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PROPER USE OF PROPER CLOTHING FOR WET-COLD CLIMATES

INSTRUCTOR'S GUIDE

SPECIAL FIELD BRANCH





OFFICE OF THE QUARTERMASTER GENERAL

THE QUARTERMASTER SCHOOL . CAMP LEE, VA.

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(For use in connection with graphic portfolio)

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1. SCOPE

This illustrated instructor's reference consists of 75 charts and commentary on the proper use of proper clothing for wet-cold climates.

2. PURPOSE

- a. The purpose of this reference, is to augment and enlarge upon each individual picture contained in the graphic portfolio on the proper use of proper clothing, issued by the Quartermaster Corps and to provide instructions relating to living conditions in wet-cold climates. The result of proper training, has reduced casualties due to trench foot and frostbite, in Italy, by 75%.
- b. These pictures and commentary are for use of the instructor in his preparation before class. He should be able to answer questions pertaining to each picture using the commentary indicated.
- 3. RECOMMENDED FOR CLASS PROCEDURE
 The instructor should have samples of wet-cold
 weather clothing mentioned in graphic portfolio
 to show the class. If possible, enough samples

should be available to pass around to all members of the class. Demonstration by use of a model is suggested.

USE OF GRAPHIC PORTFOLIO

The training charts contained in the graphic portfolio afford an excellent means of emphasizing outstanding points in instruction.

KEEP THESE POINTS IN MIND WHEN USING THE GRAPHIC PORTFOLIO

- a. Display one picture or chart at a time. Pictures not in use should be reversed or covered.
- b. Stress key points and check effectiveness of instruction by requiring individual or group answers to questions.
- c. Maintain further interest and attention by supplemental discussion so far as time will allow,

PROPER USE OF PROPER CLOTHING

Commentary: In giving a lecture or demonstration, it is customary to begin by telling a joke, in order to put your audience in the proper frame of mind. This demonstration is no exception. And here is the funniest joke we could think of.

HOW TO BE COMFORTABLE



THOUGH STILL IN THE ARMY Commentary: Take a good look at it. You know and I know that this could only happen on paper. However, the subject of this cartoon, which, incidentally, is the subject of this demonstration—HOW TO BE COMFORTABLE THOUGH STILL IN THE ARMY—is no joke. On the contrary, it is deadly serious.

Most of our fighting thus far in the Pacific has been in tropical or semi-tropical climates except, of course, the Aleutians.

(If men are from tropical climates) You fellows know what it's like!

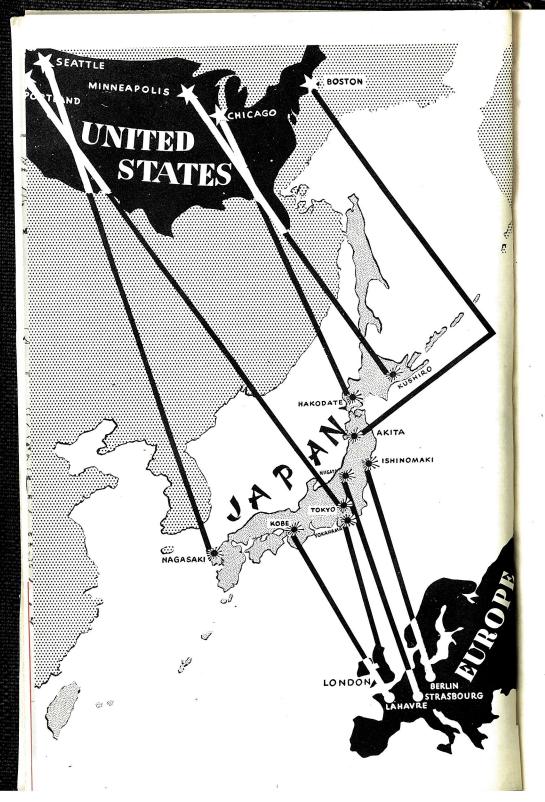
(If men are from ETO, omit preceding sentence.)
But as we move in for the kill—what kind of climate
are we going up against and how best can
we clothe ourselves to lick it?

Well, first let's take a look at our possible objectives....



Commentary: We've been in the Tropics but look at those arrows. We're moving north—away from the Equator.

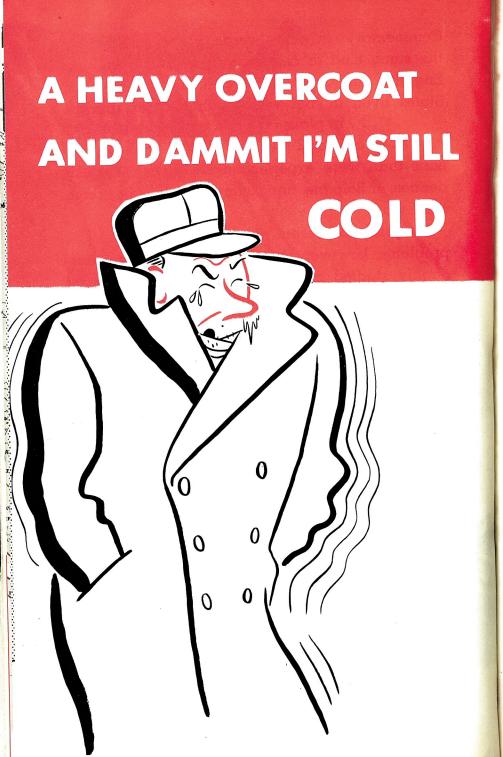
Then, exactly what kind of climate will we meet? Let's see how it compares with the weather back home.



Commentary: In other words, we're moving into the same kind of climate you fellows from New England, the Great Lakes and the Northwestern States lived in, but with much heavier rainfall.

..... in places we can expect at least five months of cold and wet even worse conditions than were experienced at Aachen, the Ardennes, or Bologne, and some of us will hit extreme cold, too.

It's going to present plenty of problems problems, however, that have already been thoroughly studied and prepared against as far as providing you with the kind of clothing that will serve you best. The Quartermaster Corps has the clothes for us, don't worry about that now it's simply up to us to give 'em a chance to do a job. That's the reason for this meeting now. It's complete and easy to catch and valuable to you and your well being. So, if you want to keep warm and comfortable—and keep healthy—give the following presentation your close attention.



Commentary: Now before you see what clothes you get and why consider the case of this shivering specimen. He's got on a heavy overcoat but dammit, he's still cold. How come?

That's only natural soldier...
because you lack insulation.

One heavy dud doesn't give proper insulation.

It hasn't enough still air space!

Yet, still air space is your best and lightest insulation!

LAYERS of clothing provide still air space...

LAYERS provide insulation.



LOTS OF LAYERS

LOTS MORE STILL AIR

LOTS MORE INSULATION

LOTS MORE COMFORT..
..AND..PROTECTION

Commentary: It's as simple as that, men still air is a wonderful insulator. In your clothes, it's the air space formed between the fibers in the cloth that provides insulation and keeps the warmth close to your body. Air space in your clothes gives you added insulation without adding weight. That's why several layers of medium weight clothing—which is what you'll wear—keep you warmer than one layer of heavy clothing, using the same amount or even more material. The air between the layers makes the big difference!

This layering idea is called "The Layer Principle"..... you'll be hearing more about it because the efficiency and protection of all your coldweather clothing is based on the layer principle.

in other words

GIVE COLD THE OLD ONE-TWO

with the help of the layer principle



wear LAYERS of clothing inside to provide still air space which insulates and keeps you WARM



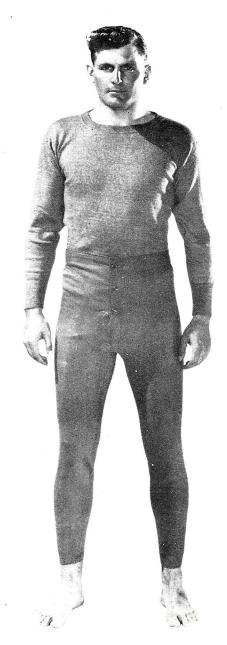
wear a windproof, water-repellent

outer shell to keep cold, active air

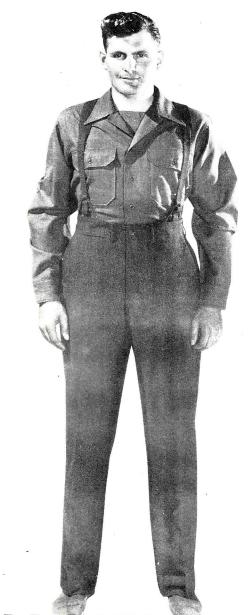
out . . . and body warmth in.



Commentary: Here's an example of the Layer Principle you have been learning. Starting from scratch, we will dress this fellow in his clothes for wet cold. First, his basic inner clothes, which are:



UNDERWEAR



FLANNEL SHIRT and WOOL TROUSERS



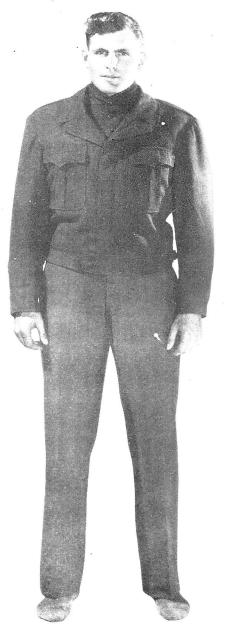
HIGH NECK SWEATER

Commentary: Which may be worn buttoned or unbuttoned.



PILE LINER

Commentary: The pile liner is sometimes substituted for—



WOOL FIELD JACKET

Commentary: But the wool field jacket and the wool trousers are worn as inner layers for wet-cold regions. Be sure to fit them over woolen underwear, shirt and sweater, as shown, and keep them loose.

The wool field jacket and wool trousers are okay as outer covering for dress, but cover them with a water-repellent, wind-proof outer shell in the field.



OLIVE DRAB
COTTON TROUSERS

Commentary: These olive drab cotton trousers are the lower half of your water-repellent, wind-proof outer shell. In dry weather, wear them inside the combat boots. In wet weather, wear them outside the combat boot as shown here.



M-1943 FIELD JACKET

Commentary: The M-1943 Field Jacket is the upper half of your water-repellent, wind-proof outer shell. Give it a chance to work right. Fit it over woolen underwear, shirt, sweater, and wool jacket or pile liner. Then it's big enough for all conditions And now, fellows, some mistakes to be avoided.



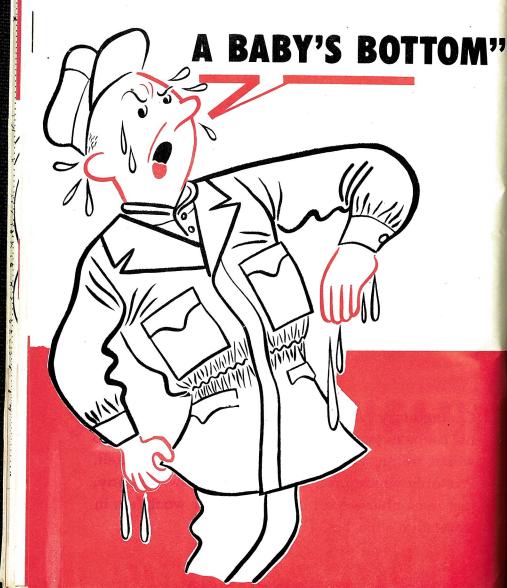
Who wouldn't be! if you let your clothes get dirty and greasy, they become matted. Matted clothes have less still air space ... less insulation

SO KEEP 'EM CLEAN!

Commentary: And here are just a few reminders on keeping your clothes clean. If worse comes to worse, roll up your sleeves and wash 'em yourself. Probably you're pretty good at it by now, anyway. Just remember—don't boil woolens or wash 'em in water that's too hot. They'll shrink.

OKEH! OKEH!

BUT NOW I'M DAMP AS







DON'T OVERHEAT

because when you overheat
you sweat. Sweat mats clothes
and KO'S insulation.

Worse still, damp clothes invite colds, trench foot & frost bite.

SO DON'T OVERHEAT

Commentary: Yeah, fellows, don't go piling on all your duds and leaving them on. Select just enough to keep you comfortably warm—no more.

And for gosh sakes, come up for air before you over heat into a sweat. Loosen the drawstrings or buttons at your neck, waist, and wrists.

Commentary: If this isn't enough, start stripping, brother—your inner layers of clothing first.



NOW CAN I PUT SOME CLOTHES BACK ON PLEASE?



well, if you insist but... remember WEAR 'EM LOOSE

tight fitting clothes
squeeze out the
still air and hinder
circulation...less still
air...less insulation

SO....
WEAR 'EM
LOOSE

"IT'S ME AGAIN...

damp as a duck's foot

... cold as a clam"



Naturally. Because you let your inner clothes get damp. Water takes heat out, invites cold in. That's why you have to keep dry. Dry clothes give you still-air insulation

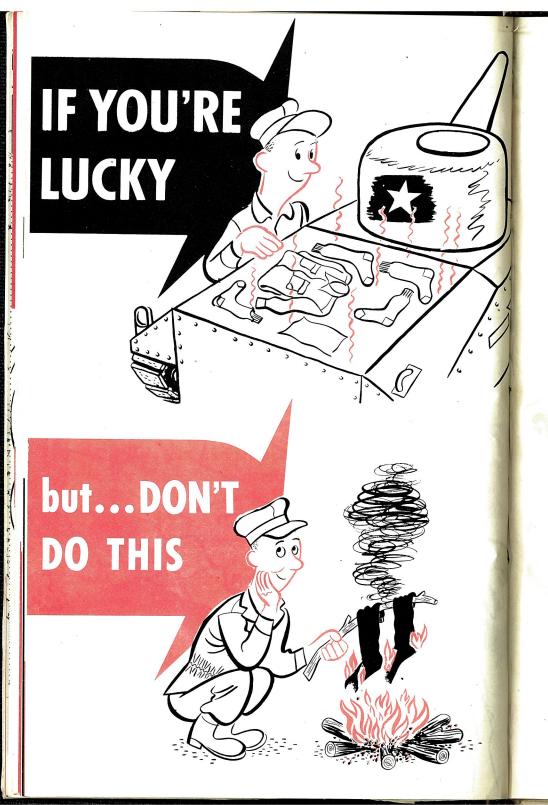


SO KEEP DRY!

Commentary: This will be your hardest job, but most important one. Of course, in rainy weather you're going to have your problems. But do the best you can.

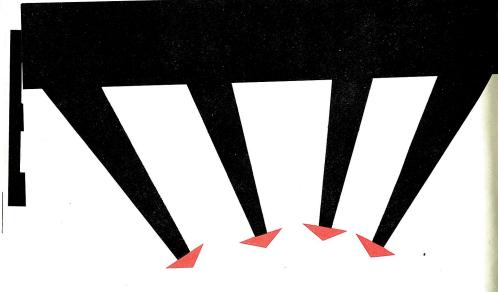
You know what happens when you wet the cover of your canteen—evaporation cools the contents. Clothes work exactly the same way wet clothes chill you. Not only that, but even in the coldest weather you do some sweating. You may not know it at the time, but this sweat condenses in your clothing. So, it's got to be allowed to dry out, otherwise it will become just as damp as if you left it out in a drizzle. Now I know what some of you fellows are thinking right now. Drying your inner layers of clothing is a damn nuisance. You're right—it is a damn nuisance but fellows, don't forget that it can make the difference between health and permanent disability because of trench foot and frostbite. Remember that, and you're bound to remember these handy tips on drying.





Commentary: Use the heat of a motor vehicle, or a small fire.

Commentary: Now, so we don't forget, let's reemphasize the five keys to comfort and health through layers of clothing.



KEEP 'EM CLEAN

KEEP FROM OVERHEATING

WEAR 'EM LOOSE

KEEP 'EM DRY

Commentary: You don't have to play tag in a foxhole to keep active. Flex your muscles, stamp your feet, wiggle your toes, and bend your knees.

KEEP ACTIVE

now that you know the layer principle and you know the "musts" that make it work for you

LET'S APPLY IT TO
THE "WET COLD"
WEATHER YOU'LL
HAVE TO WHIP

Commentary: Unless you can whip the kind of weather you'll be faced with all the other battle training you've had so far won't do much good. That's why we're stressing the use of proper clothing now. What happened in one campaign is a grave reminder of the consequences of improper training in this respect. 42% of all the casualties were knocked out because they didn't know how to combat wet cold. 42 men out of every 100! Since then, other outfits have been given the "know how" like you're getting it now and they've gone through hell without a single casualty due to the weather. So, let's get down to this business of beating wet cold and see how easy it is if you follow a few simple rules.

YOUR FEET ARE YOUR FIRST CONSIDERATION

because

cold feet are . . .
damned uncomfortable

because

damp feet are . . . dangerous

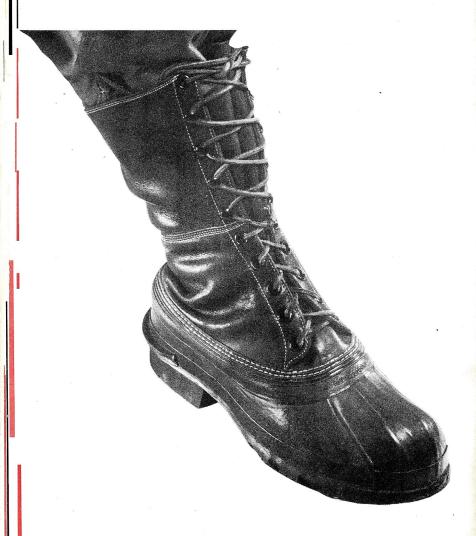
BOTH CAN LEAD TO TRENCH
FOOT OR FROST BITE
AND OFTEN TO ...

Permanent Disability

Commentary: Trench foot comes when the temperature is cold but not freezing. It is commonest when feet are continually cold and wet. You'll know when you have frostbite or trench foot your feet get numb or just plain hurt. Do not rub 'em play safe and go to the nearest aid station. If your feet are cold and wet, but trench foot or frostbite have not started, you should massage them.

How do feet get wet and cold? Two ways.... from the inside and from the outside. Strange as it seems—when your body's too warm, your feet sweat. So, in cold weather, sweaty, damp feet don't come from wearing too many sox. You can wear two or three pairs, and if your body doesn't overheat, you won't sweat perceptibly. In other words, keep from getting overheated by taking off your sweater or by opening your field jacket when necessary and your feet won't oversweat. But they will always sweat a little. In cold weather you will be wearing shoe pacs or watertight overshoes over your combat boots.

TO TOP...



Commentary: Shoe pacs do not make your feet sweat more than usual—but they do keep the moisture in. That moisture collects making your feet wet then cold. That's why it's necessary to dry your sox even if your boots are water-proof. The right combination as shown here is:

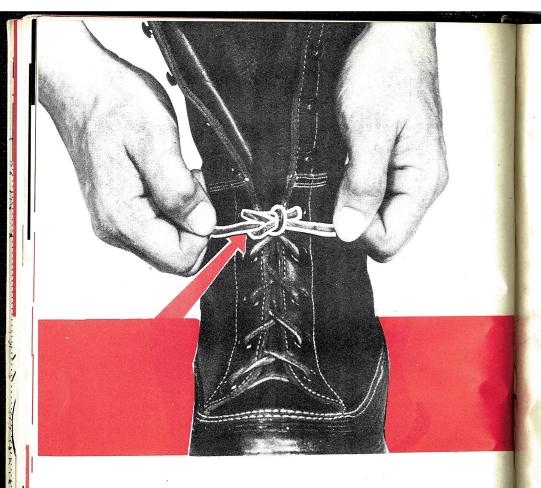
TWO PAIRS WOOL SKI SOX . . .



FELT INSOLE



Commentary: Don't risk trench foot or frostbite..... Keep 'em dry.



SNUG TO INSTEP...

THEN A SQUARE KNOT

...LACE LOOSELY TO TOP

Commentary: Lace your shoe pac snug over the instep, tie a square knot—then lace loosely to the top.

Shoe pacs with the leather well dubbed will help to keep you dry from the outside. You keep your sox dry from the inside. If they get damp, change them before your feet get cold. Always remove your insoles when you're not wearing your shoe pacs. This gives them a chance to dry. Carry extra pairs.

CHANGE YOUR SOX



IF POSSIBLE

Commentary: Take off your sox always at least once a day. Naturally in the thick of battle that's not always possible. But most other times it's possible—so do it whenever you can.

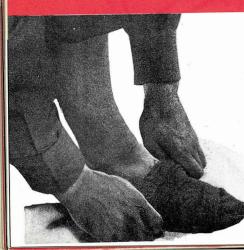
Commentary: And, once again, massage your feet unless trench foot has started.



DRY YOUR FEET



USE FOOT POWDER



PUT ON DRY SOX

COMBAT BOOT



Commentary: Combat boots or G. I. shoes are fitted over—

ONE PAIR CUSHION SOLE,OF



Commentary: A pair of cushion sole sox, or a pair of heavy wool sox. Make sure they fit comfortably. Frequent dubbing will keep the leather pliable and help keep water out. Your combat boots are not meant to be waterproof.

OVERSHOE



Commentary: Wear your overshoes when your feet get cold or really wet.



FEET COLDER

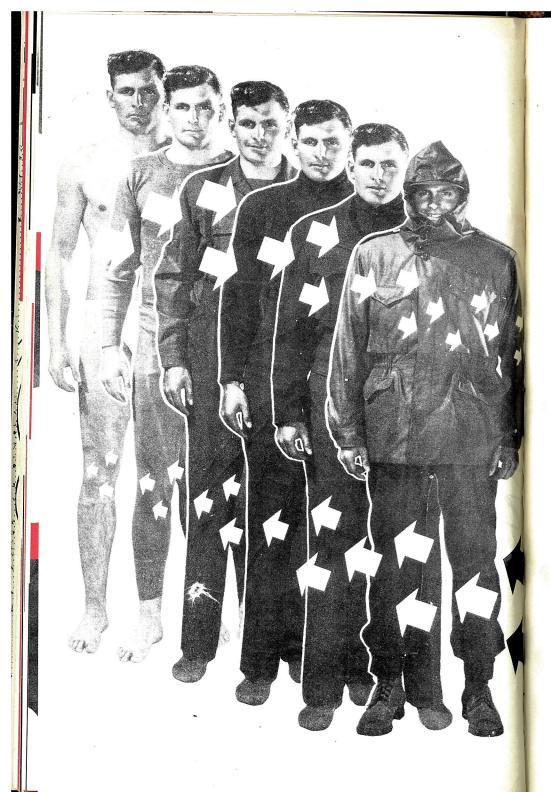
Commentary: Never wear more sox than fit comfortably into your combat boots. Stuffing your boots makes your feet colder and does more harm than good. After you are properly fitted with sox and shoes, if your feet swell, loosen the laces when the shoes feel too tight.

If your feet do get cold, scrunch up your toes, move your ankles around, stamp your feet, and exercise as best you can. Rest, when you can, with your feet higher than your head.

THE "NIPS" THINK I'M A TOE HEAD



Commentary: Don't put your feet up too high under fire—you might become foot loose!—Now let's review the layer principle.



Commentary: To begin with, your only source of heat is your body. Your problem in keeping warm in cold weather is to keep this heat from escaping. This is done by adding layers of wool, covered by an outer layer of water-repellent, wind-proof cotton material. Each successive layer shown here adds more insulation and makes it more difficult for your body heat to escape.

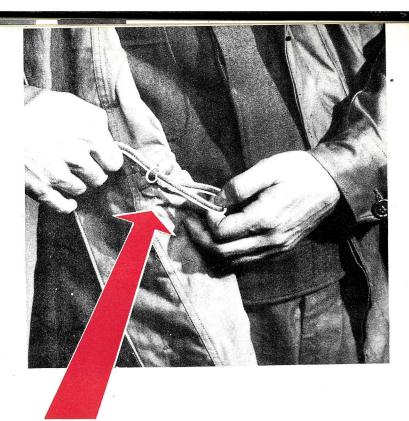
As your first layer in trapping the heat produced by your body, you have wool underwear. Next come flannel shirt and wool trousers. Next, a wool sweater, and next the wool jacket or pile liner. Each successive layer not only adds insulation itself through air spaces in the fabrics, but adds air spaces between the layers, which give you additional insulation.

The outside layer has an entirely different function. This is to keep out wind and rain, thus stopping the circulation of outside air in the inner layers. It maintains the still air space that you need.

As you see, each layer traps more heat from your body and, conversely, makes it more difficult for the cold to reach you.

Another advantage of the layer principle is that by removing inner layers you can keep from overheating, and easily adjust your clothing to your activity and to the outside temperature. In other words, it gives you a flexible combination which you can adjust to suit your needs.

And now let's examine some of the adjustments that can be made to your clothing in order to regulate your body temperature.



ADJUST WAIST DRAWSTRING.
MAKE A KNOT...
LOOP HERE.

Commentary: On your M-1943 Field Jacket, adjust the waist drawstring to the right size and shove the extra fullness to the back. Don't try to tie the waist drawstring across you. Make a knot and loop on each side where the drawstring comes out of the lining. You can do a lot of regulating your temperature without taking anything off or putting it on

Commentary: The collar has three adjustments.

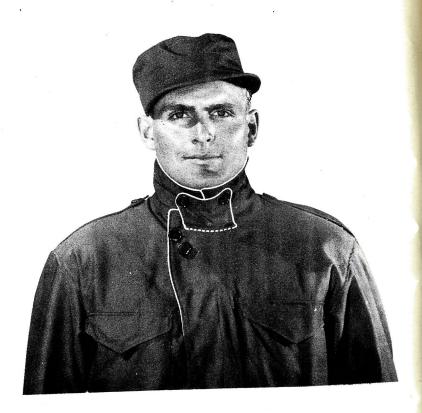
OPEN



BUTTON SHUT



COLLAR



Commentary: And, incidentally, the cotton field cap has an ear flap which can be worn up, as shown here, or down for colder weather.

HOOD



Commentary: And for really cold weather, fasten on your hood.

Commentary: By varying your collar adjustments with the tightness of the waist drawstring you can do a lot toward keeping yourself at the right temperature. Shut yourself up if you get cold. Give yourself some air if you get warm. Above all don't wait until the sweat starts running. Keep cool to keep warm.





HOOD BUTTONS HERE

BUTTON THIS TO MIDDLE BUTTON





FASTEN LEFT FLAP

ADJUST DRAWSTRING

Commentary: The hood buttons on under the shoulder straps. After you have re-buttoned the shoulder straps and fastened the collar flap up under the chin, button the right hood flap to the middle of the three exposed buttons. Then fasten the left flap across and adjust the drawstring. Normally, wear the hood under the helmet.



Commentary: If your hands are sweaty or wet before you put your gloves on, dry them. Don't sweat in your gloves. Mitten inserts or glove inserts should never be worn alone—they'll wear out. If your hands are beginning to get moist, take off your inserts and wear the shells alone. If you feel your hands getting too warm and moist, then remove the shells also. Don't forget to take along a second pair of inserts wherever you go. You'll need that dry pair. Remember

IF YOUR HANDS GET COLD . . .



clench and unclench 'em altogether inside

SWING ARMS
THUS

Commentary: If your hands do get cold, here are a few tricks to warm them. Clench and unclench your fist with your fingers and thumb all together inside. Or else swing your arms in a big circle from your shoulders to force blood into your finger tips. Remember—keep active!

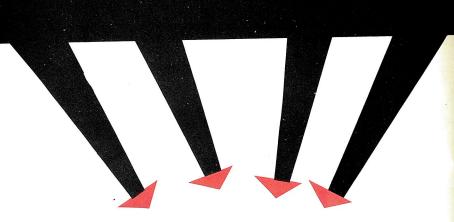
"OKEH YOU'VE COVERED

MY WAKING (working) HOURS

HOW ABOUT WHEN I SLEEP



Commentary: Not before we again cover the five "musts" that go hand in hand with the layer principle for cold-weather comfort and protection.



KEEP 'EM CLEAN

KEEP FROM OVERHEATING

WEAR 'EM LOOSE

KEEP 'EM DRY

Commentary: Now for those de luxe sleeping arrangements but before we actually show you the sleeping bags let's get ready for the night.

KEEP ACTIVE/

Commentary: First pick your spot, and lay down anything you can find such as straw, ration boxes, branches, fir boughs, etc. Then put down your shelter half, raincoat, or poncho. Build up your mattress with extra clothing and your pack board, canvas side up, if you have one. Then, if the tactical situation permits, strip down to your underwear and put your clothing under your sleeping bag. It will keep you warmest there.

Do all your padding underneath the bag, being especially careful to pad under your shoulders and hips. You'll not be warmer if you pile on all your clothing before you go to bed. In fact, you'll probably be colder. If you stuff yourself in with everything on, you'll compress the material and lose insulation. Underneath is where you want protection. The weight of your body squashes the bag down and lets heat escape.



ROLLED **WOOL SLEEPING BAG** Commentary: The wool sleeping bag is a lot warm-

er than plain blankets. Always use it with the water-repellent case. Sometimes you can slip a blanket between the wool bag and the case. Pin or fasten the blanket to the wool sleeping bag

and not to the case.

The water-repellent case is not waterproof. If it were, it would trap the sweat and leave you sleeping in an ice box. Be careful what you lay it on. It will wet through.

WATER REPELLENT CASE



Commentary: With each sleeping bag comes a cord. Tie a knot in one end, pass it through the eyelet. Then with a series of half hitches, you attach the case to the sleeping bag.

The quick-release zipper works almost like any zipper. Pull the slider nearly up to the end. If you want to get out in a hurry, yank it over the end. Rethread it at the bottom like any zipper. Ordinarily, though, pull the zipper back down: It's hard to do up again with cold fingers or in the dark.

Commentary: Remember a wet sleeping bag is cold. As soon as you get up in the morning, open the bag wide and pull the top away from the bottom a number of times to pump fresh air in and to remove the warm, moist air which was around you. If you don't, the moisture will condense in the bag. Turn the bag inside out and air it whenever you can. Sun and wind will help to dry it even in freezing temperatures.

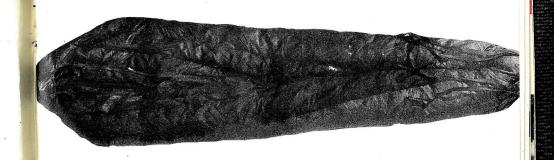


NEXT MORNING

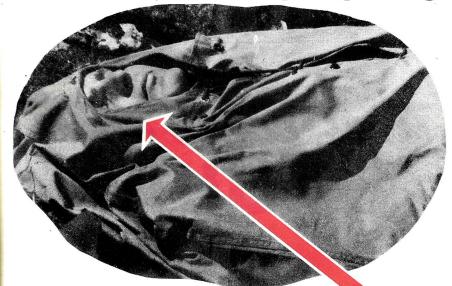
OPEN WIDE...
PULL TOP AWAY
PUMP AIR AWAY

Commentary: If you are equipped with a mountain sleeping bag, remember that the mountain sleeping bag is filled with down and feathers. If it gets wet, it's tough to dry. Remember a lot of water escapes in your breath. Don't let this condense in the sleeping bag. Always leave your nose in the face opening. In extremely cold weather cover your face with your shirt or sweater which will collect the frost and dry easily the next day.

Be sure to fluff up the bag before and after using, in order to get the most insulation. After continued use, the down and feathers will shift to the foot of the bag. So, shake it from the foot to re-distribute them evenly.



mountain sleeping bag



be sure to keep nose

OUT!



Commentary: These tags can be a world of help to you in proper use of your clothing and equipment.

And that just about covers it, fellows, except for seven words of warning.

TRENCH FOOT and FROSTBITE

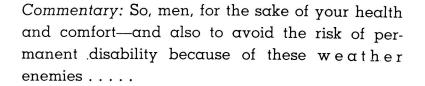


are not...
PLEASANT!

Commentary: But they can be avoided as you have seen. The best proof we can give you is facts. And here they are. After learning how to combat wet cold, as you have today here's what difference it made in the fighting in Italy.

IN ITALY

there was better than a 75% reduction in casualties due to trench-foot and ... frost-bite ... after proper training



DON'T FORGET

wear 'em in layers
keep 'em clean
don't overheat
keep 'em loose

KEEP ACTIVE

keep 'em dry



These few simple

rules will do right by us all

LET'S PUT
'EM TO
WORK
ALL-WAYS!

NOW a note to CO's

you know what's available...your men have learned how to use it...

MAKE SURE THEY GET IT

IN OTHER WORDS



IT WON'T DO ANYBODY
ANY GOOD HERE

So, let's follow through...
and see it gets into the units



Commentary: Yes, for the health and comfort of your men:

- 1. Let 'em have all the clothing they need it's available.
 - 2. In the right sizes for best service!
 - 3. Let 'em have it in plenty of time!

makeut TOUGHER

THE JOBS FNOUG