

KOREA Winter Weather

By Captain ROBERT ANSTEY

QMC, U. S. Army

THE winter weather in Korea is an enemy, and it must be fought constantly in order to avoid injuries or casualties. Cold weather injuries can cause crippling or even amputation if troops are not adequately protected against them. The remarkable record of Philippine contingents to United Nations Forces in Korea in regard to avoiding cold weather injuries is well known. This record, however, was the result of careful training, and diligent follow-up action on the part of the officers and men of these battalion combat teams. It has been proven that cold weather injuries are a result of carelessness, lack of knowledge of how to use winter clothing, and unfamiliarity with cold weather conditions.

If one United Nations commander in Korea in November, 1951, had made the correct estimate of the situation in regard to the potential weather and ground surface conditions, he would not have subjected his troops to falling temperature and wet ground while wearing leather combat boots when the already issued shoe-pacs had been left in rear areas in his regimental supply train. This example of misjudgment plus a second in another unit, contributed one-third of the total number of cases of frostbite for the winter of 1951-52.

Because another commander did not authorize a rest halt during a six hour motor march in February, 1951, one battalion in Korea contracted 110 cases of frostbite.

In one highly trained combat outfit, the cold weather casualties ran to 42 percent of the frontline infantrymen, in another highly trained combat outfit the

casualties due to cold weather were practically nil. Why is there such a difference in two units fighting under similar conditions and trained for combat? The answer is that one outfit knew about Korean weather and how to live under cold conditions — the other outfit didn't have cold weather training.

The following discussion is intended as background information for unit commanders who will serve in Korea, or in a similar type of climate, in order to familiarize them with expected winter weather conditions and how to protect their troops against these conditions.

Climatic Synopsis — The Korean climate is one of great ranges and rapid changes in temperature. This is especially true in the winter season when the monsoon winds bring cold air masses out of the Asiatic landmass.

In Korea, winter weather usually begins with freezing night time temperatures during October. In some years, however, freezing temperatures may be experienced in mountainous areas during the latter part of September. During these months the lowest temperatures are usually recorded just before dawn. The days continue to be warm. As the season advances the length of the cold period increases each day, and the temperatures continue to drop. The first snows usually fall in November, but the lowering temperatures and wet ground conditions from September to December can be described as COLD-WET climate, and requires the use of some or all of the Cold-Wet uniform.

Beginning usually in December, but sometimes in November, the extreme low temperatures, especially at night, require

the full use of cold weather clothing in most parts of Korea. This requirement is continuous through January and February. During this time snow drifts accumulate on the northern slopes of mountains and in shaded valleys. Cold north winds blow through the valleys, and temperatures frequently fall below zero. These are COLD-DRY conditions, but they do not occur for sufficiently long periods of time to warrant the use of the complete Cold-Dry uniform. The Cold-Wet uniform has been supplemented by the parka and liner from the Cold-Dry uniform to protect the troops in this extremely cold weather.

Some snow may fall as late as the middle of March, and freezing temperatures have been recorded in mountainous areas as late as the first week in May even though there are frequent rains and the ground is usually wet. The climate from March to May can be described as COLD-WET.

In the area between the thirty-eighth

and thirty-ninth parallels in Korea the average of day-time temperatures during November is 50°F, but at night the average is only 28°F. In December average day temperatures drop to 35°F and night time averages are between 13°F and 18°F. It should be noted that the lowest temperature ever recorded at Kumwha in December was 22°F. In January, the coldest month, the average of day-time temperatures is only 29°F, while those at night drop to 8°F. A low of 30°F was recorded at Chunyang in January, but such low temperatures do not occur every year. February is much like December in regard to temperatures, and succeeding months are progressively milder. The above average temperatures must be considered as mid-point conditions. Half of the temperatures actually experienced during the month will be lower than these figures, and half will be higher. Daily fluctuations in temperature and highly irregular "cold snaps"



Accustomed to warm weather, Filipino troops found Korea's winter painfully, cold.

must be expected throughout the winter.

Temperatures much lower than those given above have been recorded in the northern part of Korea, especially in mountainous areas. A low of 46°F was recorded at Chungjin near the Choshin Reservoir, and 47°F was recorded at Chungganjin on the Yalu River. South of the thirty-eighth parallel the temperatures are higher, but even south of Pusan some stations have reported temperatures of zero degrees during January.

The unevenness of temperature conditions may cause a false sense of security, in that troops on the south-facing slopes of an area, protected from the wind, will find that they are dressed too warmly and may want to throw away some of their clothing — but if the same troops would move to the north-facing slopes of the same area they would find much lower temperatures, necessitating employment of all cold weather precautions.

Weather is especially critical in mountainous areas. While winter weather conditions are extremely cold throughout the season on the peaks, conditions in valley areas habitually alternate between Cold-Wet and Cold-Dry types of climate.

Mountain weather is usually erratic and unpredictable. Mountain stations are the first to experience winter weather in the fall, and the last to be rid of it in the spring. Temperatures as low as 40 degrees below zero may be expected anytime from the middle of November to the middle of February. Mountain temperatures are frequently 15 to 20 degrees lower than those in neighboring valleys, and temperatures of successive nights may fluctuate as much as 20 degrees up or down. Also, there is a great change between the air temperatures in the sun on the mountains and in the shaded valleys. Temperatures normally rise fast after sunrise and drop quickly after sunset, but some valleys are cut off from the sun during winter and remain cold all day. High peaks are more exposed to chilling winds than lower areas; this wind greatly reduces the effect of the sun's heat.

Snowfall is a common winter phenomena in all parts of Korea. While snow usually melts after one or two days in most places, it will accumulate on the north-facing slopes and in protected val-

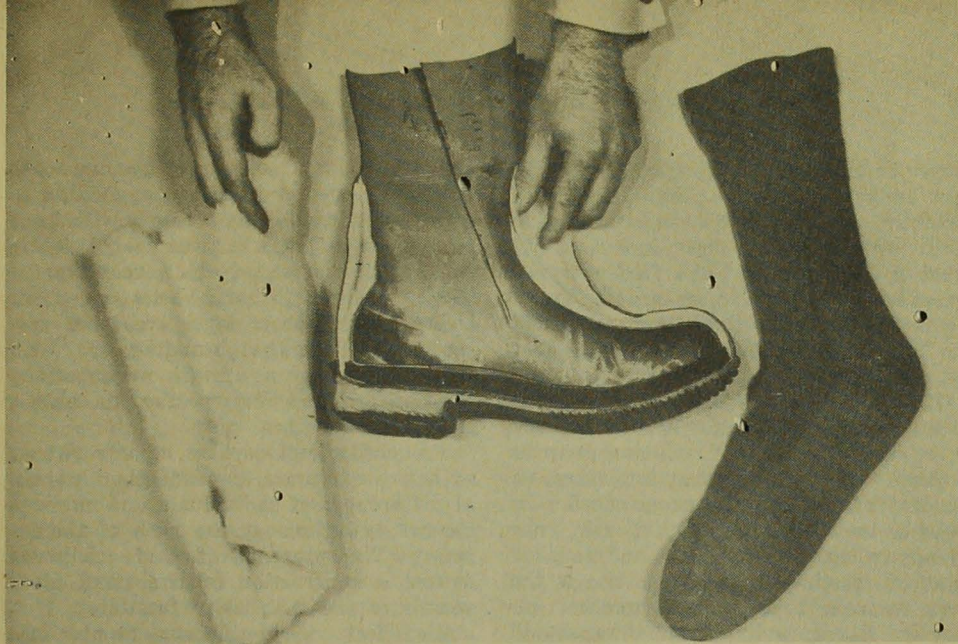
leys throughout the winter. Snow will be seen on the highest peaks early in November, and will stay there until March. The average snowfall per storm is less than two inches, but in January, 1953, a six feet snow fell on the island of Ullong off the east coast of Korea. In some instances snow will melt as it falls through the air — the troops stationed on the higher peaks will report that it is snowing, but those in the valleys below will merely be experiencing a cold rain. When the ground is colder than the air, as it frequently is in Korea, the precipitation will freeze as it hits covering everything with a layer of ice. Also, when precipitation freezes as it falls the result is sleet, a hard granular type of ice. The result of all types of precipitation is wet ground conditions which is one of the greatest sources of cold weather injuries.

Cold winds can also be a cause of injuries. By reducing the effective temperature of our surroundings, cold winds can conduct body heat away rapidly, and can flatten insulation to a point where it is no longer adequate to keep the body warm.

The cooling effect of the wind is called windchill. It is a resultant of low temperatures and high wind — but higher winds and lower temperatures do not have to be applied in the same proportion to arrive at a critical windchill factor. A 20 mile per hour wind with a temperature of 59°F is more effective in cooling the bare skin than a 2 mile per hour wind with a temperature of 40°F. If we would drive at a speed of 20 miles per hour in an open jeep when air temperatures were 32°F, the effect of the air on our body would be the same as that of a 10°F temperature.

There are other weather phenomena that can be considered but it is of an academic interest rather than for practical application. The above mentioned conditions were selected because of their importance to the soldier — things that he should know about in order to prevent cold weather casualties.

Cold Weather Injuries — Injuries contracted from cold weather conditions have often caused the defeat of, or have impeded, military expeditions in the past. Napoleon's expedition into Russia in 1812



To combat the cold weather "enemy" in Korea, a new insulated rubber boot (above) has been issued to troops in Korea. Replacing the shoe-pac, the rubber boot operates on the principle of sealed insulation, similar to a thermos bottle. It has been acclaimed by experts in Arctic exploration as the best protection against wet-cold such as found in Korea. (USA Photo)

is one of the best known defeats by cold weather. Valley Forge nearly became the grave of the American Army in 1778 because of frostbite. In World War II the American Forces in Europe incurred over 55,000 cold weather casualties. Many of these were trenchfoot contracted during the Battle of the Bulge in the winter of 1944-45 when temperatures averaged just below freezing, and wet ground conditions were common.

During the winter of 1950-51 in Korea the Eighth Army reported approximately 5,100 cold weather casualties of which only 320 were trenchfoot cases. A large majority were frostbite cases. The extreme low temperatures in the Korean mountains produce arctic conditions and frequently cause frostbite.

A vigorous program of cold weather training, including the proper use of cold weather clothing and equipment, and the introduction of the insulated rubber combat boot, substantially reduced the number of cold weather injuries during the winter of 1951-52. At the close of the critical weather period — March 15th — a total of only 1011 cases had been received at the hospital designated to treat such injuries. The number of these casualties was further reduced during the winter of 1952-53.

Cold weather injuries include frostbite, chilblains, snow blindness, trenchfoot and immersion foot. In general, all of these eventually can cause similar disabling injuries. Trenchfoot and frostbite can cause permanent crippling and amputation.

Frostbite. When a person's skin is exposed to the cold, the small blood vessels of the skin contract and cut down the flow of blood to the chilled tissues. If the exposure is sudden and the external cold severe, the result may be frostbite. The local circulation of the blood stops and the exposed area turns blue as the oxygen supply is shut off. The skin becomes white, the flesh hard, and the area numb. Activity within the cells ceases and ice crystals may form. The final stage is a hard freezing of the area. This process may take only a few minutes in low temperatures.

The best treatment is to stop the freezing at the earliest stages. If you feel cold and suspect that your feet or hands are freezing apply warmth in anyway possible, by placing your hand over the area to warm it or to ask a friend to place the freezing member inside his clothing or under his arms to warm it with the heat from his body. If the member is not yet frozen, exercise, it to im-

prove circulation of the blood. If the part is actually frozen, handle it very carefully. Do not rub a frozen area or try to walk on frozen feet since that will cause a breakdown of the frozen tissue. Massage around the frozen area. Warming the body with both external heat and hot liquids taken internally will relieve the condition.

Often frostbite can be seen on the face or ears before it is felt. It first appears as a small white spot, which continues to grow. If it is stopped at this stage, no harmful effects will be experienced. In freezing weather you should ask your friends to inspect your face and ears for signs of frostbite. Since frostbite is the most common type of cold weather injury in Korea, unit commanders should be especially active in its control and prevention.

Frostbite can be prevented by wearing adequate clothing, and using this clothing in the most efficient manner. Special attention should be given to covering the ears, nose, hands, and feet, because these are the areas where frostbite is the most prevalent. If clothing is used for purposes other than that for which it was designed, or if any item is not properly fitted or fastened, the individual may be subject to cold weather injury.

Chilblain. In some instances when a part of the body becomes cold it may itch or feel sore. This is chilblain, and should not be confused with frostbite. The color of the chilled area may be red, or it may appear white. The soreness or itch usually goes away when the part is warmed, massaged or exercised. Individuals who have experienced frostbite will often have chilblains in the previously frozen part whenever the weather becomes cold or damp.

Snow blindness. Sun burn of the eyeballs is called snow blindness. Vision becomes blurred, the eyes itch and may become extremely painful. It can be prevented by wearing sun goggles or slit-type goggles to reduce the glare of snow and reflected light rays. Snow blindness is rarely experienced in Korea because of the normal absence of great expanses of uninterrupted snow fields.

Trenchfoot. In Cold-Wet weather the most common cold injury is trenchfoot. It is especially prevalent when troops

are immobilized, and cannot get dry socks or cannot dry-out their boots, such as in trench-type warfare. Soldiers with poor circulation of blood in their feet, or those who have constricted the circulation of blood by tight footgear, belts or rubber bands around their legs, are most susceptible. Prolonged standing or long hours spent in an upright or crouching position in Cold-Wet weather is also a contributing factor.

Trenchfoot can develop in only twenty to thirty-six hours, depending on physical differences of individuals and environmental conditions at the time of the injury. The presence of cold moisture causes a contraction of the small blood vessels of the foot, as in frostbite. Wet, chilled feet slowly become numb, the soles of the feet sting at first and ankles ache; finally, the feet have no feeling at all. During this time the feet appear white, puffy, and deeply wrinkled, similar to the way they would look if you had been swimming all day. In this condition the skin is easily broken, especially if a person attempts to walk.

Even if infection does not set in, the macerated foot will swell and become red and painful when the blood vessels dilate after becoming warm and dry to allow the return of blood to the part. Gangrene may set in. The amount of dead tissue depends on the length of time the cold moisture has caused constricting of the small blood vessels and blocking of the oxygen supply to the tissues of the foot. When this condition has existed for several days the part may have to be amputated, just as in frostbite.

Trenchfoot can be prevented by following few simple rules. You must try to keep your feet dry as possible by avoiding needless walking or standing in water. If your feet become wet, you must remember to change to dry socks at least once a day, use foot powder, dry out your boots, and wear waterproof footgear if it is available. Restore circulation by massaging the feet. Avoid tightness in your clothing and footgear. Remember to exercise your feet. You will not contract trenchfoot if you are on the move. If you become immobilized move your toes, twist your ankles back and forth, arch your foot, and try to ball your toes in order to keep up circulation of the

blood in your feet. Do not expect your clothing and footgear to give you full protection. You must help yourself.

Immersion foot. The appearance of immersion foot in any one of its stages is much like trenchfoot. The chief difference between the two is the temperature at which the injury occurs. Trenchfoot is contracted when the moisture around the feet is near freezing, but immersion foot occurs at higher temperatures within the Cold-Wet range. The treatment and precautions against these injuries are the same.

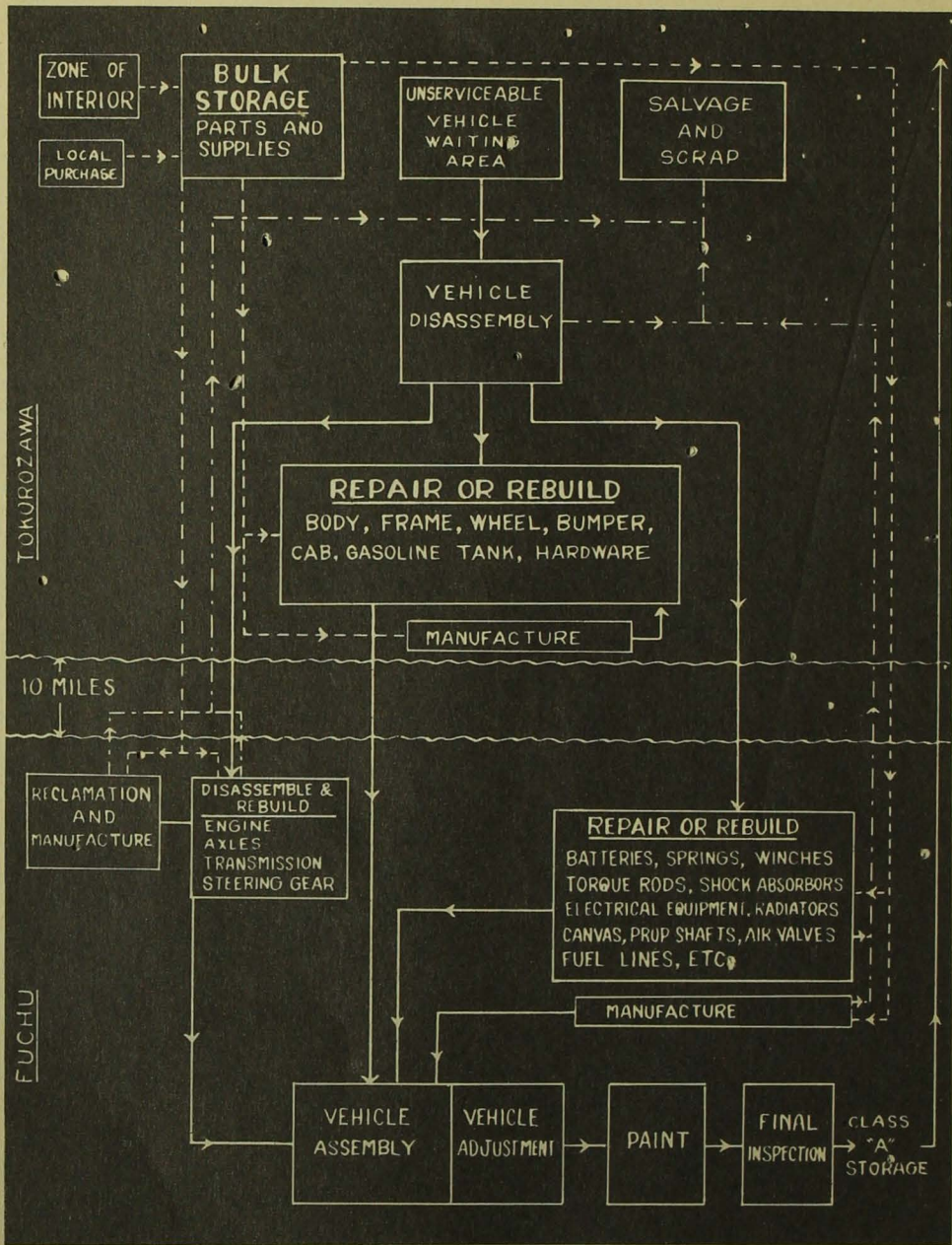
Remember to keep your mind thawed out and you can protect yourself against these effects of the winter weather in such places as Korea. In addition to the specific points mentioned above, there are a few general rules that should be remembered when operating in cold areas: Wear your clothing in layers in order to obtain the maximum amount of insulation. Wear your clothing loosely so as to keep from constricting the flow of blood to your extremities where it is needed in cold weather. Keep the clo-

tures on your clothing fastened to retain body heat, but open to ventilate your clothing to prevent perspiration that may freeze in your clothing. Keep your clothing dry, both inside and outside because moisture is a source of trouble in cold climates. Dry clothing is usually warm clothing.

Troops from areas that have cold winters will instinctively know how to take care of themselves when the temperature drops below zero, but for others a period of training is necessary to acquaint them with these fundamentals. Even men who have lived in areas with cold winters have difficulty keeping warm when they are faced with field conditions, living in the open, and being deprived of the many comforts of home and civil life. Nobody can afford to take chances in cold climates. Commanders of units destined to serve in such places as Korea should make sure that their men are adequately trained to know what kind of weather to expect, and how to take proper precautions in order to prevent cold weather injuries.



A PEFTOK officer in Korea has some frolic with ice blocks.



The production line layout of the AFP ordnance and Engineer Base Shop will be similar to that of the Fuchu Ordnance Shop in Tokyo, Japan which the AFP-JUSMAG ordnance team visited last June.

The plans for the proposed AFP Base Shop were finally approved on August 22, 1953 by Major General Robert Milchrist Cannon, chief of the Joint United States Military Advisory Group in the Philippines. The approval was communicated to Lt Col Blas A Alejandro by Col Denver Wilson, G-4 advisor; Lt Col William Stanford, ordnance advisor; and Lt Col Philemon Dusault, engineer advisor to the Armed Forces. This paves the way to an early realization of the base project. The aforementioned JUSMAG officers have been instrumental in the planning of the proposed military installation.