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and Extreme Cold

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Clothing and Equipment in Snow and Extreme Cold

The winter of 1941 found the German army in Russia unprepared also in respect to clothing.* This was not noticed so much in position warfare as in the mobile warfare which had just begun in the winter of 1941, when the troops were forced to march, to bivouac in the open, to defend their shelterless positions, and also to make attacks. All this, when the thermometer (in one district of Central Russia, for instance) often registered -35° C., dropping several times even to -46° C., and the cold lasted from the middle of December 1941 to the second half of February 1942. The effect of this cold was increased still more by the frequent high winds. The snowfall was unusually heavy.

It was possible to requisition some furs and felt boots from the natives for a small fraction of the troops. Winter clothing was also removed from the enemy dead. But it was not until the spring of 1942, furs, warm underwear, gloves, ear protectors arrived from home, and these too sufficed to supply only a small part of the troops. The bulk of them, during the winter campaign of 1941-42, did not come near to having a complete outfit of winter clothing for each man; at best, they only had some one article. There were naturally improvisations. If a man had a reserve of underwear he wore two suits. The divisions and the army issued the entire supply of underwear they had on hand. Finally, each man succeeded in providing himself with more protection for his head and ears by using pieces of cloth and waistbands. The most difficult

*Author's note: By "clothing" is understood here body clothing and footgear.

problem, for which there was no solution, was that of footgear. Consequently, there were frozen limbs, especially during the first month of the operations; daily casualties from this cause were as severe as if brought about by heavy fighting.

I remember one instance that occurred at this time. Toward the end of December 1941 the medical troops received wide bags of strong paper, approximately 1.5 meters long, to be used as an outer wrapping for the wounded and sick during transport. I heard contradictory comments regarding this device and was unable to form an opinion for myself. In any case, as an emergency measure they were better than nothing.

The following statements concerning winter clothing refer to the winter of 1942-43, for which extensive provisions had been made on the basis of our experiences during the first winter.

a. Clothing

As winter clothing, the following articles were used from the winter of 1942-43 on:

Warm underdrawers, undershirts, socks, kneewarmers; pullover; fur-lined vest with sleeves; heavy-quilted trousers; quilted trousers and quilted coats (jackets); lined windjacket; heavy, long sheepskin coats; earmuffs; mufflers; fur caps; felt boots and felt boots with leather soles; the so-called felt-oilcloth boots [oilcloth faced]; fur gloves and wool-lined gloves.

Naturally, not every man was supplied with all these articles. Combinations were made, as for example:

Heavy-quilted trousers, fur-lined vest, regulation coat, regulation

overcoat; or: quilted trousers, pullover, quilted coat, regulation overcoat; or: heavy quilted trousers, pullover, regulation coat, fur-lined overcoat; or: regulation trousers, kneewarmers, pullover, regulation coat, fur-lined overcoat.

Each man had warm underwear, a pullover, gloves, muffler, warm headgear; most had felt boots or felt boots with leather soles. The distribution of other articles of clothing in the XXXV Army Corps, which I commanded in Central Russia, from the fall of 1942, was as follows:

Fur-lined vests:	1/3)	} of the total strength
Heavy-quilted trousers:	1/4)	
Quilted trousers and quilted coats:	1/3)	
Fur-lined overcoats:	1/3)	

As to the various articles of clothing, the following details can be stated:

The underwear was of cotton; the kneewarmers of wool and rayon fiber; the pullovers and mufflers, of cotton and rayon fiber; in some cases, sheep's wool was also used.

Most of the fur-lined vests were of rabbit fur, only a few being of other furs.

The quilted articles of clothing consisted of two layers of cloth with a cotton interlining, sewed in the manner of quilts.

The heavy-quilted trousers were heavy and stiff owing to the type of cloth used, and though a protection against the most severe cold, they hampered freedom of movement cross-country.

The quilted trousers and quilted overcoat, the latter capable of being drawn in at the belt, were supple and more comfortable to wear. They did not restrict movement. For long and motionless exposure in the open and in extreme cold they were a little too light and therefore required rather heavy underwear, also fur-lined vests. In such case regulation trousers were worn underneath and a wind jacket or regulation overcoat on top. Quilted trousers and overcoats were ideal clothing for patrols and ski troops. Some were also reversible, manufactured to be worn on both sides, one side being of white cloth for camouflage purposes in snow. Soiling was negligible. Even if badly soiled, white clothing is hard to detect in snow, in any case, much harder than field-gray or brown.

The heavy sheepskin slowed down the wearer and soon caused fatigue during cross-country movements for any considerable distances. It was not suitable for marches on foot nor for combat; on the other hand it was indispensable for drivers of horse-drawn wagons and motor vehicles, as well as for outguards and sentries in the rear.

The felt boot reaches to about a hand's width below the knee and is made entirely of felt. It is considerably larger than the leather shoe that is fitted to the foot; nevertheless, it is not worn as an overshoe, but directly over the sock or footwrap and must not fit closely. It holds the warmth, even in the most extreme cold, and does not hinder marching, though it has no heel. This kind of felt boot was typical in the Russian army and is worn by the [Russian] peasant. Its only disadvantage is that the under part (the sole), if given hard usage, will wear out in a few months. Hence, this type of felt boot was represented

in the German winter-clothing only to a small extent, while the felt boot with leather soles, on the contrary, predominated. It consisted of a felt boot reaching to below the knee, the foot part of which was covered with leather and had a heel. It certainly was not produced by anyone with personal experience of marching through snow in felt boots. It was very heavy, plainly not suited for marching.

Another reason for combining leather with felt, aside from the above-mentioned inability of a boot made entirely of felt to stand up under normal wear and tear, was to secure protection against dampness. When felt gets wet, as for example, from snow that has been carried in on the floor of the shelters and melted, it dries very slowly; and when one steps into the open with wet felt boots, the felt immediately freezes and frozen feet are then inevitable.

Waterproof felt boots were medium-high overshoes of felt with leather facings, sole and heel of leather and strap up the front for closing. They were issued as guard equipment and were intended for sentries who had no felt boots, or for drivers of horse-drawn vehicles.

On the basis of my experiences from two winters in Russia and from the battles and marches in northern Finland and northern Norway of the Twentieth Mountain Army, which I commanded in the arctic winter of 1944-45, the following is a summary of my views on winter clothing for Russia:

The best clothing consists of quilted trousers and a quilted coat with hood, made of soft, windproof material, both worn over the regular uniform. In addition, a wool pullover and fur vest, to be worn when the wearer is not in motion. When moving about, the proper thing is felt-leather boots, with light leather facings and thin soles (leather wears out very little in

snow). Wool socks. Fur cap (fur outside), or canvas cap with heavy wool lining, always with earmuffs and neck scarf. Fur-lined gloves (mittens with free thumb and index finger). Sheep skins for drivers and sentries. The medical troops must be provided with fur rugs and fur sleeping bags for the transport of the wounded and sick.

b. Equipment

Blankets. Each man was provided with two blankets. One he carried, the other followed on the company train. This necessitated an increase in the number of vehicles. In a motorized unit each man carried both blankets with him, as long as he was on the truck. In position warfare each man might even have three blankets. The German blanket was somewhat small.

Snewshoes. (An oval wooden frame with a network inside, on which the foot rests and to which it is attached): They serve for walking in deep snow and for making a track for men who follow. Approximately 30 are required per battalion. They cannot be had in Russia.

Skis. They are indispensable for patrols of the reconnaissance and security troops. Even rather large ski units (battalions, brigades) have found them valuable. In addition to skis, do not forget that shoes appropriate for skiing as well as ski wax, must be supplied. Skis are remarkably rare in Russia, and besides the fact that the wood is not the best for the purpose, the construction and the bindings are so primitive that the native ski can hardly be used for military purposes.

Sleds. In the organization of the ski units small hand-drawn sleds proved practical for carrying heavy weapons (machine guns, mortars) and ammunition, and in all units, also for getting supplies up to the front line.

positions. The troops themselves constructed them, but it would be profitable to equip the units with a tested, uniform type.

Ice calks are indispensable for horses.

Sleighs are used in place of horse-drawn wagons. Without sleighs life and combat are impossible in winter. They were collected from the countryside in the region where the troops were operating, but owing to the insufficient number available there they were also collected in the rear areas and brought up by railroad. Some were newly constructed. Only light sleighs, the type commonly used in the country merit consideration. Experiments with rather heavy sleighs with a greater leading capacity, gave negative results. Horse-drawn wagons were stored for the winter.

Runners for guns, fastened under the wheels, were always of improvised type. They proved practical if well constructed, but this was not always the case, owing to our lack of experience. Therefore it would be expedient to experiment along this line. Runners for horse-drawn wagons were rejected.

SNOW SHIRTS MUST BE MADE OF WHITE CLOTH and must be large enough to be worn over all the clothing; they also must have a hood. They are indispensable in snow for outguards, patrols and sentries.

Shelters. Shelters cannot be found everywhere that troops must be stationed in winter, away from the immediate scene of action. They must first be constructed. It is advisable therefore to make provision for speedily erecting temporary shelters for some of the troops. For this purpose two types were used by us:

the heatable Finnish tent, made of plywood, for 12 - 15 individuals, and

the heatable cloth tent, for 20 men, I believe. This tent was to my knowledge only in the equipment of the Twentieth Mountain Army, in northern Finland; it was highly valued.

Naturally there are also many occasions in summer when such tents are welcome.

Finally, the equipment of the troops should include a grease ointment and antifrost ointment.

Cold-resistant oils and greases for guns and vehicles will be mentioned elsewhere ("Effects of extreme cold on weapons, etc.")*.

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(signed) Dr. Rendulic
General

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