FM 21-11

U.S. WAR DEPARTMENT FIELD MANUAL

FIRST AID FOR SOLDIERS

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This manual supersedes FM 21–11, 7 April 1943

FIRST AID FOR SOLDIERS

WAR DEPARTMENT
Washington 25, D. C., 1 August 1946

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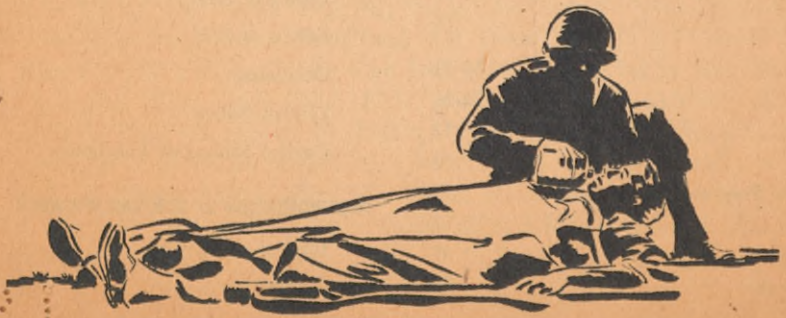
CONTENTS



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FIRST AID is the care given casualties before regular medical or surgical treatment can be administered by trained individuals. The Medical Department has the finest equipment available and its personnel have been trained in the most modern methods of saving life and easing pain. However, trained personnel cannot be every place at once; there may be a time when YOU will have to depend on your own knowledge to save YOUR OWN LIFE or the LIFE OF SOMEONE else. You can save a life if you know what to do and what not to do, and if you act quickly and calmly. If you are injured, don't lose your head and just call for help. Use first aid measures and then seek medical help as soon as possible. KEEP CALM. BE GENTLE.

YOUR JOB IS TO FIGHT

Fighting is your primary mission. Anything you can do to keep yourself and others in fighting condition is part of that mission. It isn't all luck that a large proportion of casualties return to their units to fight again. It is the result of correct first aid and excellent medical care. You can protect yourself and others by your knowledge of first aid.

What equipment do you have to give First Aid?

You are issued a first aid pouch containing a dressing and wound pills. Know *how* and *when* to use them. Have them with you at all times. A good soldier checks his rifle each day. He should be just as careful about checking his first aid pouch.

FIRST AID POUCH

FIRST AID PACKET

WOUND PILLS

TAKE A GOOD LOOK

AT THE WOUNDS

BUT KEEP YOUR HANDS OFF

Wounds are the most common conditions requiring first aid. Always look for more than one wound. The missile may have come out at the opposite side. Before you treat a wound you must see all of it in order to know exactly where it is, how large it is, and how much it is bleeding. Usually it is better to cut or tear the clothing rather than to remove it. Drawing clothing over the wound always increases the danger of infection. Moving the wounded parts may make the wound worse and cause needless pain.

KEEP THE WOUND CLEAN.
Keep your hands away from the wound. Cover with dressing immediately to prevent infection.

THE 3 LIFE-SAVER STEPS IN FIRST AID

are: stop bleeding, protect the wound from infection, and prevent or treat shock. Every soldier should memorize these three steps and learn the simple methods of carrying them out. Now is the time to learn. Prompt and correct first aid for wounds will not only speed healing, but will often save a life—*and that life may be yours!*

1. STOP BLEEDING

2. PROTECT THE WOUND

3. PREVENT SHOCK

7018520—46—2

LIFESAVER I

STOP BLEEDING

TO STOP BLEEDING, first apply dressing to wound with pressure.

Uncontrolled bleeding results in shock and eventually death. Place the opened dressing (as shown on p. 10) against the wound and apply firm pressure. Use the wounded man's dressing—not your own. Use two dressings if necessary to cover the wound. Wrap bandage of dressing about part and tie ends to hold dressing firmly. If wound is in arm or leg and bleeding continues, elevate limb.

Have the man lie down with his wounded arm or leg raised as high as possible. If you think there is a broken bone, do not raise the arm or leg. Moving a fractured limb is painful, dangerous, and will increase shock. When the limb is raised, blood will not flow into it so fast, therefore bleeding from the wound will be slowed. Of course, some blood will always flow through the limb so you will still have to use the bandage and pressure.

If the bleeding does not slow down considerably in a few minutes, it is time to try something else—a tourniquet. However, *never* apply a tourniquet unless blood is gushing from a wound or until all other methods of stopping bleeding have failed.

DON'T WASTE TIME

A TOURNIQUET IS USED TO STOP SEVERE BLEEDING

When pressure and elevation fail to stop bleeding from a limb, or when blood is gushing from a wound, a tourniquet should be quickly applied.

The tourniquet should always be placed above the wound; in case of bleeding below the knee or elbow, it should be placed above these joints.

When possible, protect the skin by putting the tourniquet over the smoothed sleeve or trouser leg.

Once the tourniquet is in place it should not be removed until the wounded man can be attended by a medical officer. After 2 to 3 hours, if no medical officer is available, the tourniquet may be loosened, but not removed. If there is any evidence of bleeding, it is to be tightened immediately. If there is no bleeding, the tourniquet is to remain in place, but not tightened.

MAKE A TOURNIQUET THIS WAY

1. MAKE A LOOP AROUND THE LIMB.

2. PASS A STICK, SCABBARD, OR BAYONET UNDER THE LOOP.

3. TIGHTEN TOURNIQUET JUST ENOUGH TO STOP BLEEDING.

4. BIND FREE END TO LIMB TO KEEP TOURNIQUET FROM UNWINDING.

LIFESAVER 2

PROTECT THE WOUND

The first aid bandage protects wounds from the *outside*. It *keeps dirt and germs out. It protects wounds from further injury.*

THE BANDAGE FROM THE FIRST AID PACKET IS CLEAN. KEEP IT THAT WAY.

TEAR OFF PAPER AND GRAB BANDAGE BY FOLDED ENDS. PULL OPEN.

PLACE SOFT THICK CENTER DRESSING ON WOUND WITHOUT ALLOWING IT TO TOUCH ANYTHING ELSE.

WRAP THE BANDAGE ENDS AROUND INJURED PART AND TIE THE ENDS SECURELY.

IMPORTANT: DO NOT TOUCH SIDE OF DRESSING WHICH GOES NEXT TO WOUND.

Taking wound (sulfa) pills, protects wounds from the *inside*. If you have a belly wound, don't take the pills (see page 16).

WOUND (SULFA) PILLS FIGHT INFECTION INSIDE THE BODY. THERE ARE 8 OR 12 IN A PACKAGE.

SWALLOW ALL PILLS, ONE AFTER ANOTHER, WITH WATER TO HELP GET THEM DOWN.

DRINK AT LEAST A HALF-CANTEEN CUP OF WATER WITH THE PILLS. WAIT UNTIL YOU GET WATER BEFORE TAKING THEM.

THE BLOOD CARRIES THIS MEDICINE DIRECTLY TO THE WOUND NO MATTER WHERE IT IS.

IF YOU DON'T HAVE WATER DON'T TAKE THE PILLS

LIFESAVER 3

PREVENT SHOCK

Shock is a condition of great weakness of the body. It can result in death. It may accompany any kind of wound. The worse the wound the more likely shock will develop. Severe bleeding causes shock. A person in shock may tremble and appear nervous; he may become very pale, wet with sweat, and may pass out.

Shock may not appear for some time after an injury. *Treat every wounded man for shock before he has a chance to get it.*

MAKE COMFORTABLE

KEEP HEAD LOW

KEEP WARM

LAY UNCONSCIOUS MAN FACE DOWN

TO PREVENT OR TREAT SHOCK . . .

Make the soldier comfortable. Take off his pack and anything else he is carrying. Loosen his belt and clothes. Handle him very gently. Do not move him more than absolutely necessary. If he is lying in a doubled up position, make sure no bones are broken before you straighten him out.

Lower his head and shoulders or if possible elevate his legs to increase the flow of blood to the brain. If the ground slants, turn him gently so that his feet are uphill and his head downhill. If he is unconscious, place him face down with his head turned to one side in case he should vomit.

Keep the man warm with a blanket, coat or poncho. Place something under him to protect him from the cold ground.

Morphine will help prevent shock. (See page 30.) If the man is unconscious, don't give morphine.

7018520—46—3

INJURIES REQUIRING SPECIAL FIRST AID MEASURES

The three life-saving rules, which you have just learned, apply to the treatment of all injuries. However, there are certain types of injuries which in addition, require special first aid measures. These are *chest wounds, belly wounds, jaw and face wounds, burns,* and *fractures* (broken bones).

CHEST WOUNDS

BELLY WOUNDS

JAW AND FACE WOUNDS

BURNS

FRACTURES

CHEST WOUNDS . . . Cover up air-tight

Chest wounds through which air is sucking in and blowing out are particularly dangerous. The chest wound itself isn t as dangerous as the air which goes through it into the chest cavity. This air squeezes the lung, and prevents proper breathing.

The life of the soldier may depend upon how quickly the wound is made air-tight. Apply a dressing which is large enough to cover the wound and to stop the flow of air.

Pack the dressing firmly over the wound. Cover the dressing with a large piece of raincoat or other material to help make the wound air-tight. Bind this covering securely with belts or strips of torn clothing. Encourage the man to lie on his injured side. If he wishes, let him sit up. This may ease his breathing.

AN AIR SUCKING CHEST WOUND CAUSES THE LUNG TO COLLAPSE.

PRESS BANDAGE FIRMLY OVER WOUND TO STOP FLOW OF AIR.

COVER COMPLETELY WITH SOME MATERIAL AND BIND SECURELY.

BELLY WOUNDS

COVER WOUND AND TREAT FOR SHOCK

DO'S Cover the wound with a sterile dressing and fasten securely. Treat the victim for shock.

DO NOT'S Don't try to replace any organs protruding from a belly. If you do you will cause infection and severe shock.

Don't give (or take) food, water, or wound tablets. Anything taken by mouth will pass out from the intestine and spread germs in the belly.

DON'T TRY TO REPLACE PROTRUDING ORGANS.

BANDAGE SECURELY AND TREAT FOR SHOCK.

DO NOT GIVE FOOD, WATER OR WOUND PILLS BY MOUTH.

STOP BLEEDING WITH FIRM PRESSURE OVER BANDAGE.

TIE BANDAGE TO PROTECT WOUND AND SUPPORT FRACTURE.

KEEP FACE DOWN AND TREAT FOR SHOCK.

JAW WOUNDS

PREVENT CHOKING ON BLOOD

Wounds of the face and neck call for special treatment to avoid choking on blood. Bleeding from the face and neck is usually severe because of the many blood vessels. First, stop the bleeding by exerting pressure with a sterile dressing. Then bind the bandage so as to protect the wound. If the jaw is broken, tie the bandage around it and up over the head so as to give support. Make sure you don't prevent the blood from draining out of the mouth.

To prevent choking on blood, a man may sit up with his head held forward and down, or he may lie face down. These positions will allow the blood to drain out of his mouth instead of going down his windpipe. Do not try to force down the wound tablets if the man cannot swallow. Remember to treat for shock.

PROTECT BURN WITH DRESSING OR CLEANEST MATERIAL POSSIBLE.

PREVENT SHOCK AND INFECTION.

GIVE PLENTY OF WATER—IF POSSIBLE WITH SALT.

BURNS . . . Prevent Infection and Shock

Severe burns are just as likely to cause shock as any other severe wound. There is also a great danger of infection. Do not pull clothes away from the burned area; instead cut or tear the clothes and gently lift them off. Do not try to remove pieces of cloth that stick to the skin. If a motor vehicle kit containing burn ointment is available, apply ointment to the burn. Carefully cover the burned area with sterile dressings whenever possible. Never break blisters or touch the burn. It is especially important to treat for shock and to prevent infection by giving wound tablets. The victim should drink lots of water because burns cause a great loss of body fluids. There is also a great loss of body salts. Therefore, if possible, add two salt tablets or a ¼ teaspoonful of loose salt to each canteenful of water. Three or more canteenfuls should be drunk in 24 hours.

Remember, if you don't have water, don't take wound pills.

SIMPLE FRACTURE

COMPOUND FRACTURE

COMPOUND FRACTURE
PRODUCED BY MISSILE

FRACTURES

Prevent Shock and Further Injury

A FRACTURE IS A BROKEN BONE

These are the signs of a broken bone . . .

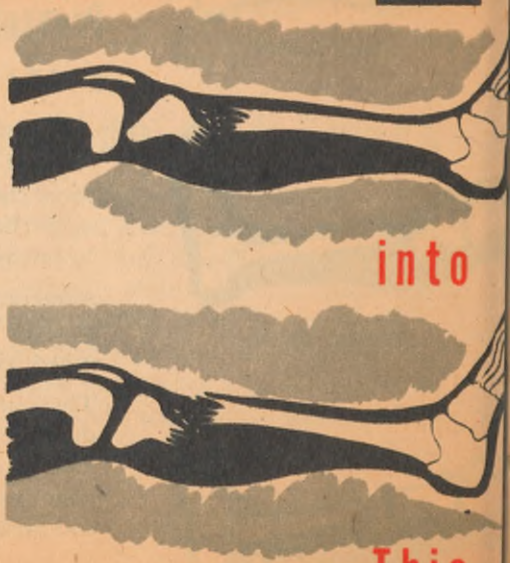
- Tenderness over the injury with pain on movement.
- Inability to move injured part.
- Unnatural shape (deformity).
- Swelling and discoloration.

A fracture may or may not have all these signs. If you aren't sure, give the wounded man the benefit of the doubt and treat the injury as a fracture.

There are two main kinds of fractures: (1) A simple break in the bone and (2) a broken bone with a wound from the outside. The second type, compound fracture, can be caused by a broken bone piercing the skin or by a missile which pierces the flesh and breaks the bone.

Rough handling can change . . . . . This

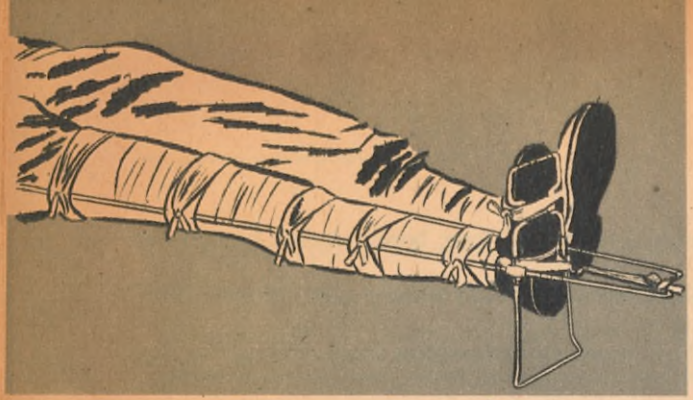
If you think a person has a broken bone, handle him with the greatest care. Rough or careless handling causes pain and increases the likelihood of shock. Furthermore, the cracked ends of the bone are razor-sharp and can cut through muscle, blood vessels, nerves, and skin. So, don't move a man with a fracture unless you have to. In any case, be gentle and keep the fractured part from moving. *If there is a wound with a fracture, treat it as you would any other wound by applying a dressing and giving wound tablets.*



SPLINTING for FRACTURES

Most fractures require splinting. Persons with fractures of long bones should be splinted "where they lie" before movement or transportation of any kind is attempted. Proper splinting greatly relieves the pain of a fracture and often prevents or reduces shock. Fixing the fragments of a broken bone by means of splints prevents the jagged edges of the bone from tearing blood vessels and nerves. In simple fracture (one in which there is no communication between the outside of the skin and the fracture) proper application of a splint will prevent the bone from piercing the skin and changing it into a compound fracture. If the fracture is compound, splinting will prevent further injury to the wound and the introduction of more infection.

7018520—46—4



THE LEG SPLINT

The standard Army leg splint is the best type for fractures of the lower extremity, particularly when applied by trained personnel. Detailed steps for the application of this splint are described in FM 8-50, "Bandaging and Splinting."

First aid in the field may require improvising splints from any material that is handy. The following pages will show the procedure for applying temporary splints.

BROKEN LEG or HIP

The quickest way to splint a broken leg is to tie it to the uninjured leg. Tie both legs together at least in two places above and below the break. You can use a belt, cartridge belt, rifle sling, strips of cloth, or handkerchiefs tied together. Don't move a man with a broken leg unless it is necessary to get him off a road or away from enemy fire. If you must move him, tie his legs together first. Then grasp him by the shoulders and pull him in a straight line. Do not roll him or move him sideways.

LEG SPLINT IMPROVISED WITH BLANKET AND POLES.

SPLINT APPLIED FOR FRACTURED LEG, KNEE, OR ANKLE.

SPLINT APPLIED FOR FRACTURED THIGH OR HIP.

SPLINTS . . . FOR BROKEN LEG, THIGH, OR HIP

If you have time, you can make a good splint for the lower limb by using two long sticks or poles. Roll the sticks into a folded blanket from both sides. This forms a trough in which the leg rests. Bind the splint firmly at several places. Splints for fractures of the leg should extend from a point above the knee to a little below the foot. If the thigh or hip is broken, the inside splint should extend to the crotch and the outside splint should extend to the armpit. Always be sure that the ends of the sticks are well padded.

SPLINTS . . . FOR BROKEN ARM

When possible, keep a broken arm from moving by supporting it with splints. This reduces pain and prevents damage to the tissues. Temporary splints can be made from boards, branches, bayonets, scabbards, etc. Splints should always be padded with some soft material to protect the limb from pressure and rubbing. Bind splints securely at several places above and below the fracture but not so tightly as to stop the flow of blood. It is well to apply two splints, one on either side of the limb. If an injured elbow is bent do not try to straighten it; if straight, do not bend it.

SPLINTS FOR BROKEN WRIST OR FOREARM.

SPLINTS FOR BROKEN ARM.

SINGLE STRAIGHT SPLINT FOR FRACTURE NEAR ELBOW WHEN ELBOW CANNOT BE EASILY BENT.

SLINGS . . .
for Injured Arm or Shoulder

A sling is the quickest way to support a fractured arm or shoulder, a sprained arm, or an arm with a painful injury. You can make a sling several ways.

TURN JACKET OR SHIRT TAIL UP OVER INJURED ARM AND BUTTON IN PLACE.

BINDING ARM TO CHEST WITH A BELT OR CARTRIDGE BELT GIVES ADDITIONAL SUPPORT.

SUPPORT FOREAM IN A SLING MADE FROM A BELT OR STRIPS OF CLOTHING AND BIND ARM TO CHEST.

IN THIS POSITION, BONE FRAGMENTS CUT SPINAL CORD.

IN THIS POSITION, BONE FRAGMENTS ARE IN PROPER PLACE AND WON'T CUT SPINAL CORD.

BROKEN BACK

IT IS OFTEN IMPOSSIBLE TO BE SURE A MAN HAS A BROKEN BACK. BE SUSPICIOUS OF ANY BACK INJURY, ESPECIALLY IF THE BACK HAS BEEN SHARPLY STRUCK OR BENT, OR THE PERSON HAS FALLEN. THE MOST IMPORTANT THING TO REMEMBER IS THAT THE SHARP BONE FRAGMENTS WILL CUT THE SPINAL CORD IF THEY ARE MOVED. THIS WILL CAUSE PERMANENT PARALYSIS OF THE BODY AND LEGS.

FOR A BROKEN BACK

Do...

Support back with a blanket roll, pack, or clothing.

If man must be moved, lift him onto litter or board without bending his back. It is best to have at least three men for this job.

If necessary he may be carried face down in blanket. (See page 59.)

Don't...

Move the victim unless absolutely necessary;
Raise his head even for a drink of water;
Twist his neck or back.

BROKEN NECK

A broken neck is extremely dangerous. Bone fragments may cut the spinal cord just as in the case of a broken back. *Keep victim's head straight and still.* Moving may cause his death.

Keep the head and neck motionless by placing large stones or packs at each side of the head as support. Place a rolled blanket under the neck for support and padding. Don't twist or raise the head at all.

A good way to keep the head in the right position is to wrap two leggings around the neck. They should be laced and the free ends of the laces used to tie the leggings. The same type of splint can be made with a folded shirt, jacket, or newspaper.

If the man must be moved, get help. One person should support the man's head and keep it straight while others lift him. Transport him on a hard stretcher or board.

7018520—46—5

NEVER TURN OVER A MAN WHO HAS A BROKEN NECK.

USE OF MORPHINE

If pain is severe, Give Morphine

Morphine comes in small collapsible tubes called *morphine syrettes.* Morphine not only relieves pain, but helps decrease shock. It puts an injured man in a better condition to be moved.

To use the morphine syrette:

PAINT SKIN WITH IODINE.

REMOVE HOOD, PUSH IN WIRE LOOP TO BREAK SEAL.

DON'T TOUCH NEEDLE.

THRUST NEEDLE TO AT LEAST ONE-HALF ITS LENGTH IN ARM, LEG, OR BELLY. SQUEEZE OUT ALL THE MORPHINE. REMOVE NEEDLE.

Don't use Morphine

. . . WITHIN 2 HOURS OF A PREVIOUS INJECTION

. . . WHEN SOLDIER IS UNCONSCIOUS

. . . WHEN SOLDIER HAS A HEAD INJURY

. . . WHEN SOLDIER BREATHES LESS THAN 12 TIMES A MINUTE

GAS CASUALTIES

You are provided with equipment with which you can protect yourself against poisonous gas. You are issued a gas mask, Protective Ointment for the skin, and BAL Eye Ointment for the eyes. When considered necessary, you may also be issued protective clothing, protective covers, eye shields, and a protective material to put on your shoes. You must know the correct use of these *protective measures*. In addition, you must know the proper first aid measures, after exposure, as well as the care that must be taken to prevent further contamination if gas is still present. Keep the gas mask on unless you are sure the area is clear of gas.

When without protective clothing, in an emergency, apply Protective Ointment to all parts of the body, especially the areas sensitive to mustard vapor such as the genitalia, groin, and armpits. Keep Protective Ointment away from the eyes.

BLISTER GAS

If a liquid blister gas, such as liquid mustard, gets on the skin, *blot* off the liquid with the gauze which comes with each tube of protective ointment. Do not rub the mustard into your skin or spread it. Discard the gauze after using. Next, apply some protective ointment over the

USE PROTECTIVE OINTMENT FOR SKIN

USE BAL EYE OINTMENT FOR EYES

area and rub it into your skin. Wipe off the excess ointment with clean gauze. Apply some fresh ointment and allow it to remain. This must be done within a few minutes after exposure. the sooner the better.

If a liquid blister gas gets in your eye, apply some BAL Eye Ointment inside the lower lid. Close your eye and rub for 1 minute. Then flush your eye with water from the canteen for at least 30 seconds. If your eye cannot be opened, apply some ointment to the edge of the lower lid and rub it in. Some will get underneath the lid. When the eye can be opened, apply the BAL Eye Ointment and water as usual.

Choking Gases. If exposed to a choking gas such as chlorpicrin or phosgene, put on gas mask at once. These gases cause crying, choking, coughing, and a tight feeling in the chest. Casualties must rest and keep warm as long as the symptoms last, and must not smoke.

Blood and Nerve Poisons. Put on gas mask at once. Otherwise severe symptoms like convulsions and paralysis may develop. If breathing stops, artificial respiration should be given. (See page 53.) Amyl nitrite is given to counteract the effects of cyanides (one group of these poisons). Crush two amyl nitrite ampoules (supplied in gas casualty kits). Place them inside victim's gas mask. Repeat this measure at least three times at intervals of 3 or 4 minutes.

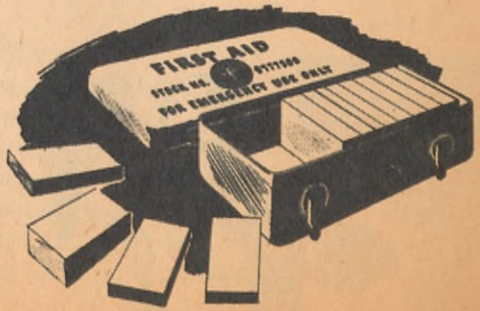
Tear Gases. The effects of tear gas are temporary and disappear when fresh air is reached, or if gas mask is put on and kept on.

Vomiting Gases. Sneezing, nausea, and vomiting caused by these gases are not dangerous. Put on gas mask. Lift the gas mask away from face, in order to vomit, then replace mask immediately. Inhaling chloroform (supplied in gas casualty kits) relieves symptoms.

White Phosphorus. Burning pieces of phosphorus on the skin should be immediately extinguished by covering with water from the canteen. To prevent further burning wet a *copper sulphate pad* with water and apply to the phosphorus. Wring the copper sulphate solution out of the pad on to the phosphorus. Remove particles of phosphorus by gentle rubbing with the pad.

COMMON EMERGENCIES

In addition to the first aid pouch which every soldier carries, special *first aid kits* will often be available. These are for use in common emergencies like small burns, cuts, and eye injuries. First aid kits supplied to many motor vehicles contain tourniquets, iodine swabs, adhesive plaster, burn ointment, eye ointment, and dressings. Learn to use them correctly and efficiently. Directions are included with each kit.



SMALL MOTOR VEHICLE KIT

Minor Wounds and Burns

Small wounds, such as cuts, usually do not bleed very much, and will stop bleeding once a dressing has been applied. Infection is the principal danger, so any break in the skin should be protected. Do not touch a wound with the fingers or allow clothes to touch it. Keep it clean.

Apply a dressing over the wound. There are various sized dressings in the motor vehicle and other first aid kits. Pick out a size which is large enough to cover the wound adequately. Be careful not to touch the inside of the dressing with the fingers.

Small burns are a frequent accident and, unless properly protected, often become infected. Burns may be caused by dry heat, hot liquids, chemicals, or electricity. Severe sunburn requires similar first aid measures. If a first aid kit containing burn ointment is available, apply ointment over the burn using the wooden applicator. Cover the burned area with a dressing of suitable size. If no ointment is available, at least cover the burn with the dressing from your first aid packet. If the burn is very extensive, take wound pills and drink plenty of water (see page 18).

PROTECT CUTS WITH A DRESSING.

COVER BURNS WITH BURN OINTMENT AND DRESSING.

FOREIGN BODY IN EYE

If a particle gets in the eye, do not rub the eye. Close it for a few minutes and tears may wash away the object. If not, have someone examine the eye as follows:

1. INSPECT EYEBALL AND LOWER LID. GENTLY REMOVE OBJECT WITH A MOIST CLEAN CORNER OF HANDKERCHIEF.

2. IF OBJECT IS NOT IN LOWER LID, INSPECT UPPER LID. GRASP EYELASHES WITH THUMB AND INDEX FINGER. PLACE MATCH-STICK OR SMALL TWIG OVER LID.

3. PULL LID UP OVER STICK. EXAMINE INSIDE OF LID WHILE MAN LOOKS DOWN.
4. GENTLY REMOVE PARTICLE WITH A CLEAN CORNER OF HANDKERCHIEF.

Foreign Body in Ear, Nose, or Throat

Never probe with a pin, wire, or stick for an object in the ear. Let the medical officer get it out. An insect in the ear may be killed with a few drops of oil or water. Many other objects may be flushed out the same way. However, if the object is something which swells when wet (such as a bean), do not put water into the ear.

Probing into the nose will merely jam the foreign body tighter. Try to loosen it by gently blowing the nose. If this doesn't work, wait until you see a medical officer. Objects in the nose are usually not dangerous.

If you can reach a foreign body in your throat with the finger, it may be picked out. Hold your head down when you do this. Be careful not to push the object down farther.

CARE OF FEET

Soldiers have to use their feet constantly. Prevention of foot trouble is the best first aid for feet.

Keep feet clean. Drying the feet thoroughly, especially between the toes, after bathing helps prevent "athlete's foot". For itching or redness between the toes, apply GI foot powder twice daily.

If it does not improve, see your medical officer. Don't try to treat it yourself. Don't cut a callous or corn unless you want to risk a serious infection. Report to your medical officer instead.

To avoid ingrown toenails, keep toenails clean and short, cut them straight across.

Dust feet with GI foot powder after bathing and before a march Foot powder absorbs perspiration and prevents chafing.

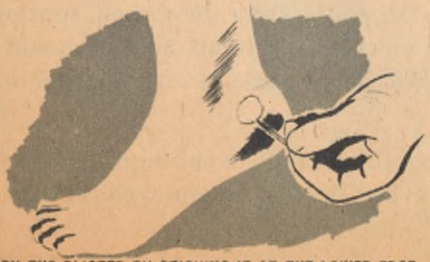
Put on clean socks every day if possible. Don't wear socks that have holes, are poorly darned, or don't fit properly.

Break in shoes before wearing them on a march.

If a *blister* develops and a medical officer is not available:

1. WASH THE BLISTER WITH SOAP AND WATER.

2. STERILIZE A NEEDLE BY HEATING IT IN A FLAME.



3. OPEN THE BLISTER BY STICKING IT AT THE LOWER EDGE.

4. COVER WITH BAND-AID OR ADHESIVE PLASTER.

SNAKE BITE

Poisonous snake bites must be given immediate attention. The person who is bitten should remain as quiet as possible and not walk or run about. If possible, kill and keep the snake so that it can be identified and proper medicine given by a medical officer. However, giving first aid immediately is the most important thing to do.

If person is bitten on an arm or leg, improvise a tourniquet and apply it above the elbow or knee joint, between the bite and the heart. The tourniquet must be tight enough to stop the flow of blood returning to the heart.

Now, make a cross-cut over *each* fang mark long enough and deep enough to allow free bleeding—about ¼ inch long and ¼ inch deep. Suck the poison from the wound, spitting it out frequently. Snake poison is harmless in the mouth unless there are cuts. Suction should be kept up for at least 1 hour with the tourniquet on. A snake-bit victim can do all these things for himself.

If the bite is on a part of the body where it is impossible to apply a tourniquet, make the cross incisions and apply suction just the same. After giving first aid, obtain medical help as soon as possible.

APPLY TOURNIQUET

MAKE CROSS INCISIONS

DO THIS

SUCK OUT POISON

DON'T DO THIS

DON'T RUN ABOUT

POISON PLANTS

SCRUB THOROUGHLY WITH SOAP AND WATE

Poison ivy, poison oak, and poison sumac cause skin irritation. Learn to recognize the plants so you will know when you have touched them and can start first aid before a rash appears. The sooner you give first aid after exposure, the milder the effects will be. Poison ivy is a creeper having three leaves on each stem. The leaves are shiny, pointed, and have prominent veins. Poison oak and poison sumac are shrubs or small trees. If you discover that you have been exposed to a poison plant, wash the affected parts of the body promptly and thoroughly with water and strong soap. GI soap is very good. The rash starts with redness and intense itching. Later little blisters appear. If a rash has already developed, do not wash it. Avoid scratching for it will make the condition worse. Seek medical attention.

POISON IVY

POISON OAK

POISON SUMAC

UNCONSCIOUSNESS

It is often impossible to find out the cause of unconsciousness. Bleeding, heat stroke, or head injury may have been the cause. Give victim the first aid which this manual indicates for such conditions.

If you aren't sure of the cause, keep the person lying down. Do not move him unless absolutely necessary, and then do so very carefully. If he is cold, see that he gets warm. If he has suffered the effects of excessive heat, give him first aid accordingly. Do not pour liquids into the mouth of an unconscious person. If you do, you may choke him. Remove false teeth, chewing gum, or other objects from his mouth which might choke him. Take off his equipment. Loosen his clothing. Get a medical officer.

If the man has merely *fainted,* he will regain consciousness in a few minutes. Let him lie quietly. Loosen his clothing. Apply a wet, cool cloth to his face. If he is about to faint or has actually fainted while sitting up, lower his head between his knees so that the blood may flow to his head. Hold him so that he does not fall and injure himself.

EFFECTS OF HEAT

The effects of heat can often be prevented by keeping living and working quarters as cool as possible, by keeping the head and body covered when in the sun; by wearing light, loose-fitting clothes; by taking plenty of salt with food; and by drinking enough water to which salt tablets have been added.

Heat Exhaustion results from excessive loss of water and salt by the body. This causes profuse sweating, paleness, dizziness and faintness. Remove to shade, loosen clothing and give salt and water.

Heatstroke, a very serious condition with a high death rate is characterized by extremely high body temperature and unconsciousness. In hot surroundings cessation of sweating with hot dry skin should serve as a warning. Treat by lowering body temperature with use of shade, removing clothing and immersion in or sprinkling with cool or cold water. Seek aid of medical officer immediately.

Heat Cramps occur when a person has been sweating a great deal and hasn't been taking extra amounts of salt. He may be seized with muscle cramps, especially of the intestines, abdominal wall, arms, or legs. Frequently he vomits and is very weak. Give man large amounts of salt water.

If a man is knocked out by heat:

- CARRY HIM TO A COOL SHADY PLACE AND REMOVE HIS CLOTHING.
- SPRINKLE HIM WITH LOTS OF COOL WATER.
- KEEP FANNING HIM WITH HIS SHIRT.
- WHEN HE BECOMES CONSCIOUS, GIVE HIM COOL SALT WATER TO DRINK.

  Make this by dissolving two salt tablets or ¼ teaspoon of table salt in a canteen of water. He should drink three to five canteenfuls in 12 hours.

WHILE FIRST AID IS BEING GIVEN GET MEDICAL HELP OR ARRANGE TO GET THE VICTIM TO MEDICAL HELP.

EFFECTS OF COLD

Trench foot is a serious condition resulting from cold and moisture. It is so named because it often follows prolonged standing in cold, wet trenches or fox holes. Merely wearing wet socks and footgear for a long time will also cause it. Trench foot may be so serious that the feet have to be amputated. *You can prevent trench foot.* This is the way:

Avoid standing in water, snow, or mud-soaked areas as much as possible. If the trench or fox hole contains water, bail it out or put some stones or branches at the bottom on which to stand. If you lie down, try to prop your feet up on a large rock or your pack. This position will keep your feet dry and will help remove congestion due to long periods of standing.

Exercise your feet and legs whenever possible. If you can't do anything else, move your toes and ankles about in your shoes. Avoid cramped positions.

Massage your feet at least once every day. Do it yourself or "pair off" with another soldier and massage each other's feet. A gentle massage for several minutes will help warm your feet and restore circulation. Put on dry socks.

AVOID STANDING IN WATER, SNOW OR MUD WHEN POSSIBLE.

EXERCISE FEET.

MASSAGE FEET ONCE DAILY.

DRY FEET AND SOCKS AS OFTEN AS POSSIBLE.

Clean and dry your feet and socks at least once daily. Every soldier should carry an extra pair of dry woolen socks and should put them on as soon as possible after his feet have become wet and cold. Dry the feet thoroughly especially between the toes, and dry the inside of your shoes as much as possible.

Avoid socks, shoes, and leggings which are tight for these will interfere with the blood circulation. Loosen your leggings while massaging your feet.

FROSTBITE

Frostbite or freezing of a part of the body can be avoided by wearing warm clothing and keeping dry. Proper footgear and mittens are especially important. If any part of the clothing becomes wet, it must be dried or changed at once. Remember that you can get overheated and perspire in cold climates and this perspiration will freeze inside your clothes later on. Avoid this by not wearing too heavy clothing when you are exercising, or by opening your clothing to allow air circulation so that the moisture will escape.

Do not touch cold metal such as your mess gear or canteen with bare hands or lips. Skin immediately freezes to such surfaces; to release it, warm the metal.

If a part of the body gets frostbitten, it becomes grayish or white and loses feeling. Frequently there is no pain so keep watching your face and hands, and those of your companions, for signs. The face, hands, and feet are the parts most frequently frostbitten.

Thaw a frost-bitten part slowly. Put it next to a warm part of your own body or next to the warm part of someone else's body. For example, put your right hand under your left armpit; then cover the part with extra clothing or blankets.

WEAR WARM, DRY CLOTHING.

THAW FROZEN PART NEXT TO WARM AREA OF BODY.

BANDAGE, ELEVATE, AND KEEP IT MOTIONLESS.

If pain becomes too severe while a part is thawing, slow the thawing by exposing the part to cool air or water.

Do *not* rub or bend a frost-bitten part of the body. Do *not* rub with snow or ice. Do *not* dip it into warm water or bring it close to a fire.

A room into which a frost-bitten person is brought should be only moderately warm. Wrap the person in blankets and give warm drinks.

After the part has thawed, wrap it in sterile dressings. Put it in an elevated position (arm in a sling), and keep it at rest. Do not open blisters. Get a medical officer.

DROWNING

Always try to revive a person who seems to be drowned. Start artificial respiration immediately. Raise his hips to allow water in the air passages to drain out. Then lay him face down. Force his mouth open, pull his tongue forward, and remove false teeth or debris from mouth and throat. His head should rest on one arm while the other arm extends above his head.

Kneel astride the person's thighs. Place your hands on the small of his back, as far to the side as possible without slipping off. Your little fingers should just touch his lowest ribs. Swing forward slowly so that the weight of your body is gradually brought to bear upon the person. This procedure should take about 2 seconds—long enough to say "one thousand and one, one thousand and two." Now swing backward quickly, so as to remove all pressure completely and suddenly. After about 2 seconds—long enough to say "one thousand and three, one thousand and four"—repeat the procedure from 12 to 15 times a minute, no faster.

Keep up artificial respiration for 2 hours or longer without stopping, unless the victim begins to breathe normally sooner. You will not get tired so quickly if you take turns with another person. Do not break rhythm in changing. Wrap the victim in a blanket. When he is conscious, give him a warm drink such as coffee or tea.

A

B

C

"ONE THOUSAND AND ONE, ONE THOUSAND AND TWO"

D

"ONE THOUSAND AND THREE, ONE THOUSAND AND FOUR"

REMOVE FROM WIRE.

GIVE ARTIFICIAL RESPIRATION.

ELECTRIC SHOCK

Electric shock is a frequent accident resulting from contact with a "live" wire. Being struck by lightning is not so common. If a person has come in contact with an electric current, turn off the switch if it is nearby; but do not waste time looking for it.

Use a dry wooden pole, dry clothing, dry rope, or some other material which will not conduct electricity, to remove the person from the wire. If a pole is not handy, simply drag him off the wire by means of a loop of dry cloth. Don't touch wire or man with your bare hands or you will get a shock, too.

Electric shock causes breathing to cease, so start artificial respiration *immediately*, and keep it up for not less than 2 hours, just as for drowning.

OPEN GARAGE DOORS WHEN RUNNING ENGINE.

VENTILATE ROOM OR TENT HAVING STOVES.

VENTILATE CAB OF VEHICLE WHEN RUNNING MOTOR.

CARBON MONOXIDE POISONING

Carbon monoxide gas has no odor and kills without warning. Poisoning from this gas occurs most often from breathing motor vehicle exhaust gas. This happens frequently from running the engine with garage doors closed or from sitting in a vehicle with the windows closed and the motor running, especially when the exhaust becomes clogged, as with snow. The same gas is formed by stoves in poorly ventilated shelters.

The symptoms may be dizziness, weakness, headache, vomiting—then unconsciousness.

If a person is overcome with carbon monoxide, get him out into fresh air and start artificial respiration immediately. Keep him quiet.

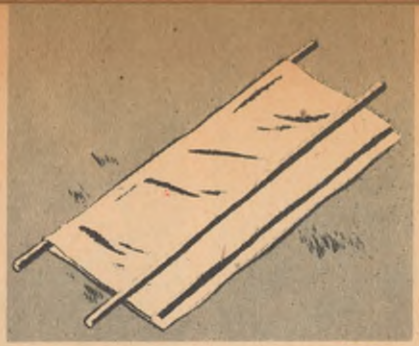
There is no excuse for carbon monoxide poisoning. It results from carelessness. Prevent it.

TRANSPORTATION OF SICK AND WOUNDED

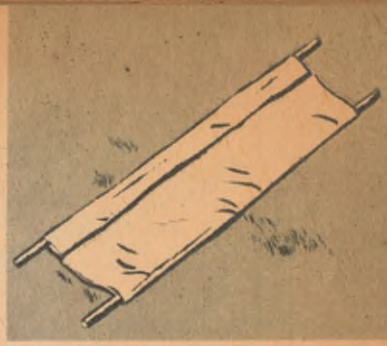
Knowing how to move seriously injured persons is one of the most important parts of first aid. Careless or rough handling not only may increase the seriousness of an injury, but may even result in death. Unless there is a good reason for immediately moving an injured person, do *not* transport him until a litter or ambulance is available. Sometimes when the situation is urgent and you know that no medical facilities are available, you will have to move the victim yourself. That is why you ought to know the different ways of carrying casualties. Always give necessary first aid before attempting to move the wounded soldier.

If the casualty has a broken bone, never attempt to move him unless you have splinted it.

OPEN BLANKET. LAY ONE POLE LENGTHWISE ACROSS THE CENTER AND FOLD BLANKET OVER IT.



PLACE SECOND POLE ACROSS CENTER OF NEW FOLD.



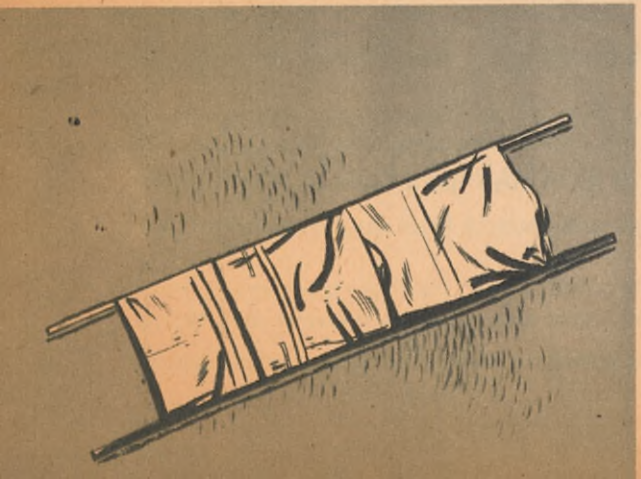
FOLD FREE EDGES OF BLANKET OVER SECOND POLE.

IMPROVISED LITTERS

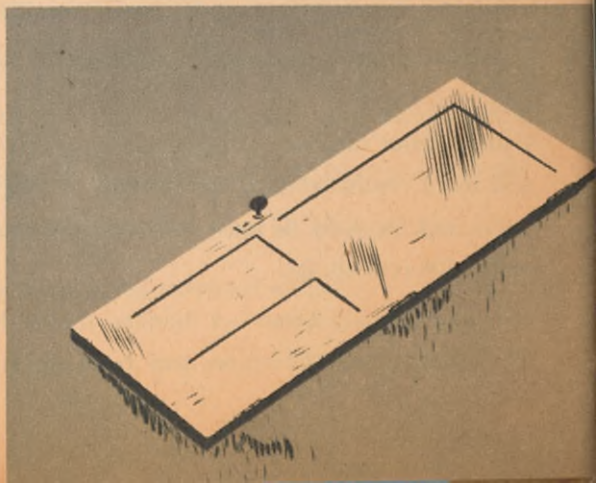
Using a litter not only makes it easier to carry the casualty but also makes the journey safer and more comfortable. If the distance is long, or the patient has a fracture of the leg, hip, back, neck, or skull, he must not be moved except on a litter. A litter can be improvised from many different things.

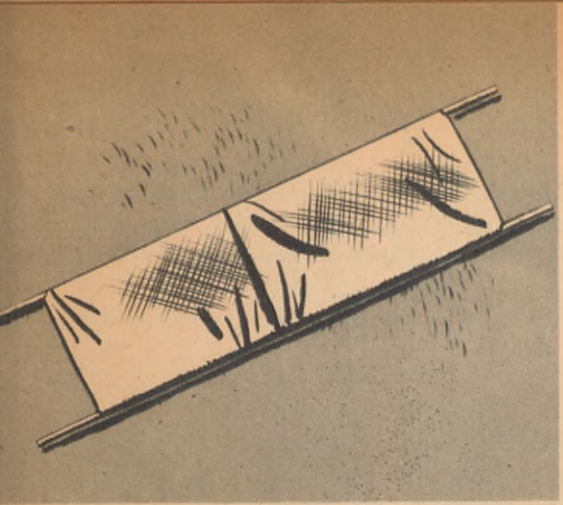
Pole and Blanket Litter.—A blanket, shelter half, tarpaulin, or other material may be used for the litter bed. The poles may be made from strong branches, tent poles, rifles, skis, etc.

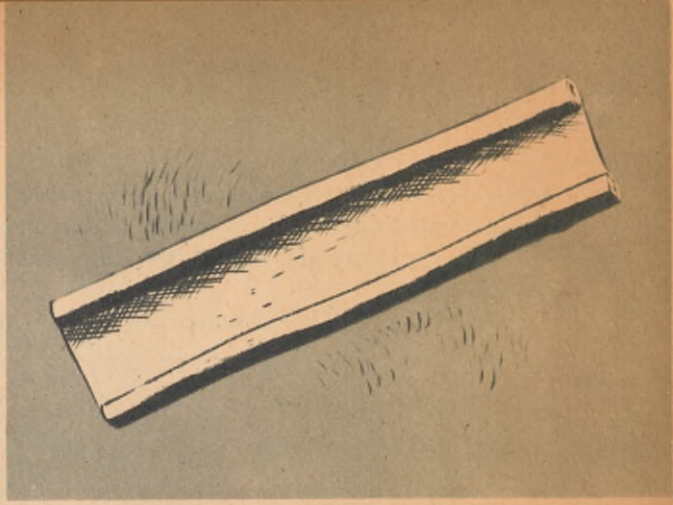
POLE AND JACKET LITTER—FOLD TWO OR THREE BLOUSES, SHIRTS, OR FIELD JACKETS SO THAT THE LINING IS OUTSIDE. BUTTON THEM UP WITH SLEEVES IN. PASS A POLE THROUGH EACH SLEEVE.



DOOR OR BOARD LITTER—USE ANY PLANE-SURFACED OBJECT OF SUITABLE SIZE, SUCH AS COTS, WINDOW SHUTTERS, DOORS, BENCHES, LADDERS, BOARDS, OR POLES TIED TOGETHER. PAD THE LITTER IF POSSIBLE.







POLE AND SACK LITTER—RIP OPEN THE BOTTOMS OR CUT THE CORNERS OF SACKS, BAGS, BEDTICKS, OR MATTRESS COVERS. PASS TWO POLES THROUGH THEM.

BLANKET LITTER—IF NO POLES CAN BE OBTAINED, ROLL A BLANKET, SHELTER HALF, OR TARPAULIN FROM BOTH SIDES TOWARD THE CENTER. USE THE ROLLS AS GRIPS WHEN CARRYING PATIENT.

CARRIES

Several ways by which a casualty may be moved without a litter are shown below. Some of these carries require only one man, others require two. Methods of dragging a casualty when enemy fire is overhead are also shown. Use the carry which is easiest for you and which is best for the situation.

Fireman's Carry.—The fireman's carry is the easiest method for one man to carry another, even an unconscious man.

TURN MAN FACE DOWN ON GROUND AND SUPPORT HIS HEAD ON HIS ARM.

STRADDLE MAN AND (PLACING YOUR HANDS UNDER HIS ARMPITS) LIFT HIM TO STANDING POSITION.

SUPPORT MAN BY ARM AROUND HIS WAIST AND STEP TO HIS FRONT.

GRASP MAN'S RIGHT HAND WITH YOUR LEFT HAND. BEND AT THE WAIST, PULLING HIS RIGHT ARM AROUND THE BACK OF YOUR NECK SO THAT HIS BODY COMES ACROSS YOUR BACK. GRASP HIS LEGS AT THE KNEES WITH YOUR RIGHT ARM.

LIFT MAN OFF THE GROUND AS YOU STRAIGHTEN UP. HOLD HIS RIGHT WRIST IN YOUR LEFT HAND AND HIS KNEES IN YOUR RIGHT HAND.

THEN GRASP MAN'S RIGHT HAND, LEAVING YOUR LEFT HAND FREE. THIS IS THE POSITION OF CARRY. A MAN CAN BE CARRIED SOME DISTANCE IN THIS MANNER.

After getting a man off the ground by using the first three steps of the fireman's carry, you can use any of the following one-man carries:

SUPPORTING CARRY—SEIZE THE MAN'S LEFT (RIGHT) WRIST WITH YOUR LEFT (RIGHT) HAND AND DRAW HIS ARM AROUND YOUR NECK. THEN THE MAN CAN WALK, USING YOU AS A CRUTCH. THIS CARRY IS USEFUL WHEN THE MAN IS ONLY SLIGHTLY HURT, AS IN FOOT AND ANKLE INJURIES.

ARMS CARRY—THIS IS GOOD FOR SHORT DISTANCES. CARRY THE PATIENT HIGH TO LESSEN FATIGUE. NEVER USE THIS CARRY WHEN THE MAN HAS A BROKEN BACK OR LEG.

SADDLE-BACK CARRY—AFTER GETTING THE MAN UP, KEEP A HOLD ON HIS ARM AND STEP IN FRONT OF HIM. THEN STOOP AND RAISE HIM UPON YOUR BACK. HAVE THE MAN ENCIRCLE YOUR NECK WITH HIS ARMS. CLASP YOUR HANDS BENEATH HIS THIGHS.

PACK-STRAP CARRY—AFTER RAISING THE MAN, STEP IN FRONT OF HIM. GRASP HIS WRISTS WITH YOUR HANDS AND HOIST HIM SO THAT HIS ARMPITS ARE OVER YOUR SHOULDERS. THIS IS A GOOD WAY OF CARRYING AN UNCONSCIOUS MAN. DO NOT USE IF THE MAN HAS ANY BROKEN BONES.

DOUBLE-BELT CARRY—THIS CARRY TAKES TWO BEARERS. FOUR PISTOL BELTS (OR SIMILAR OBJECTS) ARE REQUIRED. FORM TWO CONTINUOUS SLINGS OF TWO BELTS EACH. SLIP ONE LOOP AROUND EACH OF THE MAN'S LEGS. ONE BEARER SLIPS A LOOP OVER HIS RIGHT SHOULDER, THE OTHER BEARER SLIPS A LOOP OVER HIS LEFT SHOULDER. THEN THEY RAISE THE MAN AND PROCEED.

BACK LIFT AND CARRY—FOR THIS CARRY, THE MAN MUST BE CONSCIOUS AND ABLE TO STAND ON ONE LEG. AFTER RAISING HIM TO A STANDING POSITION, PLACE YOURSELF BACK TO BACK WITH HIM. HAVE HIM STRETCH OUT HIS ARMS SIDEWAYS. BEND DOWN, PUT YOUR HANDS UNDER HIS ARMS, AND GRIP HIS UPPER ARMS. BEND FORWARD, PULLING HIM ONTO YOUR BACK.

PISTOL-BELT CARRY—LINK TOGETHER TWO PISTOL BELTS INTO A CONTINUOUS BELT. PLACE IT UNDER THE MAN'S THIGHS AND HIPS SO THAT A LOOP EXTENDS FROM EACH SIDE.

LIE BETWEEN THE MAN'S OUTSTRETCHED LEGS. THRUST YOUR ARMS THROUGH THE BELT LOOPS. GRASP THE MAN'S RIGHT HAND WITH YOUR LEFT HAND AND HIS RIGHT LEG WITH YOUR RIGHT HAND.

THEN ROLLING TOWARD THE LEFT SIDE, TURN FACE DOWNWARD, CARRYING THE WOUNDED MAN ONTO YOUR BACK. ADJUST SLINGS BEFORE PROCEEDING. IF THE MAN HAS AN INJURY ON THE LEFT SIDE, GRASP THE MAN'S LEFT HAND WITH YOUR RIGHT HAND AND HIS LEFT LEG WITH YOUR LEFT HAND.

THEN RISE TO KNEELING POSITION. THE CONTINUOUS BELT WILL HOLD THE MAN IN PLACE.

PLACE ONE HAND ON YOUR KNEE FOR SUPPORT, THEN STAND UP. THE MAN IS NOW SUPPORTED ON YOUR SHOULDERS.

YOUR HANDS ARE FREE TO HELP YOU CLIMB STEEP BANKS AND GET OVER OTHER OBSTACLES. BOTH YOU AND THE MAN YOU CARRY CAN FIRE RIFLES.

THE NECK DRAG—TIE MAN'S HANDS AROUND YOUR NECK. THIS ENABLES YOU TO CRAWL ALONG, DRAGGING THE MAN, WHO MAY BE UNCONSCIOUS. THE ADVANTAGE OF THIS METHOD IS THAT BOTH YOU AND THE MAN YOU ARE CARRYING CAN REMAIN LOW ON THE GROUND. THUS YOU ARE PROTECTED, IF IN BATTLE. *NEVER* ATTEMPT TO DRAG A MAN WITH A BROKEN NECK OR BACK.

DOUBLE-SLING DRAG—EXTEND TWO PISTOL BELTS AND JOIN THEM IN ONE CONTINUOUS SLING. AFTER PLACING THE MAN ON HIS BACK, PASS A LOOP OF THE SLING OVER HIS HEAD AND WORK IT INTO POSITION ACROSS HIS CHEST AND UNDER HIS ARMPITS. THEN CROSS THE SLING STRAPS UNDER THE MAN'S HEAD. LIE ON YOUR STOMACH SLIGHTLY FORWARD TO THE MAN'S LEFT. SLIP THE SECOND LOOP OF THE SLING OVER YOUR ARM AND SHOULDER. THEN ADVANCE BY CRAWLING, DRAGGING THE MAN WITH YOU. THIS CARRY PERMITS BOTH YOU AND THE MAN CARRIED TO REMAIN ON THE GROUND, PROTECTED FROM ENEMY FIRE. IT CAN BE USED ONLY FOR VERY SHORT DISTANCES.

☆ U. S. GOVERNMENT PRINTING OFFICE: 1941—[illegible]