the Dutch ships frozen in the Helder were at the mercy of Pichegru's hussars. An advantage of immense importance that would, in the mean time be derived from the mere presence of our army before Montreal, would be the holding in check of all naval and military reinforcements for Ontario; for, as the fall of the city would cut off the retreat of such reinforcements, the British would hesitate to place them in jeopardy by sending them beyond the menaced city. It seems clear, then, that Montreal should be our first objective, and that we should here assume the initiative promptly and with as large and efficient an army as possible. This army, from the nature of the theatre, should be composed of a large proportion of infantry, with field artillery not exceeding three guns to each thousand men of other arms, and with only enough cavalry for screening and reconnoitering duty. The army should not be encumbered with heavy artillery; for its movements should be made with the utmost celerity, and, once before Montreal, its siege trains could be speedily forwarded by rail and water from Albany. A large force should be detached to seize Richmond, thus holding an important railroad junction, protecting the right wing of the army before Montreal from attack from Quebec, covering Vermont from invasion, and maintaining communication between the army at Montreal and one in Maine which we will consider later."

"THE CONQUEST WOULD BE SURE."

The lecturer concluded as follows: "It is, I think, evident that with a suitable naval force co-operating with our armies; the conquest of Canada, if not speedy, would be at least sure. But in the absence of such naval auxiliary the situation could, perhaps, be best expressed by a Celticism; England could not hold Canada, and we could not conquer it. In other words, our military power, properly directed, would enable us to conquer Canada from the Georgian Bay to the city of Quebec, and perhaps to the Nova Scotian isthmus. But the capture of Quebec, the invasion of Nova Scotia, and the reduction of Victoria and Esquimalt would be well-nigh impossible while the British fleets were superior to our own, unless the English commanders on sea and land should display the most pitiful incapacity, and our own, the most dazzling genius. Let me not be misunderstood; I do not say that the United States could not conquer Canada, I mean that a complete conquest, as the result of the operations of war alone, uninfluenced by international troubles, foreign alliances, or financial difficulties on one side or the other, could probably be affected by us only when we had provided ourselves with a naval force superior to any armada that Great Britain could send to the American waters."

The Hottest Spot on Earth.

In the Eastern Hemisphere, the hottest spot is on the borders of the Persian Gulf on the south-western coast of Persia. The thermometer during July and August never falls below 100 deg. during the night, while the temperature during the day rises to 128 deg. or 129 deg. Little or no rain falls, and yet, in spite of this terrific heat and other drawbacks, a comparatively numerous population contrive to live there, obtaining their water supply by divers from the copious springs of fresh water which burst forth from the bottom of the sea. In the Western Hemisphere, the hottest region is a valley in California (known as the Death Valley), situate to the east of the Sierra Nevadas, and running between two mountain ranges, the Funeral or Tuneral (6,000 feet) and the Amargosa (10,000 feet), which has as high or even a higher mean temperature than the region on the Persian coast. In four months out of five during which readings of the thermometer were taken, the mean temperature rose above 90 deg., while in July and August it exceeded 100 deg. The mean temperature for the twenty-four hours on the 18th July, 1891, was just over 108 deg. This valley is uninhabited, and derived its significant name from the circumstance that an active party of California emigrants, who had strayed from the regular overland trail, perished there in 1850 from heat and thirst. The hottest region in Africa is in the Nubian Desert, where food may be cooked by being buried in the sand. The Arabs say of it, "The soil is like fire and the wind like a flame." The hottest portions of the British Empire are India and Australia.

The Mother Tongue.

It is only occasionally when one meets the person who speaks the English language as the old grammar expressed it, "with force, propriety, and ease," that one realizes what a beautiful language it is capable of being. Too often the force and propriety overshadow the ease, and suggest that the person speaking got his vocabulary and his pronunciation from the dictionary and the advantages of maturing life rather than from the nursery and early association. We are only beginning to realize that "beginnings" are more important than "finishings," and that if a mother cannot or will not give a good part of her time to her children, she will find it more profitable to have the earliest nurse a cultivated and child-loving woman than to give it any number of expensive masters late in life. Max Muller has lately pointed out that one's native tongue is in reality "his mother tongue," as it is from the mother that the majority of children learn their peculiarities, faults, idioms and accents. Alas for the children who are learning the mother tongue from German and English, from Swedish and colored nurses! Prof. Muller says that "Dante ascribes the first attempts at using the vulgar tongue in Italy for literary compositions to the silent influence of women who did not understand the Latin Language," and notes the same thing in the Prakit, one of the dialects of India that supplanted the Sanscrit.

Do Jews or Christians Live Longest on the Average?

The Jews, unquestionably, the vitality of that people being one of the striking features of their race. Dr. Richardson showed that the vitality of the Jews in London contrasted, as elsewhere, very favourably with that of the members of other classes of the community. The death-rate of London Jews in infant life stands at 44 of the Jews to 45 of the whole population; while later on, from 35 to 45 years of age, the mortality shows that only 5 Jews die to 8 of other classes. The contrast is even more striking still in old age. At 85 and over, the number of Jews who died, having reach those great ages, was 2 as against 0.8 of the whole population; and the number of Jews who died at over 80 years of age was nearly 3 to 1 as compared with their neighbours, mostly of Christian faiths. In Prussia the Gentile mortality is 23 per cent., and the Jewish 15 per cent.; from 1 to 5 years 36 per cent. of the Gentiles die, against 25 per cent. of the Jews. It is their attention to health laws, which may be said to be incorporated with and form part of the Jewish religion, that has given to the Jews a racial strength which prolongs their years, even among conditions of life often the reverse of sanitary.

RAILROADING IN CHINA.

An Illustration of the Difficulties Attending the Construction of Lines.

A curious example of the difficulties of railway construction in China is afforded by the conduct of the Tartar general of Moukden, the capital of Manchuria, in connection with the surveying work for the railway from Kirin, another large Manchurian town, to Newchwang, the seaport of the province. It was proposed to make a junction on this line for Moukden at a place called Lampien, a short distance outside the city; but the general got a number of geomancers to investigate the effect of this selection upon Moukden. These sages reported that the vertebræ of the dragon which encircles the holy city of Moukden would be broken by driving the long rails of the railway sleepers into them, and accordingly the general vetoed

THE DECISION OF THE ENGINEERS,

and directed them to carry the railway in a straight line from Kirin to Newchwang without approaching Moukden at all. This was no doubt, much shorter; but the engineers objected that the country which the line would cross by this route was a low and marshy tract of land, liable to floods during the wet season, and also that it was sparsely populated, so that no traffic would be got. By the route which had had been decided upon, the line, though longer, would pass through thickly populated country and on high and level ground. The engineers reported the matter to Li Hung Chang, who wrote commending the Tartar general for his anxiety for the geomantic influences of the

ANCESTRAL HOME OF THE REIGNING DYNASTY

but adding, as his candid opinion, that these influences would be improved by the junction rather than otherwise. However, the viceroy said, as the general had vetoed the decision of the engineers, the matter must be laid before the Emperor and the works stopped until his Majesty's decision was known. This seriously alarmed the general, who promptly wrote asking that the works should go on, and in the meantime he would think about it. A place a few hundred yards from the former site was chosen, and the geomancers declared that this would not effect the dragon's pulse, whereupon the general wrote to the viceory that he was now satisfied, and that he trusted no report would be made to the Emperor of the delay.

Which Animal Can Most Endure the Cold?

Fishes, which have a low temperature, can endure imprisonment in a solid block of ice for an almost indefinite period without apparently suffering any injury. When the ice melts, the fishes at once become as lively and active as ever. Insects, snakes, and worms have revived after having been inclosed in solid ice for short periods; but their ability to endure severe cold in this way does not appear to equal that of the fish species. Of quadrupeds, the rabbit, according to a professor of the Academie des Sciences, is the most capable of withstanding the effects of a very low temperature. Inclosed in a block of ice, a rabbit was found next day on being released to be getting on very comfortably, and evidently not aware of anything at all dangerous in its surroundings. At one time it was thought that animals in ice were frozen solid; but Dr. Koch pointed out that that was not so, and that the power of the animal to revive under such circumstances is due to the internal juices not being frozen. Ice does not form in the vessels, and in thawing burst them, for two reasons. In the first place, the body does not contain pure water, but salt and albumen solutions, which only freeze under the zero of centi-grade; secondly capillarity and adhesion hinder freezing. Water, in threadlike glass tubes, may be cooled as much as 10 deg. below zero centi-grade without freezing, and when the tube is still thinner—that is, with diameter of 0·1 to 0·2 millimetres—the water is not frozen, even though the end of the tube be put in freezing liquid. The liquid sheet between two glass plates behaves in the same way. Fresh blood freezes only after being cooled to 15 deg. below zero, and after the complete elimination of gases and salts. Then the blood corpuscles are dissolved, and the blood loses colour. Life is guarded by so many similar arrangements, that one need not be surprised at the vital tenacity exhibited by animal life. Sheep also show a high power of resistance, provided the fleece is dry; goats and pigs follow next in order. Dogs are far less hardy, while horses succumb to cold quicker than any other animal.

Two Ocean Greyhounds

The Cunard Line, which, it should never be forgotten, was founded by Nova Scotians, has beaten all other lines in the matter of record-making. Its two new greyhounds are without rivals among the ships of other lines, but they seem to be racing each other with as much vim and determination as if they were not sister ships flying the same national and line bunting. Yesterday these two steamships, which cross one another in mid-ocean, each achieved a victory. Though the "Campania's" victory was over her own previous performance, but had she not improved her record she would have been a beaten ship to-day, whereas she is clearly first. At eight minutes to two yesterday morning the "Campania" arrived in Queenstown, having made the passage eastward in five days twelve hours and seven minutes, beating the eastward record made by her sister ship the "Lucania," by one hour and twenty-three minutes. Shortly after nine o'clock on the evening of the same day the "Lucania" arrived at Sandy Hook, having made the passage in five days twelve hours and fifty four minutes, thus beating the westward record of her sister ship, the "Campania," by twenty-one minutes. Thus the "Lucania" has had the glory of capturing the westward record from the "Campania," the "Campania" has had the glory of breaking all records both eastward and westward during one week. It is noticeable that the eastward voyage, which has always hitherto been the longest in point of time, is now the shortest by forty-seven minutes. This would seem to argue that the "Campania" has done much the best work, and that she will probably break the westward record established by the "Lucania". The five and a-half day voyage between Europe and America has now been fairly achieved; it remains to be seen whether these two greyhounds will succeed in reducing the voyage still further—say, to five days and a-quarter. There are engineers who hold that five days is the lowest possible, but who can set limits?

FOR THE CURIOUS.

SOME GREAT FIGHTS.

The arenas of ancient Rome were not as some people suppose, mere rings or ovals, such as may be seen in the modern circus. They were broken up and varied in character, according to the nature of the fighting to be done, or to the caprices of those in authority. On one occasion an arena might resemble the Numidian desert, on another the garden of Hesperides, thick set with groves of trees and rising mounds, while again it pictured the great rocks and caves of Thrace. With these surroundings the combatants advanced, retreated, encircled their adversaries or kept wild beasts at bay, as occasion offered, or as their courage or fear suggested. Men combated not only with the more common brutes, but with such monsters as elephants, rhinosceri, hippopotami and crocodiles. On other occasions great flocks of game, such as deer, and war ostriches, were abandoned to the multitude, and in some cases the arenas could be turned into lakes, filled with monsters of the deep, and upon the surface of which naval engagements took place.

THE WINE FLY.

It may be the "invisible spirit of wine," which Shakespeare speaks of, that materializes in the worm and subsequent fly, called the bibs, or wine fly. These worms are born in the sediment of wine, in empty casks and in drippings from wine vessels and presses. They grow for about seven weeks, and then enter into the nymph state. After about ten days their shell breaks, and the fly comes out. The insect is extremely small, when its wings are not extended, not exceeding the size of a pin's head. The breast and body are yellow, the reticulated eyes are red, and the wings possess all the colors of the rainbow. They prove very interesting to microscopists, and are found to have all the regular parts of common flies. Their antennae are oval and flatter, and their legs and every other part are perfectly formed.

SHE SPOKE WITHOUT A TONGUE.

One of the most remarkable cases on record was that of a woman, well authenticated at the beginning of the last century, who had no tongue, and yet spoke with perfect clearness. She was brought to Lisbon, in Spain, by Count d'Ericeya, from Monsary, in the Territory of Elvas, Portugal, and the following account is given of her by an eminent divine:

"She is 17 years old, but does not look more than 7. She can pronounce distinctly every letter in the alphabet. She has not the least bit of a tongue, but the teeth in both sides of her under jaw turn very much inward and almost meet. Her chief difficulty is in eating, for while others move their food with their tongue, she is forced to use her finger. She says that she tastes well. Her voice, though very distinct, is a little hollow and like that of old people who have lost their teeth."

QUEER PETS.

An animal which makes a most agreeable pet, but is rarely tamed on account of its fur value, is the North American beaver. A well known Indian trader, some years ago, tamed several of these hard working fellows, so that they answered to their names and followed like a dog. In cold weather they were kept in the sitting room, and were constant companions of the women and children. When the Indians were absent for any great time the beavers showed great uneasiness, and on their return discovered equal signs of pleasure by fondling them, crawling into their laps, lying on their backs like a squirrel, and behaving like children in the presence of parents whom they seldom see. In their wild state beavers feed on bark and herbage chiefly, but in their case they feed for the most part on rice, plum pudding, partridge and venison, and they liked all of them extremely.

Another Fishing Question.

From recent reports from Ottawa it would appear that there was another fishing question yet to be dealt with. The Pacific and Atlantic fisheries have both received their share of attention, but little has been said about the lake fisheries and yet it appears that during the year ending June 30th last fresh or frozen fish to the value of $725,950 were taken from Canadian waters on the Great Lakes by American vessels, or with nets or other devices owned by citizens of the United States, and admitted free of duty into the United States under the Act of Congress, approved October 1st, 1890. A return from Washington shows that 4,013,519 lbs. of herring; 7,200 lbs. pickerel; 77,011 lbs. pike; 113,874 lbs. sturgeon; 4,182,412 lbs. trout; 6,027,760 lbs. of whitefish; and 10,129,748 lbs. of other fish, not classified, and aggregating in all 24,-571,525 lbs. was admitted into the United States free of duty having been taken by American vessels or with nets or other devices owned by the citizens of the United States from the Great Lakes in Canadian waters bordering on the United States. Is it not possible that the Americans have encroached on the territorial rights of Canada and evaded the laws which are enforced against the fishermen of the Dominion? When we find American fishermen drawing nearly a million dollars' worth of fish annually out of our fresh waters, is it not time that they should be divested of the privilege or the treaty abrogated which gives to them the right to thus deplete our fisheries? The subject is assuredly one that the Minister of Marine and Fisheries and the government generally, might well take into consideration.

A Colonial Conference.

It is stated that, as a result of the Hon. Mackenzie Bowell's trip to Australia, there will probably be a Canadian-Australian conference held in Canada to consider the questions of inter-mutual trade and a Pacific cable. An English correspondent says he has spoken to several members of the Chamber of Commerce in London in regard to both questions and they seemed to thoroughly grasp how important they both were, not merely from the point of view of the colonies, but also from an Imperial standpoint. It was the question of a Pacific cable that seemed to them the most important in view of the projected French cable and also of the rumor that the Americans may lay one to Honolulu. These questions appear to enhance the necessity in their opinions of a general colonial conference being summoned in furtherance of the resolution passed at the meeting of the Chambers of Commerce at Plymouth.