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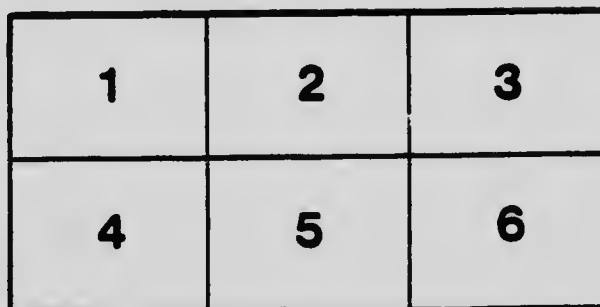
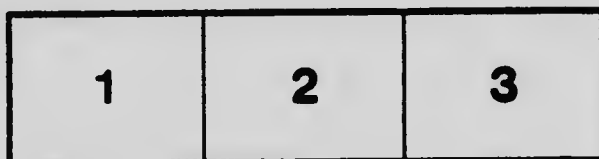
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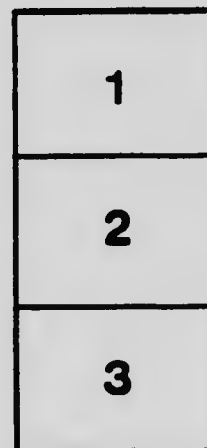
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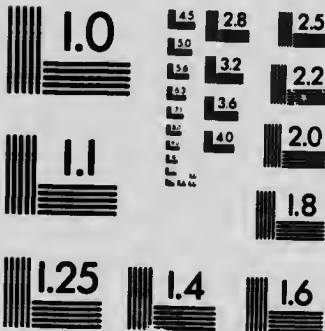
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WINTER CAMPAIGNING IN CANADA FROM A CLIMATIC VIEWPOINT

BY

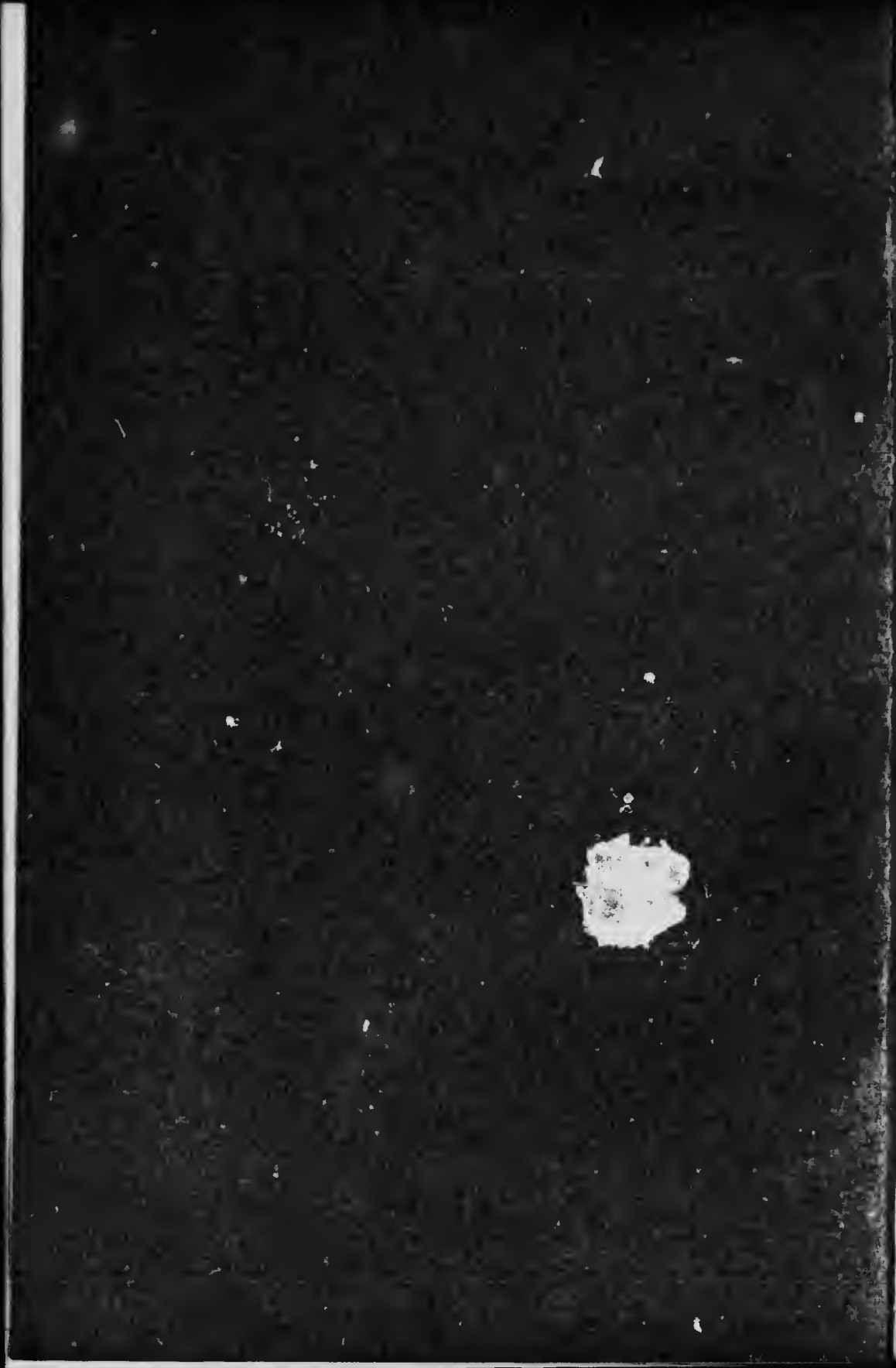
MAJOR LORNE DRUM, M.D., D.P.H.

Permanent Army Medical Corps, Militia Headquarters, Ottawa.

Read at the Seventh Annual Meeting of the Association of Medical Officers
of the Canadian Militia, 25th of February, 1914.

Reprinted from
Can. Public Health Journal
APRIL, 1914

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FROM this point of view the primary factors to be considered in this country are cold and snow. Both are important, but possibly the latter is even more so. The natural highways of Canada during the open season are her waterways, the rivers and lakes of the country. When winter arrives and these are frozen over and deeply covered with drifting snow they are closed to all except the snowshoer and his light toboggan. For the transport of heavy material such as would accompany an army there would be no ready passage. In these days of railways and parlor cars we are apt to forget how soon the exigencies of a war might disorganize and render useless these artificial highways, and throw us back once more on the natural traffic channels of the country as our only available means of communication and transport. A knowledge of these channels and of the use made of them by former generations in the carrying on of war is a matter of moment to the Canadian soldier of to-day. It is true that our country has progressed since the days when Benedict Arnold led his famished troops down the Chaudiere, or since Bradstreet paddled up the Mohawk to capture Frontenac. The pathless forests of those days have in many cases been thinned by the lumberman, and cleared by the pioneer. Roads now thread what once were impassable forest wildernesses. But these changes while decreasing the difficulties, would not materially alter the problems that would face us to-morrow in the event of war extending into the winter, even as they faced our predecessors in the past. Why did not de Levis besiege Quebec during the winter of 1759-1760? Was it that the winter cold was too intense for his veteran troops, or did the deep-lying snow give rise to unsurmountable problems? Did he fear snow-bound transport and the consequent lack of proper provisions inducing scurvy and its companion evils? Even if these or other sanitary considerations did not influence him, yet they were present then as they would be under similar circumstances in the future, and would call for a just appreciation of the conditions based on all the knowledge and experience a medical officer could summon to his aid.

In looking back over the history of warfare in Canada we find that hostilities were carried on not only by armies great and small, but also by bands of raiders swift and stealthy, destroying their enemy by sudden and unlooked for attack. The Canadians called this species of warfare "La Petite Guerre," to distinguish it from "La Guerre" of armies. The winter was the favorite season for "La Petite Guerre." Expert in the use of the snowshoe and fearless of cold, the Canadians would wind their way through the silent forests, looking, with their capuchins over their heads, like a procession of friars. Behind them on the light toboggan they dragged their blankets and provisions. At night they used their snowshoes to shovel a wide circular pit in the snow; and, building their camp fire in the centre, would sleep around it on piles of spruce boughs, secure from the winter wind. Such bands as these would cover immense distances and our annals are full of their deeds. But it was not war, at least not the war of armies; and if we are to understand by the word "campaigning"

hostilities on this larger scale, it is doubtful whether we have ever had a winter campaign in Canada, unless we should so recognize Montgomery's expedition, and the subsequent blockade of Quebec. Rigaud's expedition against Fort William Henry marching 1,400 strong in the dead of winter through the snow, was but a raid after all. It was only "La Petite Guerre" swollen to large proportions. The same may be said of Drummond's winter campaign, when in two dashes across the frozen Niagara in the bitter cold of late December he raided the American frontier from Fort Niagara to Buffalo.

The campaigning of armies stopped with approaching winter. Bradley in his "Fight with the French for North America" says: "On the approach of winter it was the custom of the colonial forces after leaving slender garrisons of permanent troops in a few isolated snow-bound outposts, to disband and to disperse, each man to his own home. Each spring the colonies had to form practically a new army." With raw levies such as these, loosely organized and ill-equipped to resist even the chill winds of autumn, the necessity for this custom is obvious. On the other hand, though the army disappeared, Rogers and his hardy rangers spent the winter months in raiding Canada. Like their French opponents in "La Petite Guerre," they were well equipped to resist the cold, and could travel swiftly over the snow-covered land, bringing ample provisions with them. To quote from Bradley again: "It is hardly necessary to remark that campaigning on any serious scale was out of the question in the northern colonies till the woods and the lakes had been loosened from their winter burden by the warm winds of April. Even armies in Europe went into winter quarters and suspended operations by a sort of unwritten agreement." Yes, they did, but would armies in Europe to-day go into winter quarters and suspend operations? The operations in Manchuria were not suspended during the winter, and yet the climate of Manchuria is severer than that of Western Europe. So severe in fact that one is inclined at first sight to compare it with that of Eastern Canada, until one comes to the question of snow. The accompanying tables showing the average monthly winter temperatures experienced by the Japanese army in the vicinity of Mukden, compared with the temperatures for the same months observed at Montreal, show a fair conformity, with the balance, if any, pointing to somewhat colder conditions at Montreal. But when one looks at the snow record the conditions are widely different. In the six months from November to April, Montreal had 60 days in which snow fell, Mukden but 16. The total snow fall at Montreal during these months amounted to 130 inches, deeply covering the ground. At Mukden the snow fall was so slight that it had no deterrent effect upon wheeled transport. In direct contrast to the Canadian season, the winter conditions of Manchuria with the bare frozen ground converting marshes, fields, rivers and streams into one continuous hard surface added greatly to transport facilities.

But the climatic factor of cold—of bitter winter cold—is as potent there as in Canada. How did the Japanese soldier meet it? MacPherson states: "At the battle of Sha-Ho in October, 1904, the second Japanese army remained entrenched in a position extending some ten miles along the Sha river, with troops of the second line cantoned in the villages in the rear. "This was the position until the battle of Hei-kou-tai, which started on the 25th January and lasted till the 29th. "On the 24th, the day before the conflict started, the weather changed suddenly, falling to a low point, and the relative humidity increased, with the wind from the north. On the 26th snow began to fall, and the weather was at its worst on the 27th, 28th and 29th, the closing days of the battle. The air was then saturated with moisture, and the high relative humidity caused it to become a good conductor of heat from the body. To this fact more than to the actual lowness of the temperature, is to be attributed the effects of the cold." The 5th Japanese Division advanced into the fight on the 27th, the third day

of the battle. The Times historian writes: "It may be doubted whether men ever marched into battle in such a snowstorm. Accompanied by a Manchurian gale it lasted without intermission until the 28th. The mercury went down to 4° F. below zero. The ground was hard as rock. When the troops arrived within rifle range of the enemy, they found themselves on open ground affording no shelter whatever, exposed to a hail of lead from quickfiring, machine guns and rifles which the Russians directed upon them from behind Chinese houses. Darkness came on before anything definite had been accomplished, and the Japanese had to face the ordeal of passing the night in battle order without shelter of any kind, and without a spark of fire. The snow fell thickly on the already covered ground, while an icy gale blew continuously. To sleep in such conditions would have been to die. The night had to be passed with the men stamping their feet, heating their hands together, and watching to prevent anyone lying down." Another writer says: "Great efforts were made to supply warm food from the rear, but the distribution was very difficult, and consequently the men in advanced positions were obliged to eat biscuits and snow for 48 hours. It was only on the third day that charcoal reached parts of the fighting line."

And yet no cases of death or of apparent death from exposure to cold occurred. There were several cases of frost-bite, but even these were mostly mild, and of only the first or second degree. This good result was attributed largely to the excellence of the clothing, which rendered the men practically immune to the effects of cold. MacPherson states: "The troops marched and fought heavily clothed. For example the men who were brought in wounded to the dressing stations were noted to have on the following clothes: Cotton socks, drawers and vest, such as are worn in summer, with thick woolen socks, drawers and jersey over them; the thick dark cloth winter uniform trousers and tunic, with the summer khaki drill trousers and jacket over them, and the special winter goatskin waistcoat and winter greatcoat over all. A full pack was carried with straw and Chinese felt shoes attached to the valise. A blanket and blue uniform greatcoat were also attached to the pack. Knitted gloves and felt mitts covered the hands. A Balaclava cap covered the head with, in addition, sheep or goatskin ear covers; the whole being covered by the blanket hood of the winter greatcoat." To quote again from MacPherson: "The food is good, plentiful and varied. Men in contact with the enemy and on outpost are allowed more food than those in the rear. After the experience gained at Hei-kon-tai, each soldier was given an issue of sugar, which he carried in his pocket, and which he was told to eat as he lay in the positions. This not only kept him awake, but increased the bodily warmth by combustion." In a word, by the ample provision of suitable clothing and food, to well disciplined troops carefully trained beforehand in the proper precautions necessary to avoid frost bite and even death, the Japanese were able to endure almost with immunity the hardships of a winter campaign involving long nights and days of unsheltered exposure to severe cold such as occurred during the battles of Hei-kon-tai and Mukden. (Vide accompanying tables.)

It is interesting now to turn from the modern Japanese soldier well accoutred for winter, to see what has been done in Canada along similar lines. The mind goes back to Rigaud's brief expedition of healthy, carefully selected men; an expedition, which costly and unnecessary as it may have been, was certainly prepared to meet the rigors of our winter. Kingsford writes: "Unusual care was bestowed on the organization of the column. It consisted of 1,400 men, composed of 50 grenadiers, 200 volunteers from the regular troops, 250 colonial troops, 600 Canadians and 300 Indians. No pains were spared in equipping them; overcoats with pleated hoods to pull over their heads, blankets, bearskins to sleep in, tarpaulins to sleep under, spare mocassins, spare mittens, kettles, axes, needles, awls, flint and steel and many miscellaneous articles were pro-

vided, to be dragged by the men on light Indian sledges or toboggans, along with provisions for twelve days. This force left Montreal in February and marched up the frozen snow-covered Richelieu river and the lakes for 150 miles to Fort William Henry, with a week's rest at Ticonderoga en route. After a week of unavailing assaults on the English fort the expedition withdrew into Canada." The season was one of such severity as to cause mention to be made of the intense cold, in letters of the period. And yet although casualties from the fighting are recorded, and cases of snow-blindness on the retreat which are carefully noted, no mention is made of any casualties from the cold. The men were properly protected by good clothing, suitable food and a knowledge of the personal precautions to be taken in cold weather. Finally, a point not to be overlooked because of its other sanitary bearings, the expedition was of short duration. Let me now turn to a different picture, the American invaders blockading Quebec in the winter of 1775-76. Enfeebled by disease, ill-clad and ill-fed, scarcely 20 soldiers were ever so poorly equipped to face the blizzards of the lower St. Lawrence. And yet in spite of the hardships they endured from the cold and snow—and they must have been many—they maintained a blockade of the city, until the opening of navigation brought to the beleaguered garrison the anxiously awaited reinforcements. The invaders retreated, the blockade was over. But how close had this sick and half-starved army been to success. Another turn of Fortune's wheel, another weight in the balance of Fate, and Quebec had fallen. And with its fall the conquest of Canada would have been an accomplished fact, achieved by an army—so-called for want of a better name—but an army led by far-seeing and determined leaders—Montgomery and Arnold—who rose superior to discouragement till death and jealousy removed them in turn from the scene.

Arnold's expedition until it joined forces with Montgomery's was like Rigaud's, a raid pure and simple—another instance of "La Petite Guerre" on a larger scale. But Montgomery's invasion was a different thing. He led his army into an enemy's country, carrying on military operations and continuing to advance in obedience to the developing situation, at a season of the year when by all precedent he should have been safely back in his own country, with his men dispersed to their homes. He did what had never been attempted before, he conducted a winter campaign in Canada; and as a result he all but conquered the country. What would have been the result had his army been trained, equipped and disciplined on the standard set by the Japanese troops on the Sha-Ba?

But surely Montgomery was not the first or only general in this country in whom an opportunity came, to deal a staggering blow to an enemy by means of a winter campaign. If so, why did these others not act? The closing years of the French wars found the opposing forces facing each other astride the northern route to Canada via Lake Champlain, the French at Crown Point and Ticonderoga, and the English at Fort William Henry and Fort Edward. It was the obvious object of each to drive the other back, the one on Albany with a possibility of capturing it, the other on Montreal with a like prospect of success. Why did not Montcalm retain at Ticonderoga until the winter the 6,000 troops, mostly regulars, gathered there during the summer of 1756, and lead them down the frozen Hudson against the English colonies? During the past summer he had dealt a severe blow to English prestige in the New World by his capture of Oswego. The 10,000 English troops, composed almost altogether of raw colonial levies, which faced him during the summer, had on the approach of winter, been disbanded and dispersed. There was nothing to oppose his advance but a small garrison at Fort William Henry and a few permanent companies scattered throughout the colonies. Was it not the French moment—the opportune moment—for action? Would a European general of to-day, endowed with the

most of whom had already spent a winter in the northern colonies, failed to carry out his allotted portion—the invasion of Canada down the Richelieu—because he would not contemplate a campaign extending into the winter. When after two months of unfortunate, but enforced delay at Crown Point, the moment for advance came, he turned back from the October sleet storms of Lake Champlain and left the fate of Canada to hang on Murray and Quebec. No exception is taken to his action; the difficulties that influenced him may have been insurmountable judged by the experience of his time. But one is inclined to ask whether a British general would be upheld to-day if he left a British garrison hemmed in for eight long months in a hostile country, facing a foe superior in numbers and equal in morale, while he sat astride the nearest road of approach without raising a finger in its aid. And this brings us back once more to the Chevalier de Levis. Why did he not assault Quebec during the winter following its capture by Wolfe? His veteran regulars, emured to the hardships of a Canadian winter by several years of residence in the country, were allowed to lie idle in their winter quarters along the Jacques Cartier river and at Montreal. Was it not again a psychological moment for France in the New World? The English garrison in Quebec, dreadfully weakened by disease and privations were dragging out the weary months eagerly looking for spring and help. Did opportunity knock unheeded at de Levis' door that winter? Had the English fleet on its arrival in the harbor in May of 1760 found the lilies of France once more floating over the ramparts of Quebec, what would the final outcome have been?

May we not question whether this avoidance of winter campaigning so customary in the past should be ascribed entirely to the deterring physical influences of cold and snow? Rather may we not look for the real underlying cause in the diseases that rendered their armies incapable of remaining efficient military machines when called upon to expend the extra energy required to face the climatic inclemencies of winter? For instance let us take the case of Montgomery's army. Once the long winter had settled in at Quebec, did it not become so enfeebled that except for the purpose of maintaining a blockade, its usefulness as a military machine capable of moving and operating on the offensive was at an end? Enfeebled however not by the icy winds and snowdrifts of a bitter winter, but by smallpox and other diseases that raged without let or hindrance through the terror-stricken ranks. Scientific preventive medicine was as yet unborn. What a difference do we see to-day. The powerful shield of modern hygiene is at our service, and the army that hunkles it on—as did the army on the Sha-Ho—protects its soldiers from disease, and enables them to face climatic conditions which would have driven the disease-weakened armies of other days from the field.

TABLES SHOWING COMPARATIVE WEATHER CONDITIONS IN MANCHURIA AND CANADA

The Manchurian observations were made near Mukden. The Canadian ones (extracted from the Annual Reports of the Canadian Meteorological Services), were made at McGill Observatory, Montreal. (Temperature in Fahrenheit).

TABLE 1.

Month	Temperature in the Shade				Number of days of Snow		Snowfall Inches	
	Average Temperature Near Mukden	at Montreal	Mean of Minima at Mukden	Mean of Maxima at Montreal	Lowest Minimum Near Mukden	at Montreal	Near Mukden	at Montreal
November	32.7	29.7	22.7	24.4	42.8	35.0	9	7
December	16.6	9.2	6.8	2.9	26.4	15.6	— 7	1-14
January	23.4	8.9	12.1	1.4	34.8	16.3	—10	—11.3
February	14.	10.3	1.0	2.3	27.0	18.2	—14	—9.2
March	34.2	25.0	22.	17.8	46.0	32.1	— 0	— 1
April	46.	41.9	36.7	33.9	55.3	49.9	26	21

TABLE 2.

Weather conditons during the battle of Hei-Kou-tai, 25th-29th January, 1905, compared with the conditions recorded at the McGill Observatory, Montreal, on the same days, and extracted from the Annual Reports of the Canadian Meteorological Services.

TABLE 3.

Weather conditions during the battle of Mukden, March 1st-10th, 1905, compared with the conditions recorded at the McGill Observatory, Montreal, on the same days, and abstracted from the Annual Reports of the Canadian Meteorological Services.

Temperature in the shade				Snow	
Date	Minimum Near Mukden	Maximum Near Mukden	Minimum Near Mukden	Maximum Near Mukden	Snow
Jan.—					
21.. 20	0.7	40	8		Snow
22.. 28	7.3	46	14.2		Snow
23.. 18	0.	40	7		
24.. 0	9.2	18	1.7		Snow
25.. 0	2.6	18	5.1		
26.. —1	6.6	18	2.4	Snow	
27.. —4	0.4	16	18.2	Snow	Snow
28.. —2	10.6	18	20.7	Snow	Snow
29.. —6	—1.0	14	14.0		
30.. —10	0.3	16	11.9		
31.. —6	6.2	24	5.0		

Temperature in the shade				Snow	
Date	Minimum Near Mukden	Maximum Near Mukden	Minimum Near Mukden	Maximum Near Mukden	Snow
Feb.—					
26.. 20	9.6	25	28.0		Snow
27.. 0	5.7	25	20.2		
28.. 1	16.4	25	25.6		Snow
March—					
1.. 0	5.0	35	15.9		
2.. 18	7.5	45	17.6		Snow
3.. 10	13.1	32	28.8		
4.. 8	10.9	32	16.4		Snow
5.. 8	2.1	28	16.6		Snow
6.. 7	8.4	38	15.7		
7.. 11	4.0	42			
8.. 13	18.6	43	30.9		Snow
9.. 14	18.7	53	23.4		
10.. 20	16.2	52	30.6		
11.. 20	8.1	50	20.0		
12.. 21	4.6	49	18.8		
13.. 37	0.3	47	10.8		

