HIKING AND CAMPING EQUIPMENT

No. 26-042

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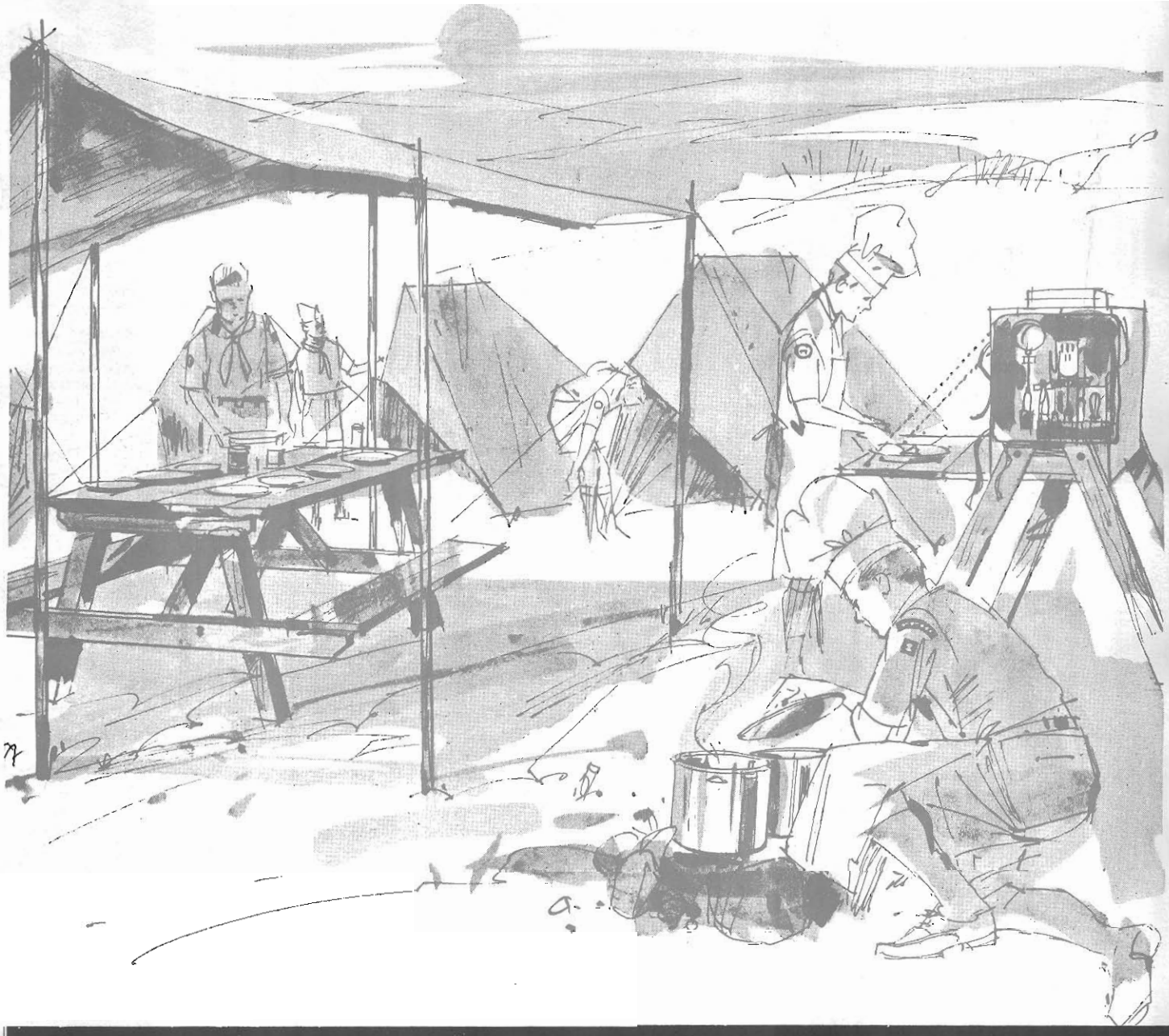
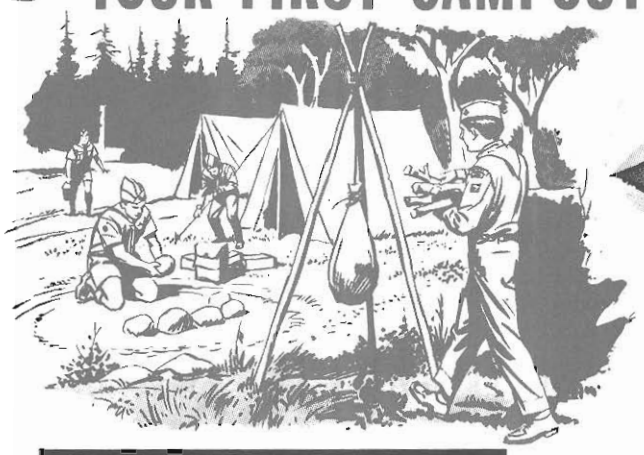


1975 Printing

SCOUTCRAFT

YOUR FIRST CAMPOUT

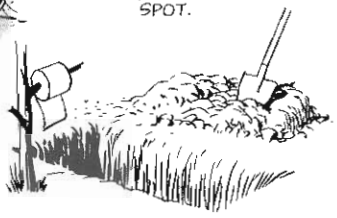


CHOOSING THE SITE

LOOK FOR A FAIRLY OPEN SPOT WHERE THE GROUND SLOPES GENTLY SO THAT RAINWATER DRAINS OFF QUICKLY. GRASS-COVERED, SANDY OR GRAVELLY GROUND IS BEST. THE SITE SHOULD BE NEAR WOODS, BUT NOT DIRECTLY UNDER TREES. SAFE DRINKING AND COOKING WATER SHOULD BE NEARBY.

A LAKE OR A STREAM WILL PROVIDE WATER FOR WASHING MESS GEAR. BUT DON'T WASH POTS OR MESS GEAR **IN** THE LAKE OR STREAM. PURIFY THIS WATER BEFORE DRINKING.

DON'T DIG A TRENCH AROUND YOUR TENT. IT'S UNNECESSARY IF YOU'VE CHOSEN A SUITABLE, WELL-DRAINED SPOT.



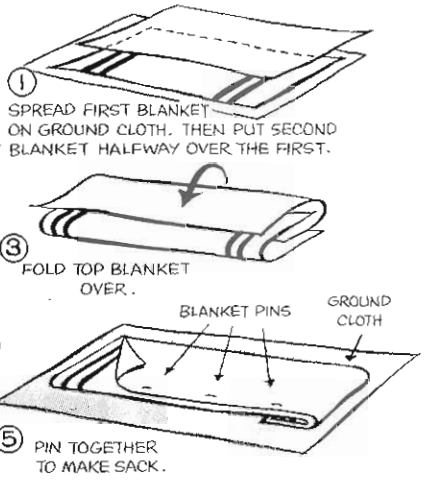
DIG A STRADDLE LATRINE IN THE BUSHES DOWNWIND FROM CAMP AND AT LEAST 75 FEET FROM ANY WATER. SAVE ALL DIRT FOR LIGHT COVER AFTER EACH USE, AND FOR REFILLING LATRINE BEFORE YOU LEAVE CAMP FOR GOOD. REPLACE SOD.

FOR MORE INFORMATION, CHECK YOUR **BOY SCOUT HANDBOOK,** THE **FIELDBOOK** AND THE **CAMPING** MERIT BADGE PAMPHLET.

A COMFORTABLE GROUND BED

SMOOTH OUT BUMPS AND REMOVE STONES FROM YOUR SLEEPING AREA. INSTEAD OF DIGGING HIP AND SHOULDER HOLLOWS, COVER YOUR BED AREA WITH LEAVES, STRAW, GRASS, OR PINE NEEDLES. PACK EXTRA PADDING WHERE YOUR BACK, HEAD AND MIDDLE THIGHS WILL LIE. SPREAD YOUR GROUND CLOTH OVER IT ALL. LAY YOUR SLEEPING BAG ON THIS—OR MAKE THIS BED SACK WITH TWO BLANKETS AND LARGE BLANKET PINS.

BLANKET BED SACK



1. SPREAD FIRST BLANKET ON GROUND CLOTH. THEN PUT SECOND BLANKET HALFWAY OVER THE FIRST.
2. FOLD BOTTOM BLANKET HALFWAY OVER TOP ONE.
3. FOLD TOP BLANKET OVER.
4. FOLD BACK FOOT PART OF BOTH BLANKETS.
5. PIN TOGETHER TO MAKE SACK.

A SHEET OF POLYETHYLENE (A PLASTIC) 4-6 MIL THICK MAKES A GOOD GROUND CLOTH. **OR** YOU CAN USE AN AIR MATTRESS INFLATED JUST ENOUGH TO KEEP YOUR BODY OFF THE GROUND. **OR** USE A PIECE OF POLYFOAM 3" THICK BY 24" WIDE AND THE LENGTH FROM YOUR HEAD TO SEAT. A GROUND CLOTH HELPS INSULATE YOU FROM DAMPNESS AND COLD.

MAKE THIS HANDY POCKET LIST OF PERSONAL EQUIPMENT TO TAKE WITH YOU. CUT IT OUT, FOLD BACK TO BACK, THEN LAMINATE IT IN PLASTIC. CHECK OFF THE ITEMS WITH A GREASE PENCIL AS YOU PACK. WIPE OFF FOR NEXT USE.

CAMPOUT CHECKLIST

WEAR
- ☐ COMPLETE UNIFORM
- ☐ HIKING SHOES
- ☐ SWEATER or JACKET
- ☐ RAINCOAT or PONCHO

CARRY IN POCKETS
- ☐ SCOUT KNIFE
- ☐ MATCHES (IN WATER-PROOF CASE)
- ☐ HANDKERCHIEF
- ☐ WALLET (INCLUDE DIMES FOR PHONE)
- ☐ INDIVIDUAL TOILET PAPER
- ☐ COMPASS
- ☐ 2 or 3 BAND-AIDS

FASTEN TO OR INSIDE YOUR PACK
- ☐ REPAIR KIT (NEEDLES, THREAD, ETC.)
- ☐ EATING UTENSILS
- ☐ FLASHLIGHT (CHECK BATTERIES)
- ☐ SLEEPING BAG (OR 2-3 BLANKETS)
- ☐ WATERPROOF GROUND CLOTH
- ☐ MOCCASINS or SNEAKERS
- ☐ CLOTHESBAG WITH:
- ☐ EXTRA SHIRT
- ☐ EXTRA PANTS
- ☐ PAJAMAS or SWEAT SUIT
- ☐ EXTRA HANDKERCHIEFS
- ☐ EXTRA SOCKS
- ☐ CHANGE OF UNDERWEAR
- ☐ TOILET KIT CONTAINING:
- ☐ WASH CLOTH ☐ COMB
- ☐ SOAP ☐ HAND TOWEL
- ☐ BATH TOWEL
- ☐ TOOTHBRUSH & TOOTHPASTE
- ☐ WASH BASIN (PLASTIC OR CANVAS)

OPTIONAL ITEMS
- ☐ WATCH ☐ SWIM TRUNKS
- ☐ CAMERA, FILM ☐ CANTEEN
- ☐ NOTEBOOK, PENCIL ☐ MAP
- ☐ FIRST AID KIT
- ☐ SCOUT HANDBOOK or FIELD-BOOK
- ☐ MOSQUITO DOPE & NETTING
- ☐ LENGTH of LINE or ROPE

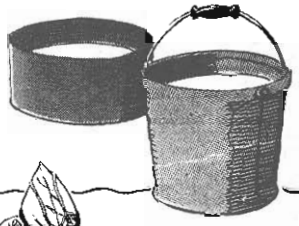
SCOUTCRAFT

CLEAN UP FOR HEALTH AND FIRE SAFETY!

PERSONAL CLEANLINESS

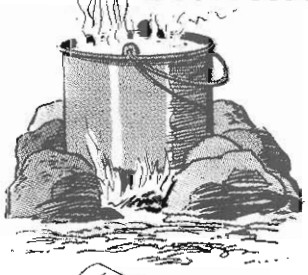
IS IMPORTANT BEFORE PREPARING MEALS, BEFORE EATING AND AFTER USING TOILET FACILITIES.

DON'T WASH WITH SOAP IN A LAKE OR STREAM. THAT CAUSES WATER POLLUTION.



A PLASTIC WASHBASIN OR A FOLDING TEN-QUART CANVAS BUCKET FOR PERSONAL WASHUPS SHOULD BE STANDARD EQUIPMENT ON ALL HIKES AND TEMPORARY CAMP HIKES.

DISHWASHING



ONE OF THE FIRST THINGS AT CAMP IS TO PREPARE HOT WATER. WELL BEFORE CHOW TIME PUT A LARGE POT OF WATER OVER THE FIRE. PART OF THE WATER WHEN HEATED, MAY BE USED FOR WASHING HANDS, THE REMAINDER FOR SOUP, HOT DRINKS, COOKING, ETC.

THEN, BEFORE EATING, THE POT IS REFILLED FOR DISHWASHING. **BUT**—IT TAKES A LOT OF FUEL TO BRING WATER TO A ROLLING BOIL, NECESSARY FOR SAFE STERILIZATION OF DISHES AND EATING UTENSILS.

TRI-SAN SANITIZER TABLETS (AVAILABLE FROM SCOUT EQUIPMENT DISTRIBUTORS) ARE RECOMMENDED. ONE TAB IN AVERAGE SIZE POT OF HOT WATER WILL SANITIZE YOUR DISHES, ETC. TABLETS THAT COLOR THE DISHWATER WITH GERMICIDE INGREDIENTS ARE THE BEST. ALL ARE NON-POISONOUS TO HUMANS.

A GOOD LABOR-SAVING TRICK IS TO SPREAD A THICK **PASTE** OF SOAP OR SOAP FLAKES ON THE OUTSIDE OF PANS BEFORE COOKING... MAKES IT MUCH EASIER TO WASH OFF THE SOOT CAUSED BY FLAMES. SOAP FLAKES OR LIQUID DETERGENTS ARE EASIER TO USE THAN BAR SOAP.

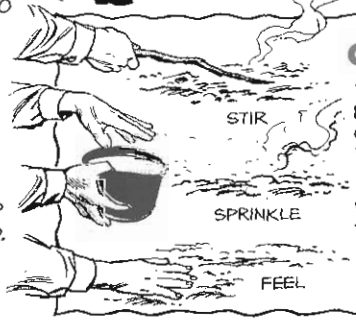
BURN OUT ALL FOOD CANS AFTER REMOVING BOTH ENDS. DRY OUT ANY WET GARBAGE. STRAIN DISHWASHING WATER TO REMOVE ALL FOOD PARTICLES (ADD TO WET GARBAGE). THEN POUR WATER NEXT TO A STUMP OR SCATTER EVENLY ON GROUND. DO **NOT** POUR INTO LATRINE.

CAMP CLEANUP

MAKE A **LITTER TOTE BAG.** LINE A CLOTH OR HEAVY PAPER BAG WITH A DISPOSABLE PLASTIC BAG, CLOSED WITH A RUBBER BAND OR TWIST SEALER. CARRY AWAY **ALL** TRASH, FLATTENED TIN CANS, GARBAGE. *DO NOT BURY ANY NON-BURNABLE TRASH.*

THE **ONLY** HOLE YOU DIG IS A **LATRINE TRENCH,** ABOUT FIVE FEET LONG, SIX TO EIGHT IN. WIDE, 18 IN. DEEP. LEAVE SOME DIRT AT LATRINE TO COVER AFTER EACH USE. CARRY EXCESS DIRT TO COOKING AREA TO BUILD UP NONBURNABLE SOIL BASE FOR FIREPLACE. RETURN DIRT TO LATRINE WHEN STRIKING CAMP. REPLACE ORIGINAL TOPSOIL AND SOD, MOUNDING SLIGHTLY TO AVOID EROSION.

ON HIKE, SMALL CATHOLES MAY BE USED IF NECESSARY—SCRAPE THE DIRT BACK OVER WHEN FINISHED. DIG YOUR LATRINE AT LEAST 100 FEET DOWNWIND FROM TENTS, COOKING AREA; SOME DISTANCE FROM A STREAM, LAKE, OR SPRING TO AVOID POLLUTION.



CAMPFIRE CLEANUP

WHEN THROUGH WITH YOUR FIRE, PUT IT OUT **COMPLETELY.** SPREAD THE COALS AND ASHES, AND SPRINKLE WITH WATER. STIR AND SPRINKLE AGAIN UNTIL FIRE IS OUT **FOR SURE.**

WHEN YOU CARRY THE EXCESS DIRT BACK TO LATRINE, TAKE ALL FIRE ASHES TO DUMP INTO LATRINE TRENCH.

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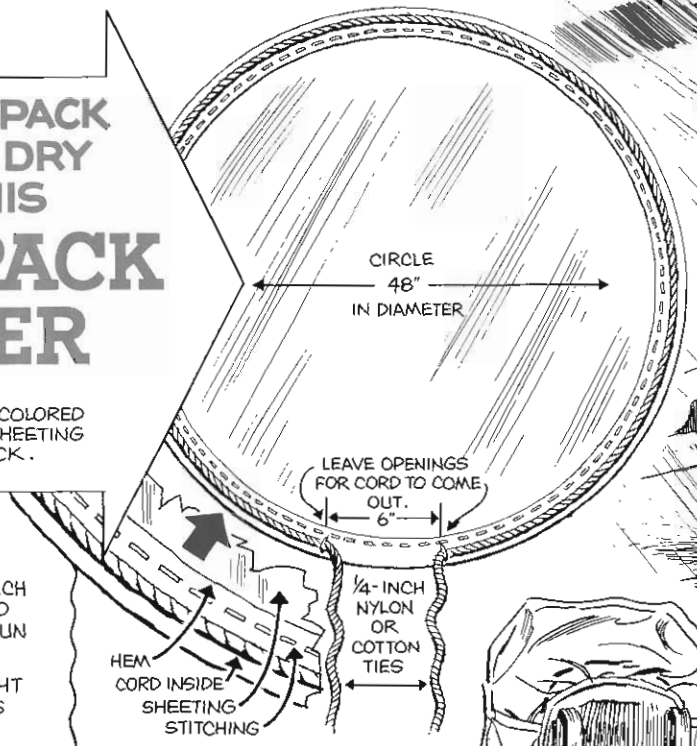
SCOUTCRAFT

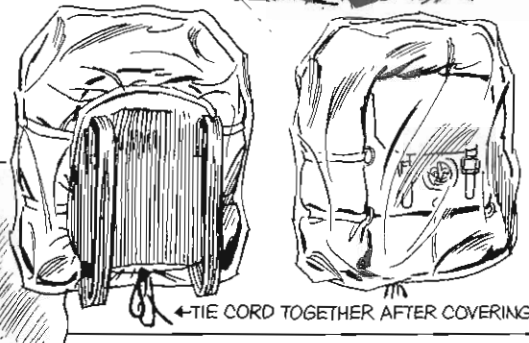
KEEP YOUR PACK AND GEAR DRY WITH THIS BACKPACK COVER

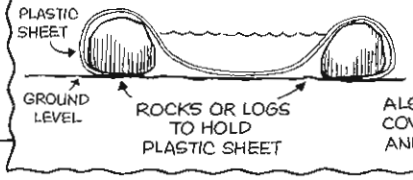
IT'S MADE OF CLEAR OR COLORED POLYETHYLENE PLASTIC SHEETING FOUR TO SIX MILS THICK.

CUT MATERIAL IN A CIRCULAR SHAPE ABOUT 48 INCHES IN DIAMETER. LAY CORD AROUND EDGE. FOLD A ONE-INCH OR TWO-INCH HEM OVER CORD AND STITCH TO SHEETING, ALLOWING CORD TO RUN THROUGH HEM FREELY.

THE CORD IS PULLED FAIRLY TIGHT AFTER PACK IS COVERED. ENDS ARE TIED TOGETHER TO HOLD COVER.





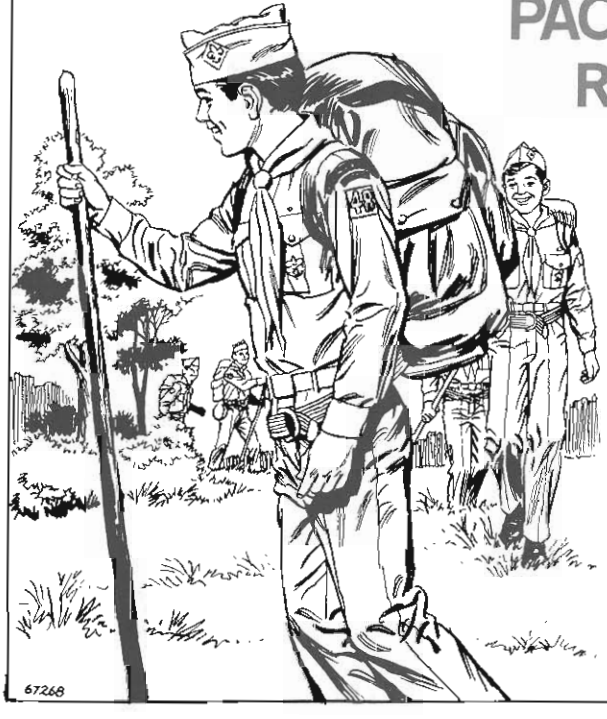


MAKES A GOOD WASH BASIN

AND A QUICKIE PONCHO

ALSO A FIREWOOD COVER—A TABLECLOTH AND OTHER HANDY USES.

PACK AND PACKFRAME LOADS RIDE EASIER WITH HIP-STRAP

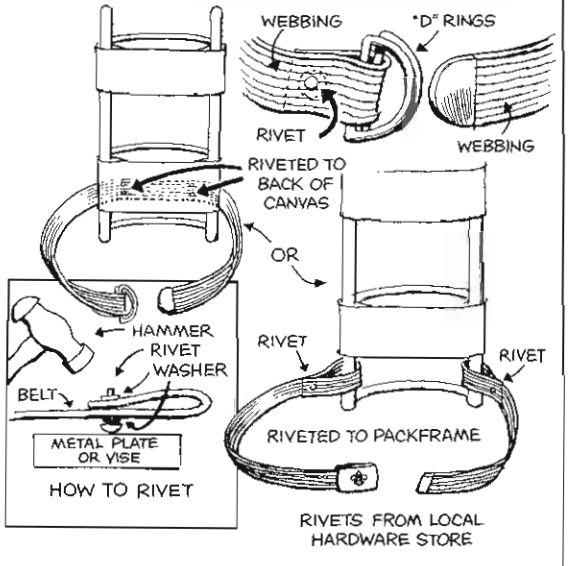


LETS YOUR HIPS TAKE SOME OF THE WEIGHT OFF YOUR SHOULDERS.

HOLDS PACK OR PACKFRAME STEADIER OVER ROUGH TERRAIN.

USE A SCOUT WEB BELT (OR NYLON WEBBING) ABOUT ONE FOOT LONGER THAN YOUR WAIST MEASUREMENT.

RIVET TO LOWER SIDES OF PACKFRAME. LEAVE ON SCOUT BELT BUCKLE. WITH WEBBING USE A SET OF D-RINGS OR AIRPLANE-TYPE QUICK-RELEASE BUCKLE. (KIDDIES' SEAT BELTS HAVE THESE.)



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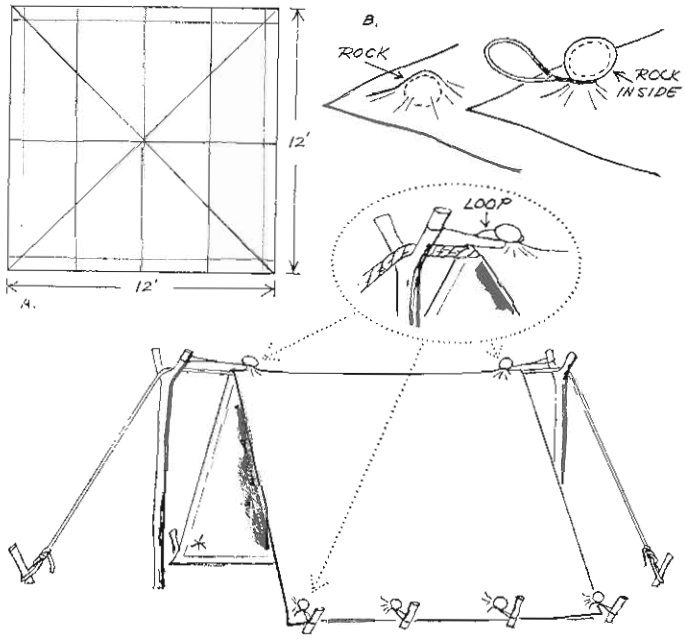
THE POLYTARP

By RON ELY



The shelter you see illustrated is called a Polytarp since it can be rigged in many different ways. It's only about four pounds and sleeps two boys comfortably. If you buy the polyethylene sheets from which it's made at a hardware or building-supply store, the complete tent should cost you about five dollars. If you scrounge discarded sheets from farm suppliers or building contractors, the cost will be negligible. The plastic comes either clear or in colors.

Here's the equipment you'll need: 12′ x 12′ square of four- or six-mil-thick polyethylene; 150 feet of ½″-wide adhesive filament tape (also called acetate-backed, glass-reinforced strapping tape) which comes in 60-yard rolls; 30-40 feet of #36 nylon twine (about 260-lb. test); 26 feet of rope (nylon braided is best) for tent ridgeline; pair of scissors; a yardstick; chalk to mark lines; and chalkline (string about 20′ long).

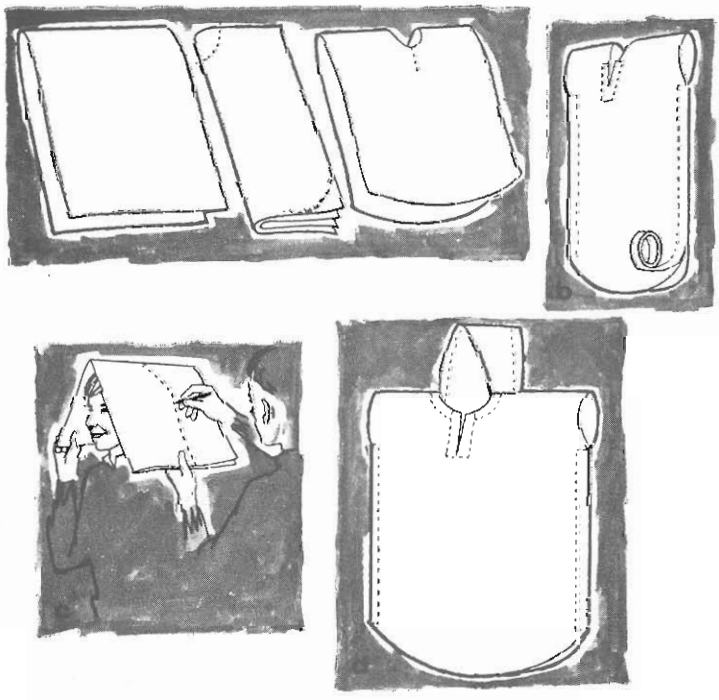
Lay out your sheet of polyethylene on a flat, clean, dry surface. Be careful not to punch any holes in the sheet. (If you do, they can be patched up easly with a piece of filament tape or plastic adhesive tape.) The polyethylene must be dry and clean when applying the filament tape for reinforcing. With a yardstick, chalk and chalkline mark the lines along which the filament tape must be attached. Stick on the tape as shown in diagram A.

Now pitch the Polytarp. You're going to need to attach ropes for guy lines, tent pegs, etc. The easiest way to do this is as shown in illustration B. Using two half-hitches tie up a wad of leaves or a smooth rock the size of a walnut in the plastic where you want the rope or peg to be attached. Then loop the twine around the plastic-enclosed rock.

In pitching the Polytarp, the side of the polyethylene sheet with the filament tape attached to it serves as the inner side of the tent. Tie down tightly the ridgeline, all corners and at several points where the tent meets the ground. Allow for ventilation. Simplest way to pitch the polytarp is shown at left. ■

POLYPONCHO

By RON ELY



Those are thunderheads ahead, buddy, and if you're on the trail without raingear, you're in trouble, real trouble! And that starts with "T," which rhymes with "P," which stands for—POLYPONCHO. Make your own and stay dry. Use the same technique followed to build the Polytarp (see *Boys' Life*, March, 1967). Our materials: polyethylene plastic sheeting (six-mil thick), filament tape and 1½-inch wide plastic tape.

Polyethylene sheeting can be begged from builders or building suppliers, or bought from these people or from many hardware or farm-supply stores. Buy ½-inch wide filament tape and plastic tape in almost any 5&10-cent store.

First step—how much polyethylene do you need? Stretch your arms out straight to the side. Have someone measure you from thumb-tip to thumb-tip. Next, have that same person measure your height from your shoulder to the top of your feet. With scissors cut one piece of polyethylene to your wing-spread width and twice the length measured (to cover your front and back).

Fold the plastic in half where your shoulders will touch, so that you have one length on top of the other. Next, fold that in half lengthwise (figure A). At the corner of the double fold cut out a quarter pie slice barely big enough to fit your head (about four inches in radius). Then trim the bottom corners round.

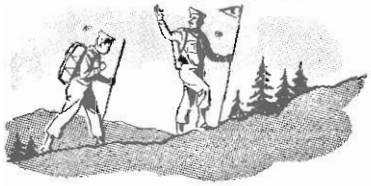
Next step is to take your plastic tape and seal the sides together (figure B). Leave room for your hands to stick through (about 12 inches). Reinforce the head hole and hand holes with filament tape, as shown.

You can fashion a hood by first making a paper pattern for your head from a double sheet of newspaper. Hold it so that the center fold is on top of your head. Have someone mark on the paper in crayon the right size to cover your entire head and allow the hood to be attached to the Polyponcho's head hole (figure C). Take the pattern, trace the outline in polyethylene and cut out the hood piece. Seal the hood's back with plastic tape and reinforce the front edge of the hood with filament tape. Attach the hood to the headhole edges with plastic tape (figure D).

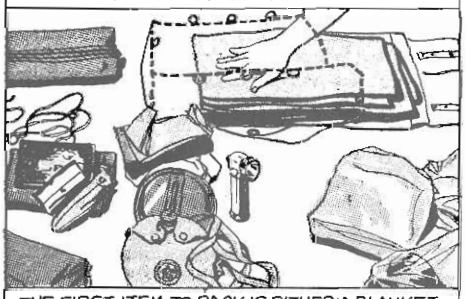
If you omit the hood, cut only a two-inch-radius pie slice and a six-inch slit down the front center. Reinforce cuts with filament tape. ■

THE PACK ON YOUR BACK

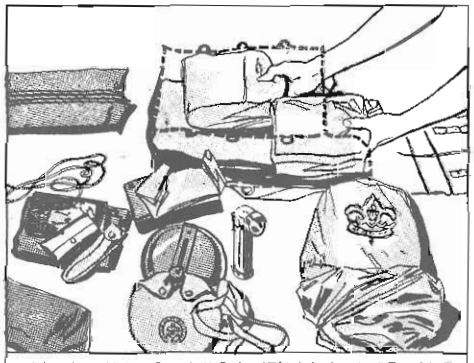
EVER HIKE WITH A PACK THAT WASN'T WELL BALANCED OR SOMETHING YOU'D PUT IN WAS DIGGING INTO YOU... OR THE STRAPS WERE CUTTING INTO YOUR SHOULDERS? TAKES ALL THE FUN OUT OF HIKING, DOESN'T IT? WITH A LITTLE FORETHOUGHT, YOU CAN AVOID ALL THAT. PROPERLY PACKED WITH GOOD, WIDE SHOULDER STRAPS, YOUR PACK CAN BE SO COMFORTABLE YOU'LL HARDLY KNOW YOU'RE TOTING IT. HERE'S HOW TO PACK IT RIGHT...



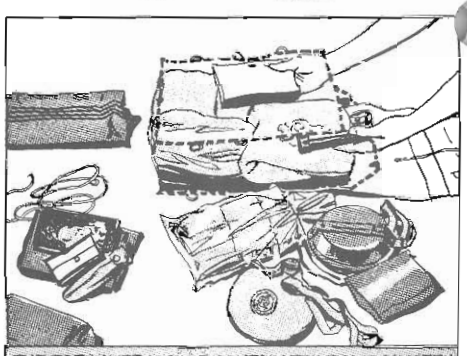
LAY PACK ON BED, TABLE OR OTHER FLAT SURFACE, THE SHOULDER STRAPS DOWN.



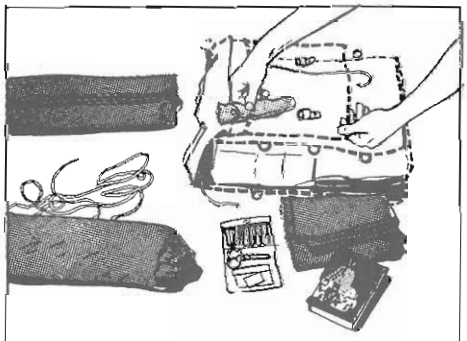
THE FIRST ITEM TO PACK IS EITHER A BLANKET, TENT, OR OTHER UNIFORMLY SOFT ITEM WHICH IS FOLDED TO COVER THE ENTIRE BACK OF THE PACK. *(THIS IS TO HAVE SOMETHING SOFT AGAINST YOUR SHOULDERS).*



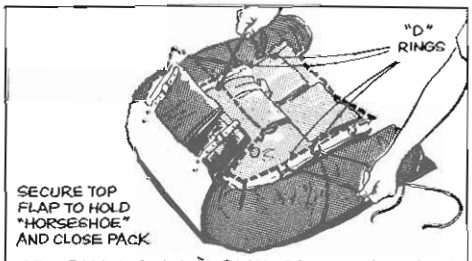
THE NEXT LAYER WOULD CONTAIN PLASTIC OR OTHER TYPE OF BAGS WITH VARIOUS SPARE UNIFORM PARTS– UNDERWEAR, EXTRA SOCKS, AND SHOES. ALSO SWEAT SHIRT AND/OR PAJAMAS.



THE TOP LAYER WOULD CONTAIN TOILET KIT, CANTEEN, COOK KIT, WASH BASIN. ON EACH SIDE OF THE PACK, DEPENDING ON TYPE OF TRIP TAKEN, A FLASHLIGHT NEAR THE TOP ON ONE SIDE, AND A PACK AXE ON THE OTHER SIDE.



IN THE POCKET ON THE FLAP PLACE READY-TO-USE ITEMS SUCH AS SEWING OR REPAIRING KIT, EATING SET, INDIVIDUAL FIRST AID KIT, BOY SCOUT HANDBOOK, AND PONCHO. THESE ARE IN THIS POSITION FOR QUICK AND EASY ACCESS.



GENERALLY SPEAKING, PACKS OF A SIZE NORMALLY USED BY SCOUTS ARE NOT LARGE ENOUGH TO HOLD A SLEEPING BAG ALONG WITH ALL OTHER REQUIRED EQUIPMENT. SLEEPING BAGS OR BLANKETS CAN BE ROLLED LENGTHWISE FORMING A LONG SAUSAGE-TYPE CYLINDER APPROXIMATELY 6 INCHES IN DIAMETER AND 5 FOOT LONG. THIS CAN BE FOLDED HORSESHOE SHAPE ACROSS THE TOP OF THE PACK AND SECURED TO SIDES BY TYING TO THE "D" RINGS. THIS SHOULD GO UNDER THE TOP FLAP.

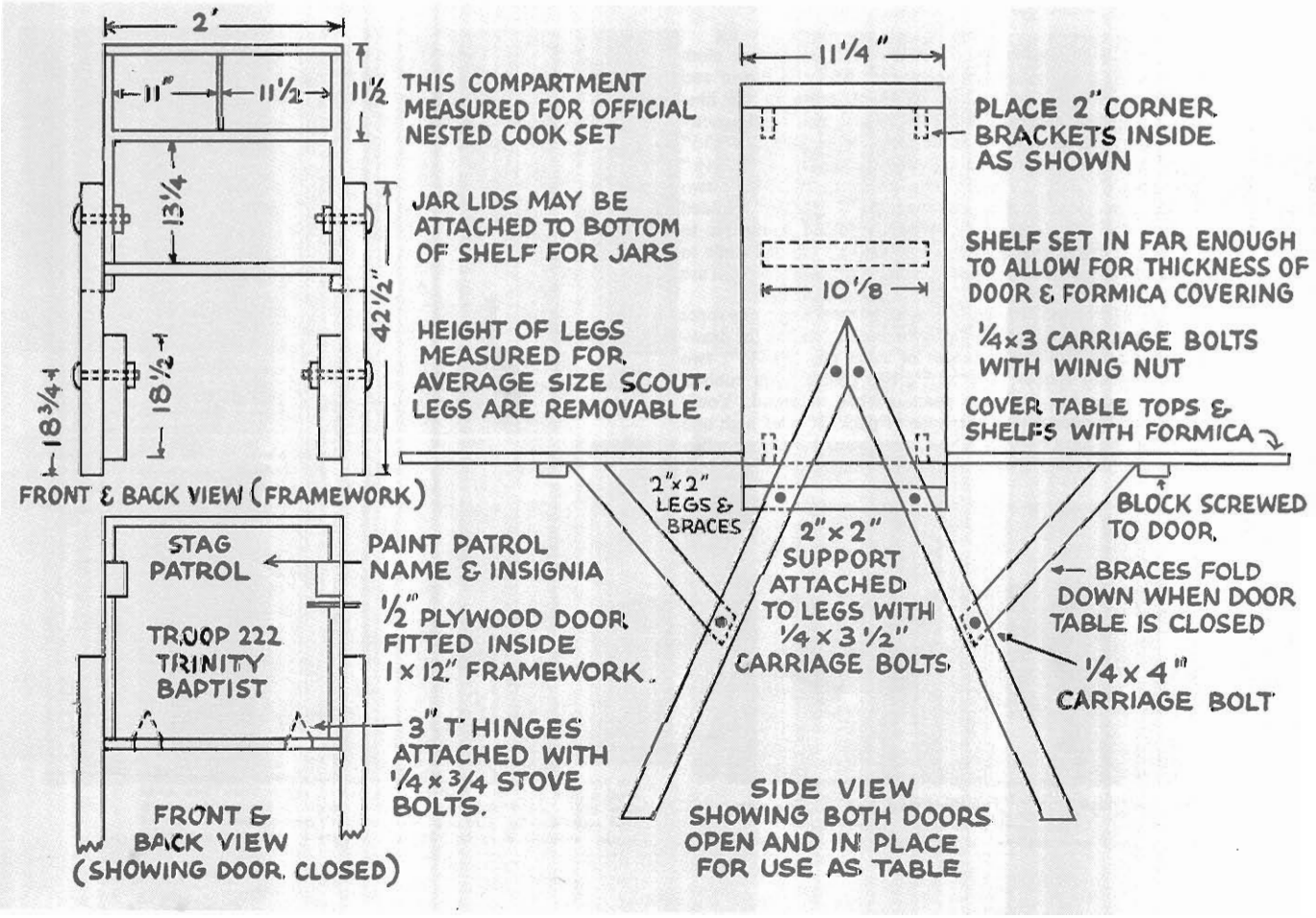
AND YOU'RE ALL SET FOR A COMFORTABLE HIKE WITH A PACK THAT RIDES WELL.

Patrol Kitchen

By HARRY C. HULL

HERE IS A ROOMY Patrol Kitchen Box which will hold all the cooking equipment, plus the food your patrol will need for your next weekend camping trip. It is simple enough to make and can be made of wood, Masonite, or plywood. Troop 222, in San Antonio, Texas, has made seven of them for its outdoor camping trips. The design enables you to use the legs as carrying pieces, if you add suitable clamps to the sides of the box. It can also be carried by handles mounted at each end, near the top of the box.

One of the big advantages is that the sides open up to afford plenty of work area for the patrol cook. Save sturdy containers, such as tin cans with screw tops, for use in storing your loose foods. Label each container to indicate what is in it: flour, sugar, etc. A few large screw-top glass containers can be mounted, as shown in the photograph at the right, so that they hang suspended from the bottom of the shelf, thus giving you additional space below them. Two Trail Chef cook kits fit easily on the lower shelf. Now is the time to start making your Patrol Kitchen Box for the camping season ahead.



For something ultra-light in camp equipment, make an

Atom-Wate Pack

By WILLIAM HILLCOURT

PHOTOGRAPHS BY HERBERT MULLER

THERE'S something stirring in the pack-making business. More and more we're getting away from the old-time, man-style "rucksack" that hangs like a globe on the middle of your back when fully loaded and forces you to lean strongly forward. Instead, the up-and-coming pack is the box-shaped pack, changed to a shape that's narrow at the bottom and wide at the top. Your pack is flat to keep it as close to the body as possible, and you place the heavy articles high to reduce your forward lean. Another emphasis is on taking the weight off the shoulders and bringing it onto the hips, by using a belly strap.

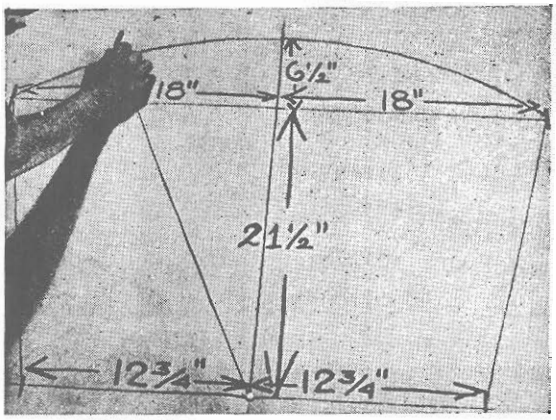
The new-style packs are slowly getting on the market, but so far, they are mostly Europe-made—the Danish Mallemuk, the Swedish Synnergren, the Norwegian Bergan.

On these pages, you'll find a pack that incorporates the up-to-date principles, but in extra lightweight form, and using your Scout belt as its belly strap. You should have no difficulty sewing it on your mother's sewing machine—with her approval and help, of course.

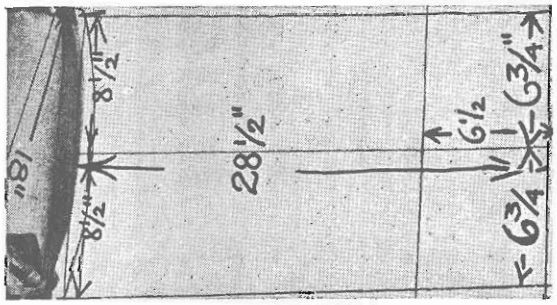
USE any tough lightweight material—such as airplane cloth (dye it, then waterproof it yourself with the rub-in and iron-in paraffin method), Byrd Cloth, Aberlite, or the like. These materials generally come 39" wide. You need exactly two yards—to be cut out as follows: Front part, 28"x36" (see photo for design); back-and-bottom part, 17"x28½" (see photo); flap, 15"x17"; two pockets, 7"x13¼"; two pocket flaps, 4"x8"; two pocket straps, 2¼"x9½" (folded quadruple); two pack straps, 4"x65" (folded quadruple to 1" width); two shoulder straps, 6½"x19½" (folded triple to 2" width); two reenforcement pieces, app. 3½"x5½" (use scrap).

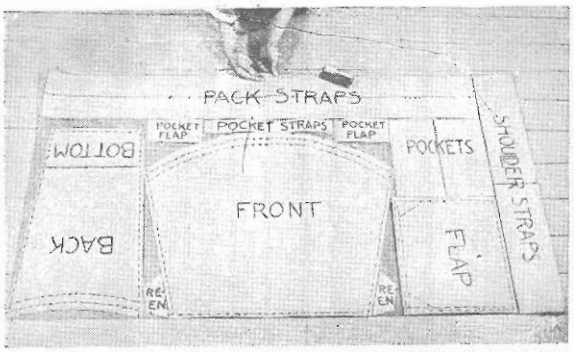
You further need: Twelve ¾" or 1" harness rings; one spool heavy-duty thread; fourteen ¼" grommets; thin line for drawstring and fastening; two pieces of sheet tin, 2"x4⅛"; two strips of foam rubber, 2½"x16"; two pieces foam rubber, 2"x2½"; cement to fasten foam rubber to metal. You'll appreciate the comfort of this type of pack. It rides high and light, has no hard corners jabbing into your back, and when not in use folds into a small compact package.

Back view — Two-third view — Side view

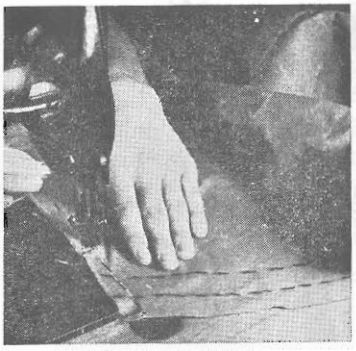


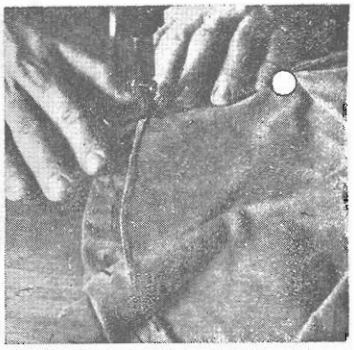
Make pattern for front as shown above. Draw arc with pencil attached to string tied for a 28" radius. Use cut-out of arc to draw the curved indentation of the back-and-bottom pattern.



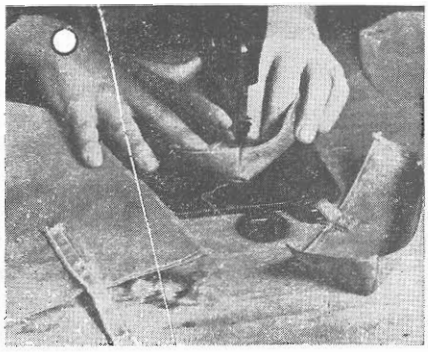


Make full-size paper patterns of each of the pieces that go into the making of the pack. Spread out material on floor, and arrange pattern pieces in most economical manner. Copy seam lines onto cloth through carbon paper. Then you are ready to cut the pieces.

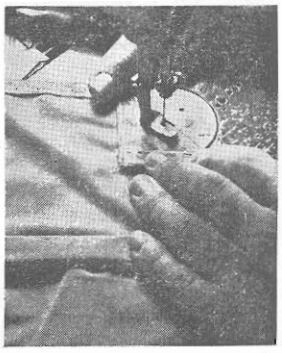


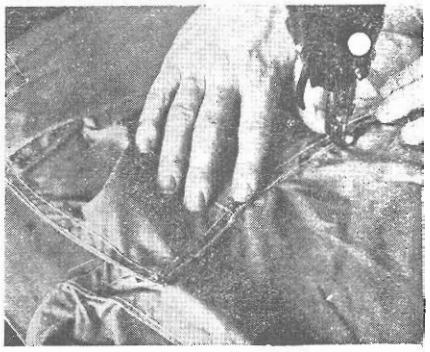


Draw seam lines along sides and bottom of front and back pieces and baste the two pieces together inside out along seam lines. Then sew on machine. Make 1" hem along top edge the whole way round. Turn right side out, and sew along seams, ⅛" in.

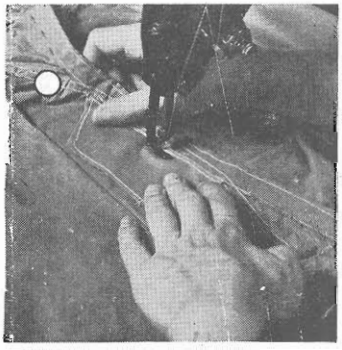


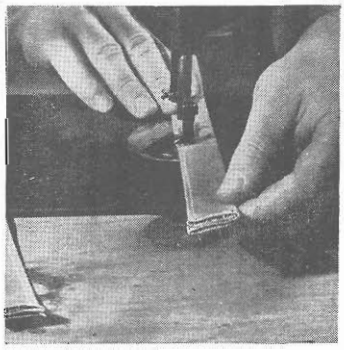
Hem pocket pieces and box-shape bottom. Hem and box-shape pocket flaps. Make pocket straps ½" wide. Attach two rings to each flap with 2" of strap; sew 5½" strap to front of pocket. Sew pockets to front piece, 1½" from side edge, 4" from bottom. Make pockets 3½" at bottom, 4½" at top. Sew on the flaps.



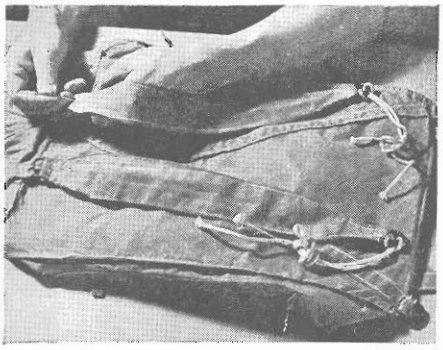


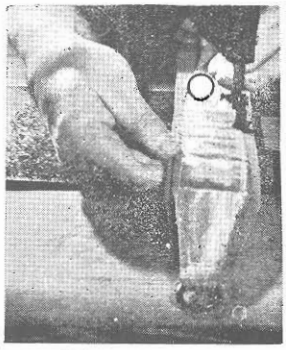
Turn over the sides and front edge of flap piece for a ½" hem, with two darts at each side. Then machine-sew. Fold the front corners over and sew them down. Center the flap on the back of pack, 1" from top edge in middle, 2½" on either side, then go ahead and sew it on with two darts to give flap the correct shape.



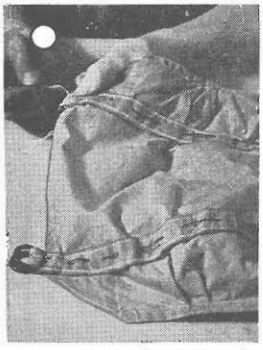


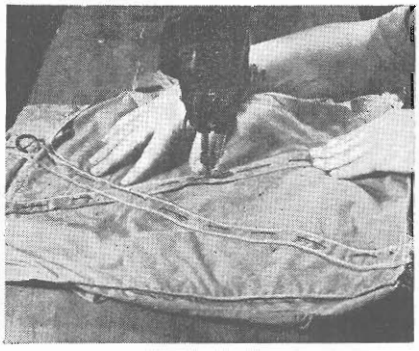
Sew reinforcement pieces on inside of pack. Make the two pack straps by folding edges of material toward middle, then folding along middle line to make 1" wide straps. Sew along both edges. Make shoulder straps 2" wide, have them tapered toward ends.



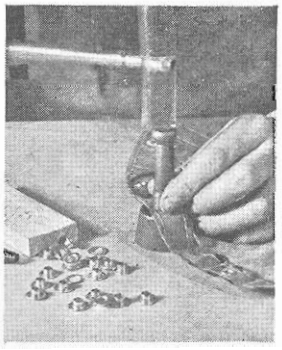


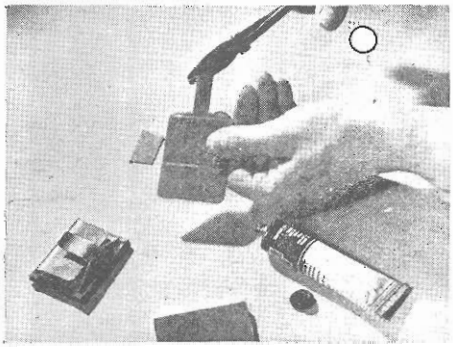
Sew free end of each shoulder strap to one of rings at top of flap. Attach line to each of free rings for tying strap to pack. Two-inch strips of foam rubber will add a couple of ounces to your pack, but you will be able to subtract pounds of effort in carrying it.





Baste on pack straps: Begin at edge of flap where two rings are sewn onto each strap. At top edge of flap, sew ring under each strap—straps are 4" apart at this point. Then cross straps over back, to bottom corner, then under bottom to 1" of side edge. Sew. Next step is to sew a ring to one end of each shoulder strap.





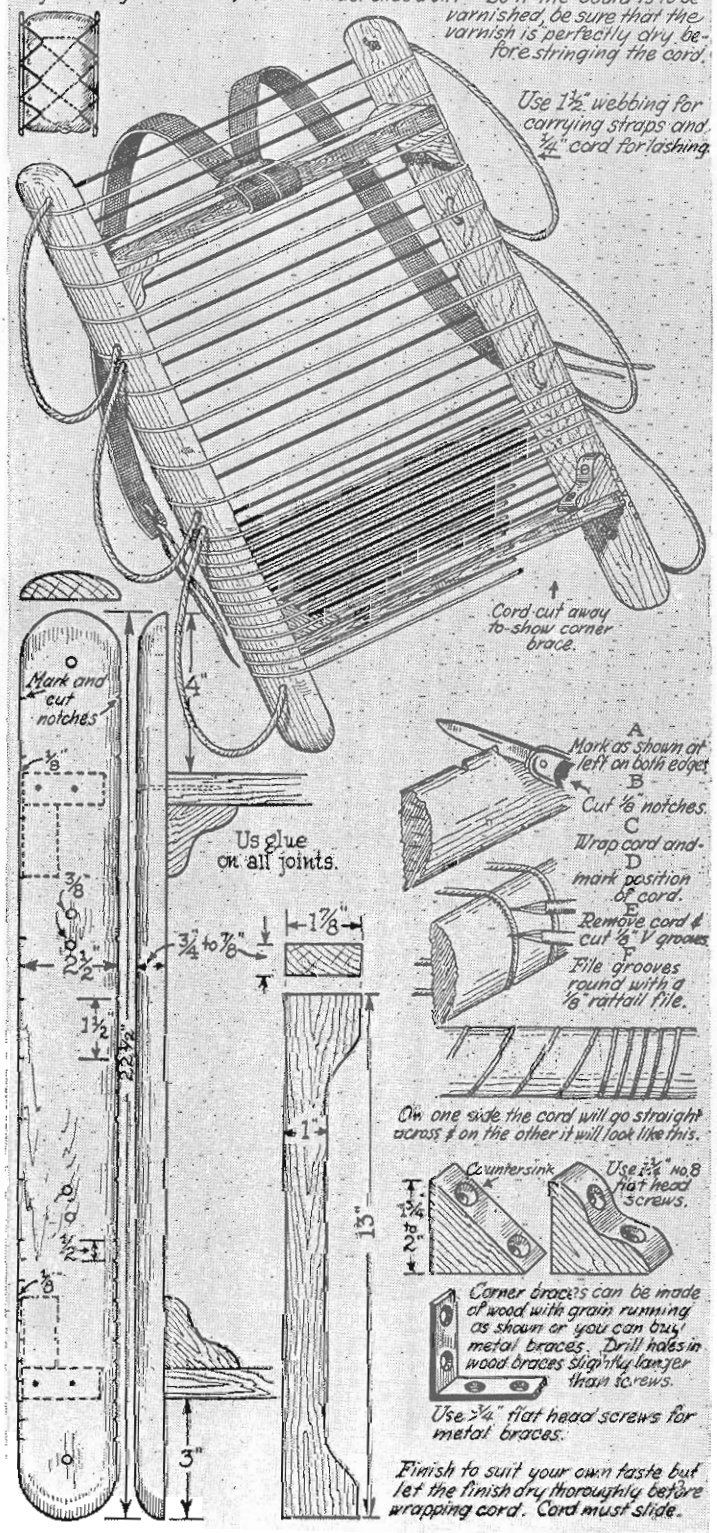
Evenly space fourteen ¼" grommets along top of pack, and put in draw string. Use your Scout belt as "belly strap" by providing it with two pack hooks, made from sheet tin, 2" by 4⅛", cut with ½" by 1½" tongue. Bend tin to fit around belt; glue foam rubber cushion on side toward your body. Pack rings hook over tongues.

LIGHTWEIGHT PACK BOARD

By BEN HUNT

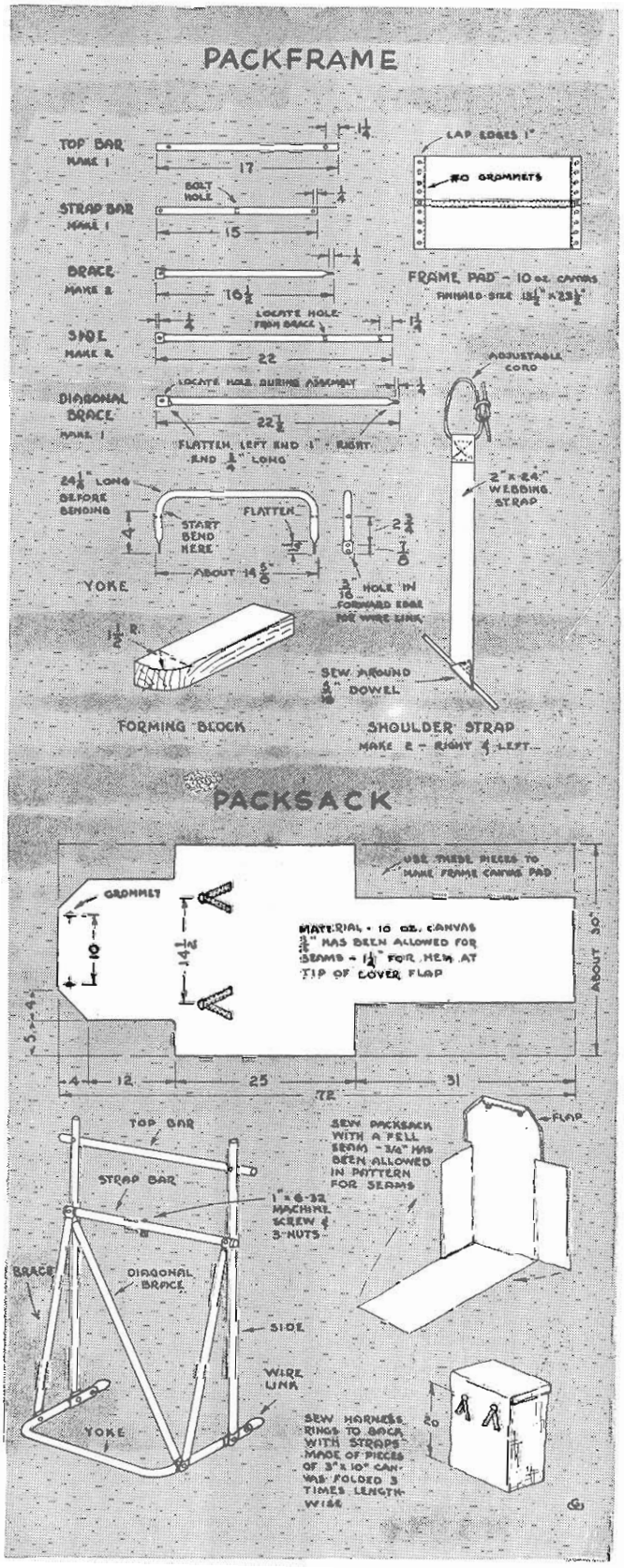
If you're looking for a lightweight pack board, this is it. I sketched it at Irvine Ranch, from one made by L.E. Wells of Las Vegas, Nev., and when I got back home, I made one. This one was made of white pine. Any light wood will do. The ⅛" cotton cord costs about one cent per foot and you'll want about 75 ft. Better buy 100 ft. as it will come in mighty handy for a lot of things around a camp.

Since only the cord rests on the wearer's back, air can circulate between the pack board & the back, keeping the back cool in summer, and also preventing chafing. Therefore, the cord must slide a bit. So if the board is to be varnished, be sure that the varnish is perfectly dry before stringing the cord.



Finish to suit your own taste but let the finish dry thoroughly before wrapping cord. Cord must slide.

ALUMINUM



PACKFRAME

By C. SHEPHARD LEE

IF YOU'RE PLANNING long hikes this summer, you'll need a lightweight but sturdy packframe and packsack. Here's a complete outfit you can make. Unloaded, it weighs only three pounds.

Make the frame of aluminum tubing, which a hardware dealer can get for you. Canvas, grommets, and harness rings are sold by awning and hardware stores. Make the yoke by bending a section of tubing around a curved forming block clamped in a vise. First pack the tube solidly with dry sand so it doesn't kink or break. Plug the ends of the tube so the sand doesn't spill out.

Before drilling, flatten ends of tube sections in a vise until they just begin to crack at the tips. Then drill rivet holes with a #25 drill. Assemble the yoke, side brace, and diagonal brace with 10 penny nails and rubber bands. (See center photo, first row.) Assemble the sides in the same manner. Next, enlarge the holes in the copper burrs with a #25 drill, then force the burrs on the nails, and cut off the excess length of the nails, leaving ⅛″ to form the rivet heads. Peen over the nail ends with lightweight hammer. Tap lightly; don't bend the nails. Fit top bar on last, after other pieces are riveted. Note that top bar is on the front of the frame. Sew web strap ends for the dowel and cord loops.

Make the canvas pad as shown in the drawing. Set nine grommets, with grommet tools, on each end. Then lash the pad on the frame. Machine screw and nuts on the strap bar keep the pack centered. Packsack harness rings slip over the top horns of the frame.

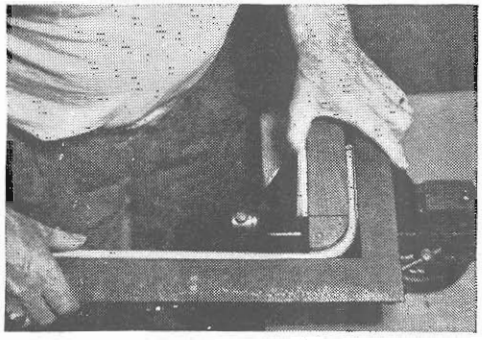
MATERIALS

PACKSACK

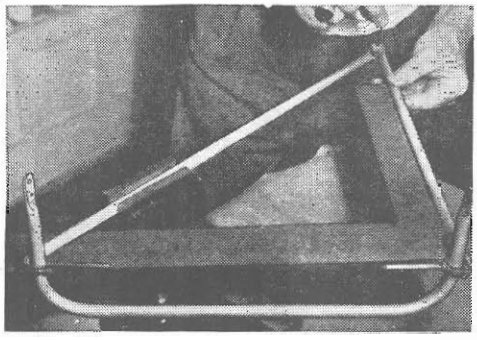
2 yds.	—10 oz. canvas, 30″ wide
2	—#0 grommets
2	—harness rings, ¾″ inside diameter
16′	—#6 sash cord

PACKFRAME

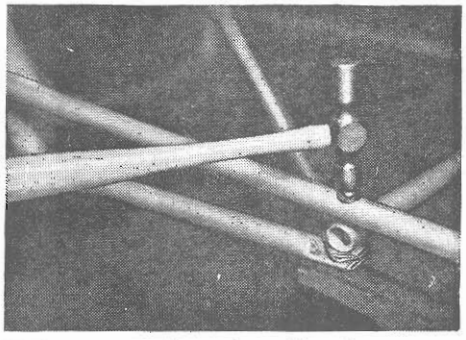
14′	—½″ diameter 61S-T6 aluminum alloy tubing, .035″ wall (20 gauge)
8	—10 penny common nails
8	—#10 copper burrs
18	—#0 brass grommets
1 pc.	—10 oz. canvas 15″ x 26″
26′	—#6 sash cord
4′	—2″ wide, heavy web strap
1	—5/16″ wood dowel, 8″ long
1	—1″ x 6-32 machine screw, and 3 nuts



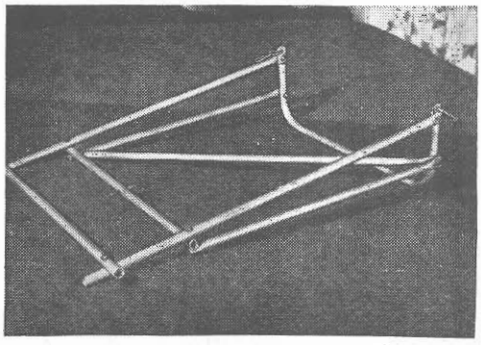
To bend yoke, clamp in vise between forming block, wood scrap. Check with framing square.



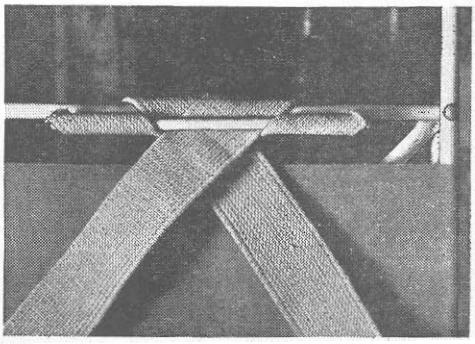
Assemble yoke and braces. Nails inserted in holes are held temporarily with rubber bands.



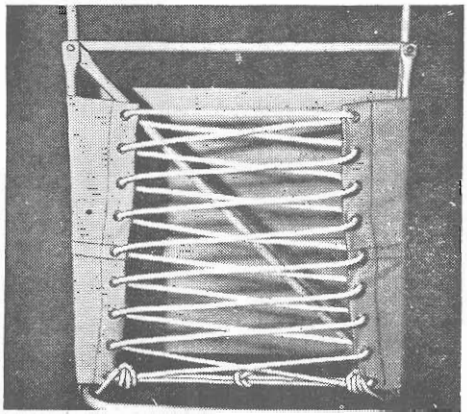
Fit burr over tube surface. Rivet by tapping clipped end of nail with ball peen hammer.

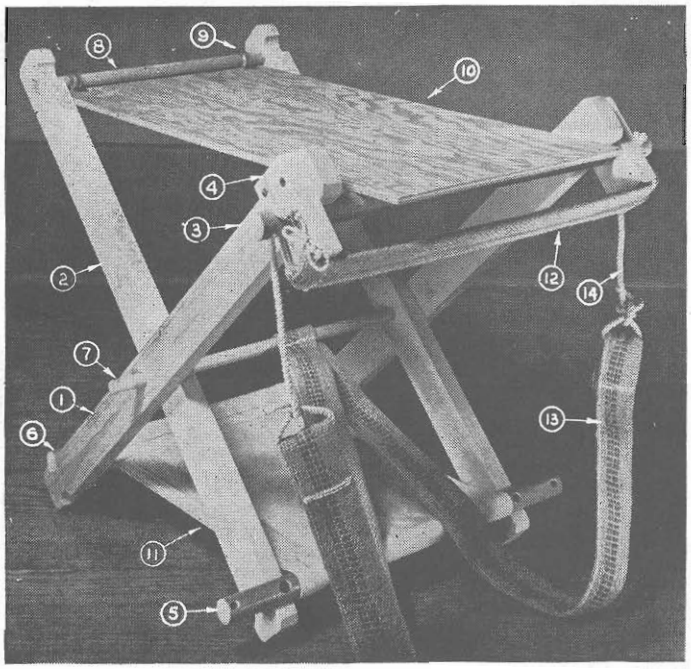


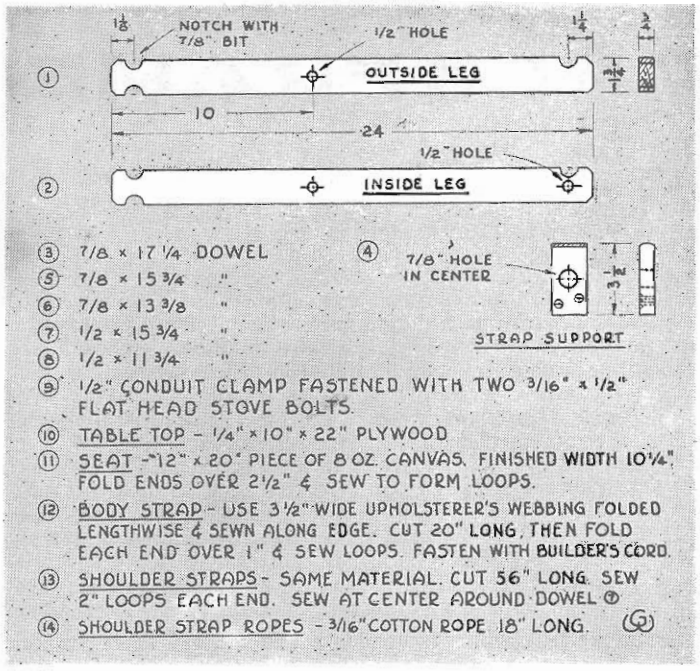
Completed tubular frame looks like this. Now it's ready for the straps, pad and the packsack.



Straps (above) cross over bar, under dowel. Canvas pad (right) is lashed to packframe.







It's a Seat, a Table, a Pack Frame

By GLENN A. WAGNER

SCOUTS OF TROOP 3, Wilmette, Illinois, sent us pictures and a plan for a new type of pack frame. We liked the idea so much we went to work on it and came up with this streamlined model. The frame is lightweight, yet is very strong. And it's inexpensive to make. Materials are easy to get. You need a 9′ length of ¾″ x 1¾″ pine, a 4′ length of ⅞″ hardwood dowel (we used a mop handle), a 28″ length of ½″ dowel, a piece of ¼″ plywood, 10″ x 22″, two ½″ conduit clamps, and four 3/16″ x ½″ flat head stove bolts. You also need ten 1½″ No. 10 flat head wood screws, four 1″ No. 18 wire brads, a piece of 8-ounce duck 12″ x 20″, 2⅛ yards of 3½″ upholsterer's webbing, a 3′ length of 3/16″ white cotton (awning) rope, carpet thread, and heavy builder's cord. The pack ropes shown on the folded pack frame are two 6′6″ lengths of 3/16″ cotton rope. Drill body holes for the No. 10 screws in the ⅞″ dowels with a 3/16″ or No. 10 drill and countersink for the screw heads; drill ⅛″ lead holes in the legs to avoid splitting the wood.

Stitch shoulder strap to center of dowel 7, and tie it to frame bottom.

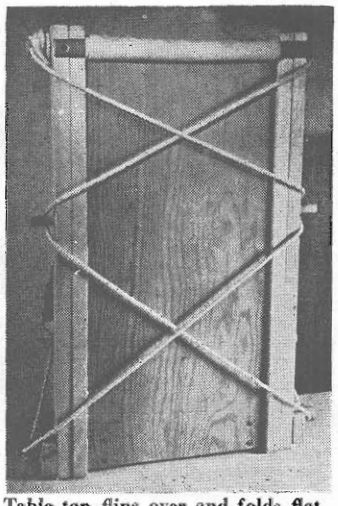
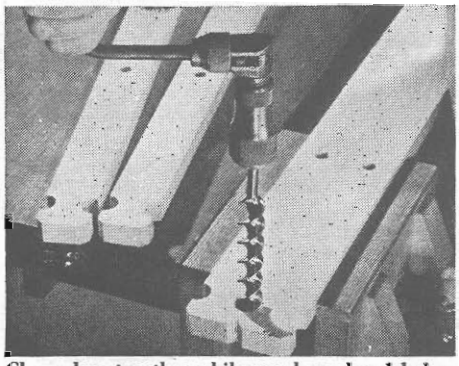
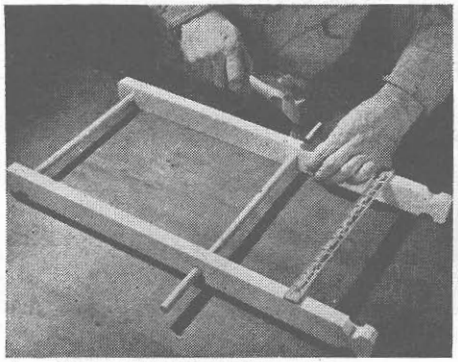


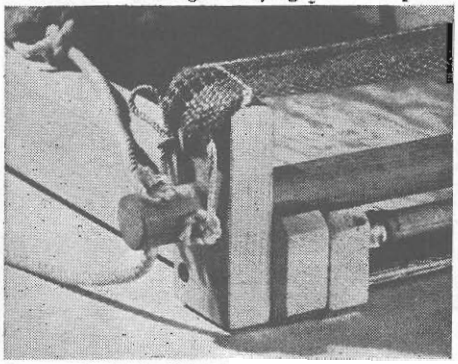
Table top flips over and folds flat, forming a carrying board for pack.



Clamp legs together while you bore dowel holes, so legs match and notches and holes line up.



Assemble center section like this. It measures 11¾″ in width. Pin the dowels with 1″ brads.



Corner detail. Drill two ¼″ rope holes in each end of dowel noted as item number 3 in top photo.

FOR CARRYING BULKY ITEMS—MAKE A

Fiber Box PACK FRAME

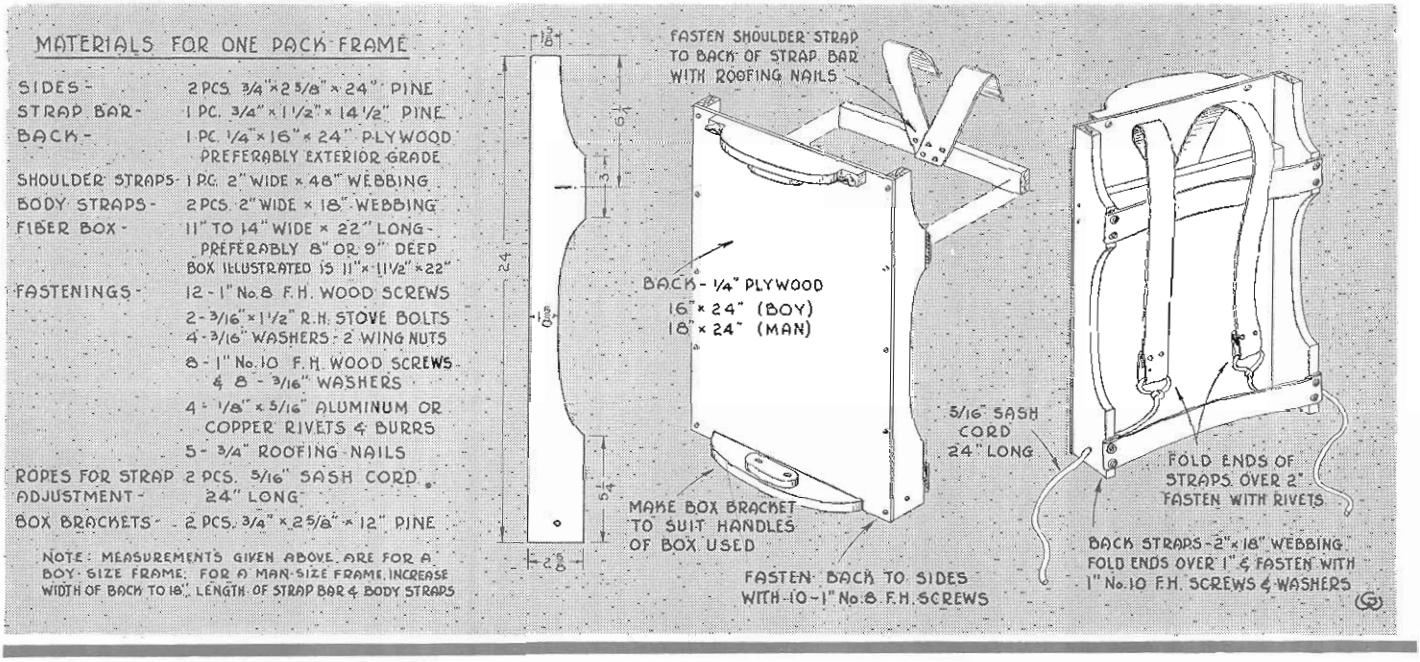
By GLENN WAGNER

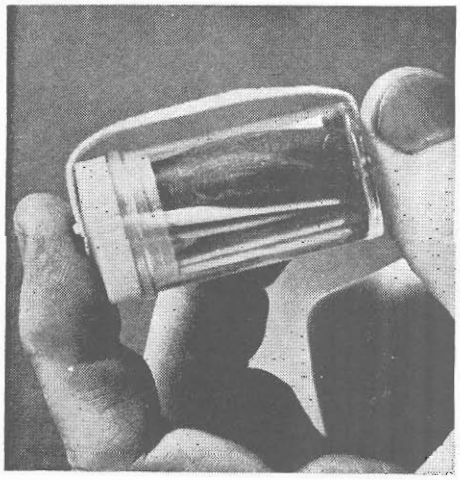
SCOUTS of Troop 43, Wilmington, Delaware, (see color flap) make a hit everywhere they go with their ingenious pack frames. Tired of having their packs slip or shift as they traveled, they found some lightweight fiber boxes and built the pack frames around them. Now they can carry bulky or heavy items with ease without having to tie and retie their load.

They pack the boxes with lighter items on the bottom so that the heavier equipment is nearest the body when the pack is worn. The box makes a ready-built, waterproof storage cabinet at camp, and the pack frame does double duty as a camp table.

Based on their own experience, they suggest that 8″ or 9″ boxes be used instead of the 11″ ones they have. The boy-size frame shown in the plans can be adapted to fit a man by adding 2″ to the width of the frame and making the strap bar and two back straps 2″ longer. The top box bracket swings to one side to release the pack box.

The Scouts made a set of pack frames as a troop project one night. That way, the parts could be made and assembled on a production line basis.





WATERPROOF MATCH HOLDER

By PETE EDWARDS

WET matches are useless. You'll never start a fire with them. So be prepared. Make this waterproof holder to carry your matches on your next outing.

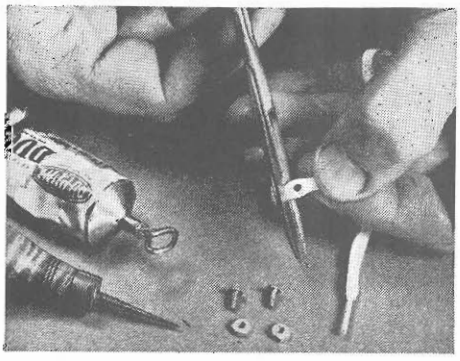
Use a seven dram size plastic vial with a flexible plastic cap. You can get one at a drugstore. The vial is 1″ in diameter and 2⅛″ long. You'll also need two ½″ #4-40 machine screws and nuts and a 4″ length of shoelace.

Coat the ends of the shoelace with model airplane cement, and make a hole in each end with an awl. Trim the ends with scissors when the cement dries. This will prevent the shoelace from unraveling.

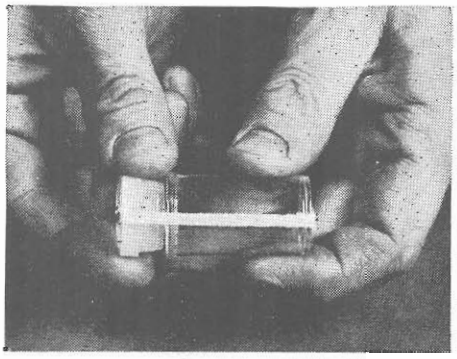
Drill a hole in the bottom of the vial and in the cap. Use a #34 or ⅛″ bit. Screw the ends of the shoelace to the bottom and to the cap.

Now fill your holder with a box of pocket safety matches. Cut off the striking sides of the box and carry them inside the holder with the matches.

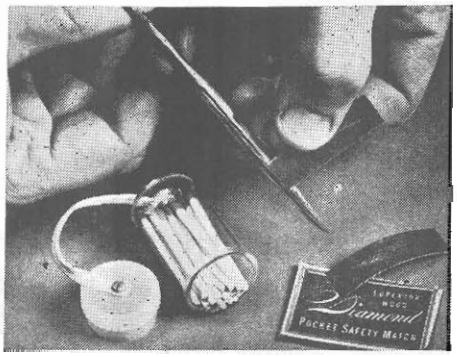
Keep the cap on tight to insure dryness. Materials won't cost more than a dime.



Punch holes in shoelace; cement, trim when dry.



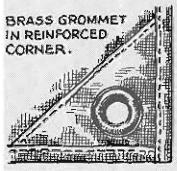
Shoelace is secured to cap and bottom of vial.



Cut striking sides of box and carry them in holder.

ADD A GROMMET

By BEN HUNT



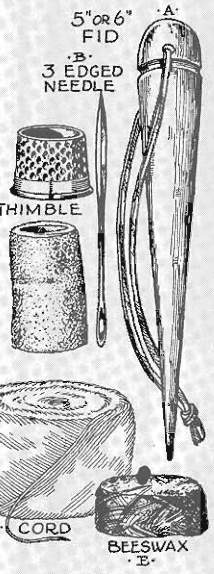
A grommet may be a ring of rope or a reinforced eyelet in canvas such as a tarpaulin, tent or sail, and even though you don't have an immediate use for grommets, it may pay you to study this plate or paste it in your scrap book.

Grommets are used on all tents and sails in one way or other. Merely punching or cutting a hole in canvas or sailcloth without sizing or reinforcing in some way, will soon tear loose.

The quickest and easiest way is with a grommet die and brass grommets.

However, when these are not available or when larger grommets are wanted, the following methods are used.

GROMMET DIE AND BRASS GROMMET



TOOLS AND MATERIALS

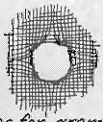
A - *Wood or metal fid for making holes.*

B - *Metal or leather thimble.*

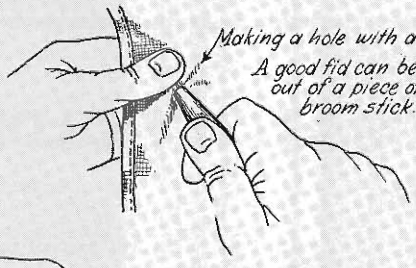
C - *3 edged needle or medium darning needle.*

D - *Good cotton cord about the thickness of ordinary wrapping cord.*

E - *Beeswax.*

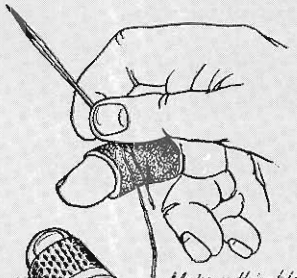


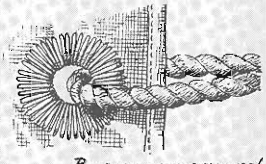
Holes for grommets are best forced open with a fid, rather than punched out, especially for the smaller sizes.



Making a hole with a fid.

A good fid can be made out of a piece of maple broom stick.





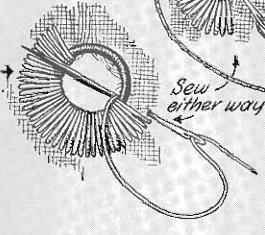
Be sure your grommets are large enough for the size rope you will use.

Open thimble.

Make a thimble of leather if you don't have a metal one.

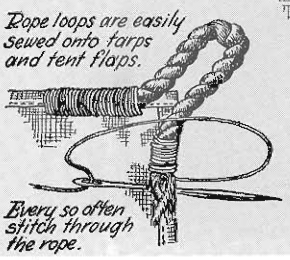
As you sew you can "pull" the hole larger.

Brass or plated rings are sometimes used like this.

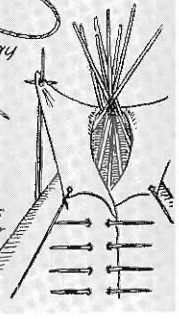


Sew either way

Rope loops are easily sewed onto tarps and tent flaps.



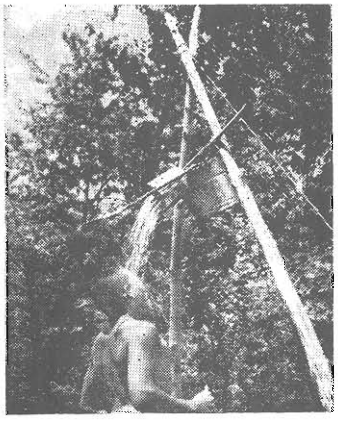
Every so often stitch through the rope.

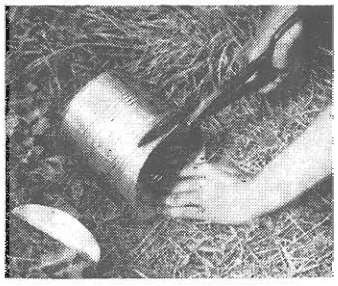


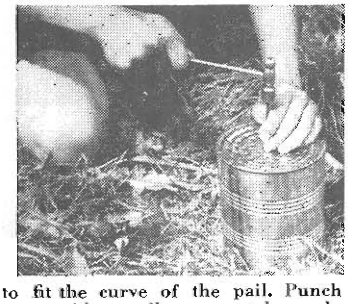
Sewed grommets work much better than metal ones for lacing up tepee fronts.

A CAMP SHOWER BATH

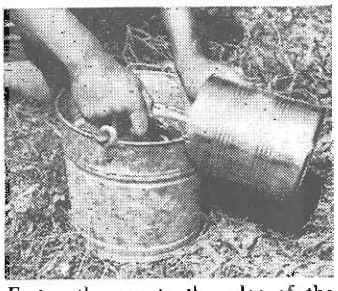
FROM DENMARK

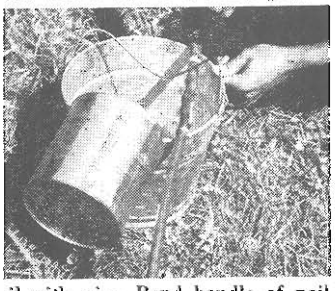




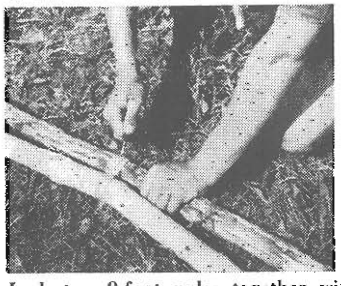


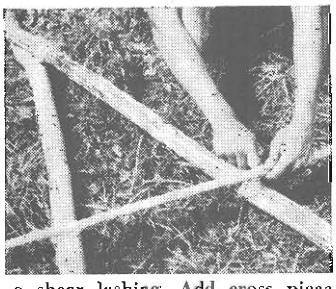
Cut the top edge of #10 tin can to fit the curve of the pail. Punch small holes in the bottom of the tin can with a nail or a metal punch.





Fasten the can to the edge of the pail with wire. Bend handle of pail to fit cross piece of shear legs. Attach a stick with rope across pail.



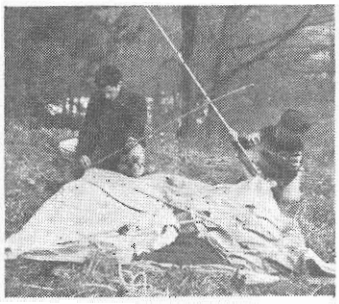


Lash two 9-foot poles together with a shear lashing. Add cross piece to shear legs with square lashings. Attach a long anchor rope at the top.

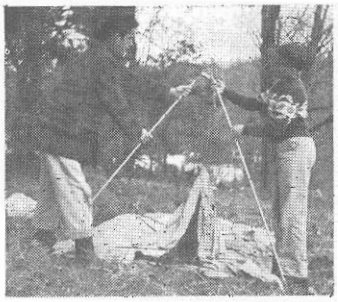
SWIMMING IS FUN and a dip is refreshing on a hot summer day, but you still need a regular soap bath or shower to stay clean. Your favorite camp sites are not likely to offer you the luxury of a built-in shower bath as part of the accommodations. You might think that a wash basin or the local stream or lake must provide you with your bathing facilities—but, there is another way you can do it.

The Scouts in Denmark manage to enjoy their daily showers even on long hikes. They just take their own shower along with them in a handy portable form and use native materials to erect it. Not much is needed in the way of equipment: a pail, a No. 10 tin can, a few poles, and some rope for lashings and anchor. Your patrol's camp tool kit probably has additional useful tools, such as a hammer, tin snips, and a large nail. With this material you can follow the directions given above to make your own camp shower.

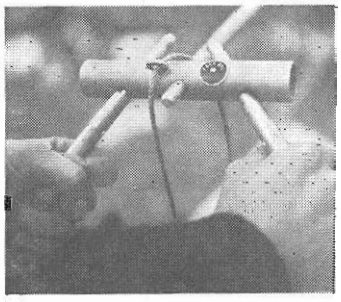
When the shower pail is completed, pick a secluded spot which is shielded from strong winds to erect your shower. Prepare warm water, fill the shower pail with it, then attach the pail in position over the cross piece. Raise the structure to a height of seven or eight feet and anchor it into position with the rope. You can now shower yourself by pulling at the cord which is attached to the stick tied to the pail. To refill the pail, loosen the anchor rope and lower the lashed poles far enough so you can reach the pail.



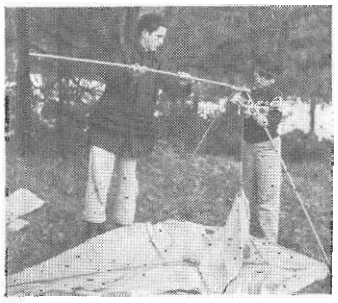
Spread tent on ground. Insert ends of joined pole sections into reinforced pockets at corners of tent.



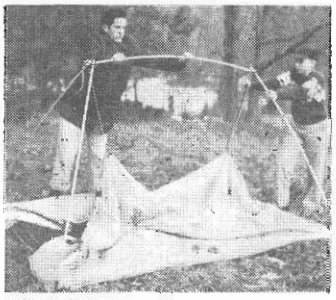
Insert tops of front tent poles into the holes of your front crosspiece. Then do same with back tent poles.



Here is how the front and back tent poles fit into the crosspiece. Have your partner put in end of top pole.



After top pole is in one crosspiece, bend into bow and insert into other crosspiece. Drawstrings raise tent.



PITCH A TENT IN 5 MINUTES

By BOB JONES

THIS TENT CAN be raised in a jiffy. The gimmick is in the tent frame and the way the tent is attached to it. Since the poles are in sections, the tent and poles will fold into a bundle which is handy to pack and weighs less than ten pounds.

The ground cloth is sewn in. Entrance is through a zippered mosquito netting and the tent has plenty of space for two campers and their gear. Actually, the same principle can be adapted to almost any tent.

The frame can be made, if you prefer, of springy saplings or bamboo fishing poles. When you are using this type of frame, the poles can be lashed to the crosspieces. The tension of the bow on top forces the bottom corners outward and the tent hangs from the frame. Since this type of setup doesn't depend on ground stakes to hold it, you can pitch it on a flat rock or sandy beach without worrying about having to peg it down. It hugs the ground tight in any kind of wind.

Drawstrings pull up the top corners of the tent through an eye in the crosspiece. A line from tie tapes in the tent sides, running over the top of the bow, helps to keep the tent taut.

USES OF THE PONCHO

By STANLEY PASHKO

WITH A LITTLE ingenuity, you can find a score of important extra uses for your poncho. It is designed to keep you snug and dry in the worst kind of wet weather, but it is a utility item that will surprise you by the variety of things it can do for you.

It can make an emergency stretcher, a shelter, a wash basin or a windbreak, as shown below. But it is also a ground cloth which will protect your sleeping bag or blanket betting. Properly lashed over a framework of boughs or a big ring of hay and straw, it will become a little boat.

The poncho can make an excellent roll pack for your camping gear. Just distribute camp equipment and clothing along one edge and roll it all up into a cylinder. Then tie the ends of the roll securely to keep the gear from spilling out. Carry the roll over one shoulder and diagonally across your chest, tying the ends at your hip. This is not as good as a good back pack, of course, but it will serve in a pinch.

Another transportation problem which your poncho can help you solve is one in which a great many small items, or light bulky items must be carried. Simply pile them on the spread poncho, then get a friend to carry one end while you take the other. If you have to do it alone, bring up the four corners over the load and carry the poncho like a sack.

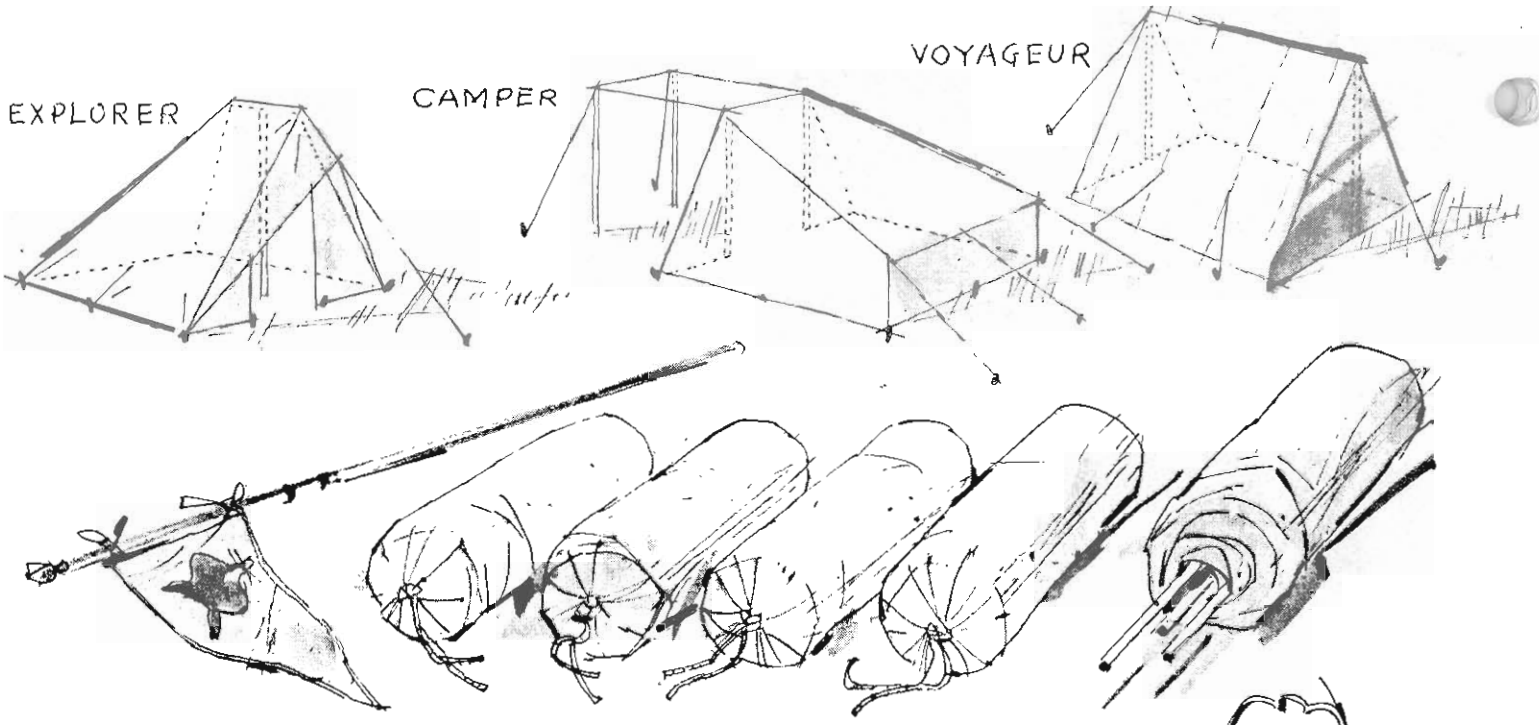
Some other poncho uses include: an emergency sail, covering to keep supplies dry, nature study blind (you observe through the opening in the poncho center), and dining area fly.

A handy wash basin or laundry tub can be made by digging a hole in the ground and lining it with a section of your poncho. Leave the rest of poncho spread out to kneel on and to keep washed clothing off the sand and dirt. Keep rubberized side of poncho up. Just fill the scooped out, lined hole with water and you are ready to work.

Two long poles and a poncho will make an emergency stretcher, using method shown in your Handbook.

A long pole lashed between two trees, plus poles leaned against it makes the framework for a shelter.

A strong or shifting wind can play havoc with your cooking fire. You can wall it off and protect your fire by securing the poncho as a wind break between two trees or dug in poles. The hole in the poncho permits enough wind to get through to relieve the pressure on the poles, but not enough to bother the cooking fire you are tending.



CAMPING EQUIPMENT

First on your list of patrol equipment is: enough canvas to shelter the gang, preferably in the form of buddy tents—

4 two-boy tents, with poles, guy lines and pegs

My pick of a tent would be the Voyageur, the Explorer or the Camper. Each of them provides 30 square feet of ground space per camper and has clearance for standing up. But be positive to get them with sewn-in sod cloth for protection against wind, rain and insects. As a matter of fact, as far as I am concerned, no tent is suitable for Scout camping unless it is provided with sod cloth over which to place your individual ground sheets.

For overnighting, you may not want any special protection of your dining area, but you'll need it for camporeeing and for summer camp, so here goes—

1 dining fly, 10'x10' minimum size, with poles, guy lines and pegs

Next on your list come a couple of tools for the actual process of setting up camp—

1 axe, single bit—ordinary hand axe or, better, Super Scout or Explorer axe

1 camp spade with a sharp, straight edge for conserving the sod in whatever digging you may have to do

A number of small items are necessary for keeping your equipment in shape and for special use around camp. They can be put into a drawstring bag in the form of—

1 repair kit, containing 8" mill file for axe sharpening, sharpening stone, twine, thin wire, needles, thread, safety pins

Now, add two special kits for preparedness—

1 first aid kit, with items for tending simple emergencies, especially burns and small cuts

1 personal-appearance kit, with shoe polish, polish dauber, polishing brush, polishing rag, cleaning fluid

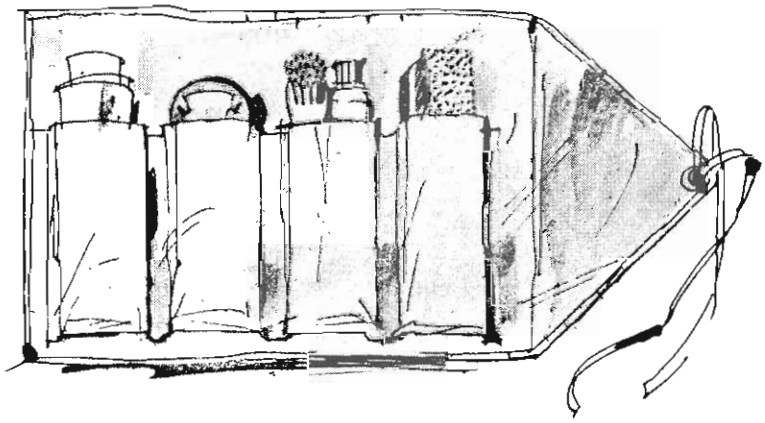
Your miscellaneous items will include such things as—

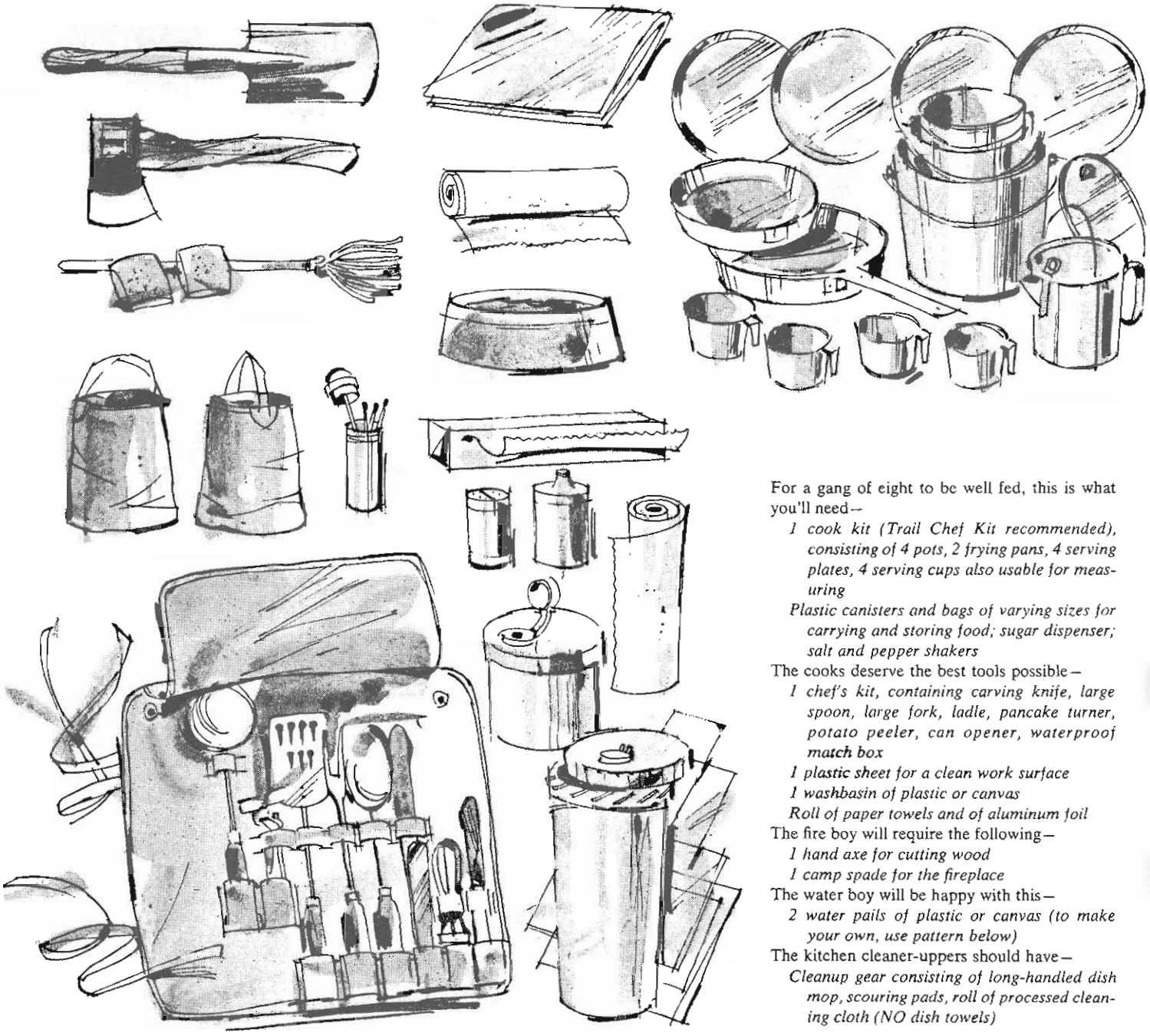
1 or more electric lanterns

Roll of toilet paper

And finally, an important item that follows the good patrol wherever it goes—

1 patrol flag—preferably homemade





For a gang of eight to be well fed, this is what you'll need—

1 cook kit (Trail Chef Kit recommended), consisting of 4 pots, 2 frying pans, 4 serving plates, 4 serving cups also usable for measuring

Plastic canisters and bags of varying sizes for carrying and storing food; sugar dispenser; salt and pepper shakers

The cooks deserve the best tools possible—

1 chef's kit, containing carving knife, large spoon, large fork, ladle, pancake turner, potato peeler, can opener, waterproof match box

1 plastic sheet for a clean work surface

1 washbasin of plastic or canvas

Roll of paper towels and of aluminum foil

The fire boy will require the following—

1 hand axe for cutting wood

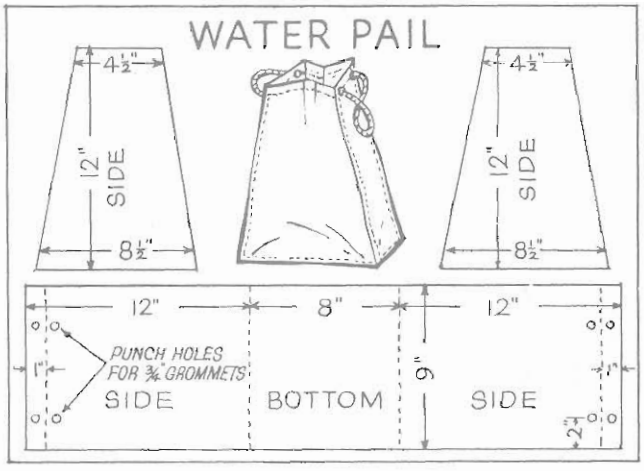
1 camp spade for the fireplace

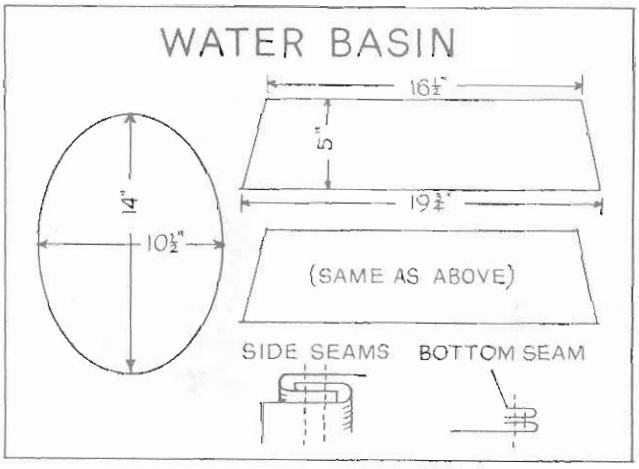
The water boy will be happy with this—

2 water pails of plastic or canvas (to make your own, use pattern below)

The kitchen cleaner-uppers should have—

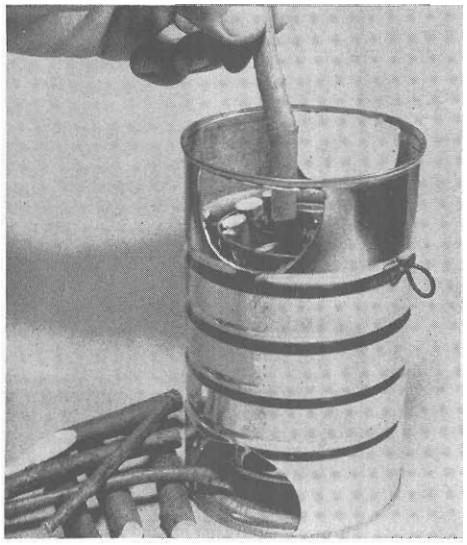
Cleanup gear consisting of long-handled dish mop, scouring pads, roll of processed cleaning cloth (NO dish towels)





TIN-CAN CAMP STOVE

By TED COLLINS



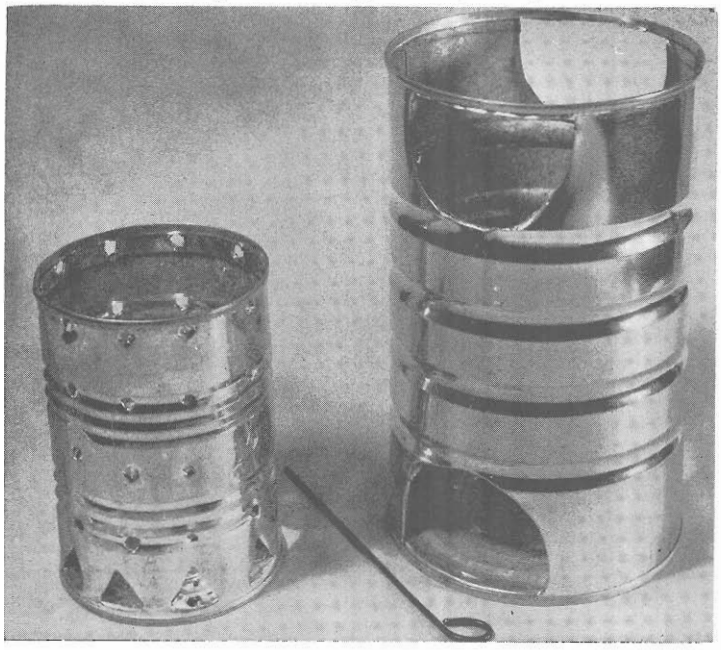
Feed the stove some small twigs, about the size of a pencil. Stove cooks quickly.

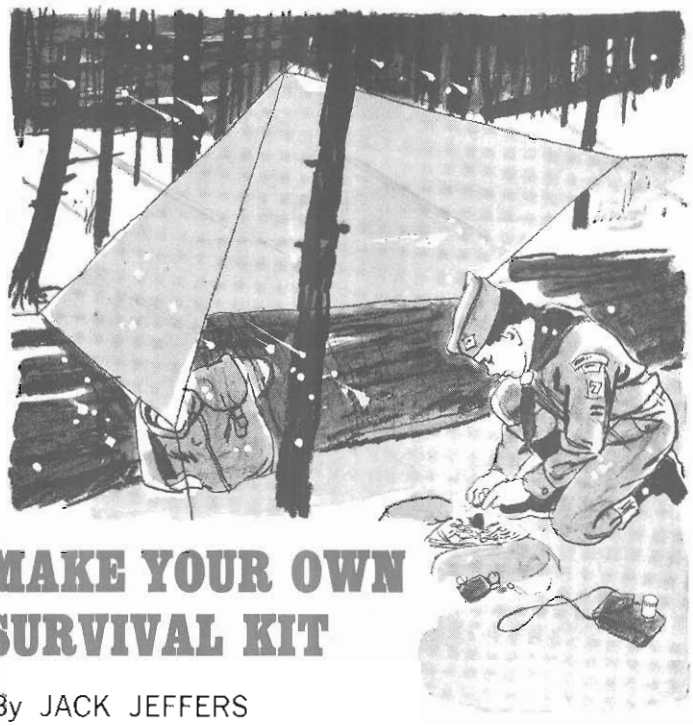
It isn't very big, and it's not much to look at. But boy, can you cook with it! This little camp stove is easy to pack and yet large enough to cook a one-man or two-man dinner. It uses pencil-size twigs for fuel, is practically smokeless in operation, and will boil a small pan of water in about eight minutes. And it costs nothing to make!

Materials you need to make one are a large juice can for the outer shell, a smaller vegetable-size (3" x 4 3/8") can for the firebox, and a short length of coat-hanger wire. Begin construction by cutting four half-moon-shaped holes in the sides of the juice can. Use a hook-type can opener to cut the arcs, then a pair of pliers to tear the pieces clean along the can rims. Use a beverage-type can opener to cut a series of Vs around the bottom of the small can, then punch holes in the sides of the can with a spike.

Use the coat-hanger wire to make a shaft to hang the small can inside the juice can so it clears the bottom by about one inch. That's all there is to it. One caution: Just remember that cut edges of tin cans can be razor-sharp, so handle the cans carefully while you work on them. Any rough edges can be removed with a file. ■

Parts ready for assembly. Use wood support when punching holes in small can.





MAKE YOUR OWN SURVIVAL KIT

By JACK JEFFERS

Leaving their car parked at the side of the road, the two men plunged into the thick brush of southern New Jersey's pine barrens. Falling mist failed to dampen their holiday spirit. They expected to return in two hours with holly to decorate their homes for Christmas.

When the snow started to fall, neither became excited. They weren't more than a few miles from their car—and they knew the country well and had a good sense of direction. Worry didn't set in until the mild snowstorm turned into a raging blizzard.

Of course they lost their way. One of the men died of exposure practically within shouting distance of the road. The survivor—when a search party found him the next day—babbled over and over that his friend would have lived if they could have gotten a fire started.

The incident is tragic testimony to the necessity of having an all weather survival pouch—even on a brief hike in familiar territory. I carry one tied to my waist on all my outings.

A pouch can be constructed from scraps of buckskin, light calfskin or cloth, with a drawstring or buttoned-down top. Synthetics such as nylon are ideal, for they neither mildew nor rot. The pouch is large enough to contain three 35mm cans for holding items that should be kept dry, the regulation Boy Scout Rescue Blanket—which takes up one-third of the space—and a small nylon bag filled with odds and ends.

The hiker who in an emergency can stay warm and dry isn't in much danger. My first 35mm can contains four Band-Aids, a pencil and 24 wooden matches.

The second can is packed with 0000 steel wool, a small plug of wood with cigarette-lighter flints imbedded and glued in one end and a one-inch section of hacksaw blade. This mini flint-and-steel kit will produce fire under any weather condition.

The Boy Scout Rescue Blanket is 56 by 84 inches and reflects from 80 to 90 percent of the body heat. The blanket can be used to wrap in or can be pitched as a windbreak. Twenty yards of nylon cord to tie down the blanket is stored in the small nylon bag, whose inner liner is a plastic bag which serves as a half-gallon water container. Also in the bag are: plastic tube of salt with large sewing needle taped to the side; plastic tube of halazone tablets; chapstick tube; small container of iodine; snake-bite kit, two feet of heavy-duty aluminum foil; half of a small candle; jack-knife and small stone for sharpening it; and a compass.

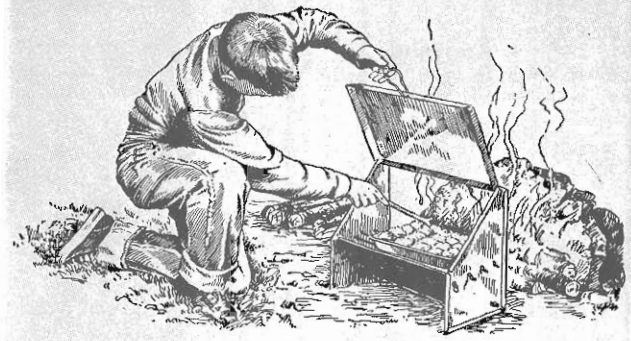
In my third 35mm can I keep a tube of aspirin, 50 yards of nylon monofilament line wrapped around the aspirin tube; two small fishhooks; three feet of plastic-coated copper wire for snare noose; six feet of wax-coated eight-ply linen thread for snare line or sewing; small needle; two rubber bands, a paper clip and a quarter.

You may have difficulty understanding why I have included certain items. And you may like to add items that I do not have. That's good, because this article is only a guide to help you plan and construct your own personal survival kit. If you hike in the desert, for instance, would the fishhooks be excess baggage? Probably so.

Tailor-make your kit to your section of the country. And use and replenish its contents regularly. If you do, a real emergency may come and go before you are aware of it. ■

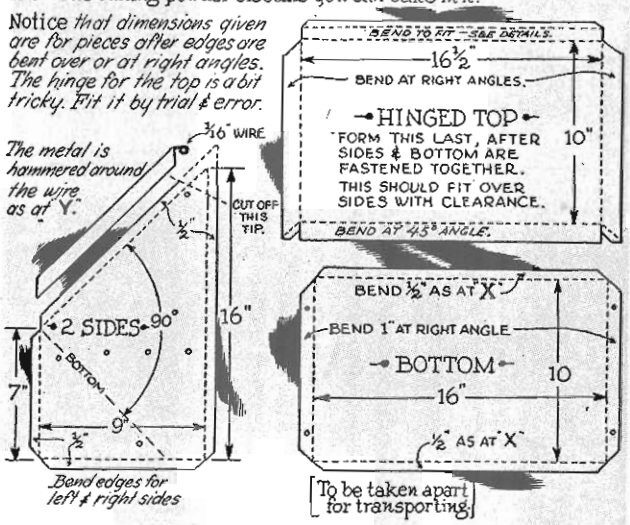
REFLECTOR OVEN

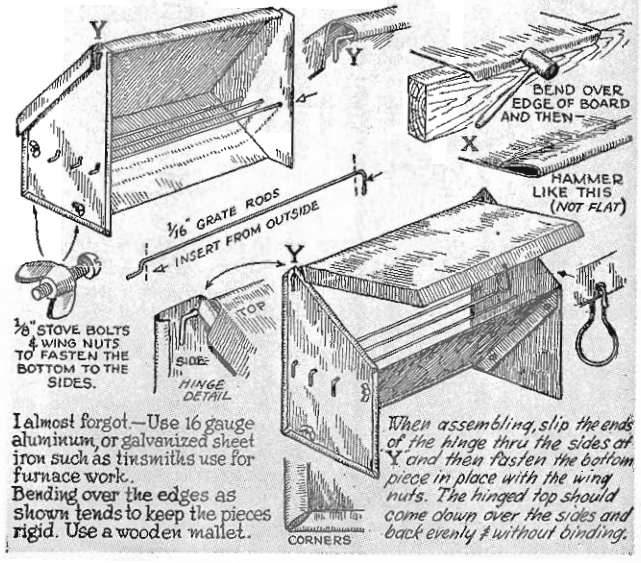
By BEN HUNT



A lot of different reflector ovens have been made thru the years and here's still another one. In this one you can turn the pan around or examine it without burning yourself. It's not my idea exactly. Someone mentioned it some time ago and I took it up from there. This one is just right for a medium size aluminum cake pan and that will be big enough for two guys who like good things to eat. And what luscious baking powder biscuits you can bake in it.

Notice that dimensions given are for pieces after edges are bent over or at right angles. The hinge for the top is a bit tricky. Fit it by trial & error.



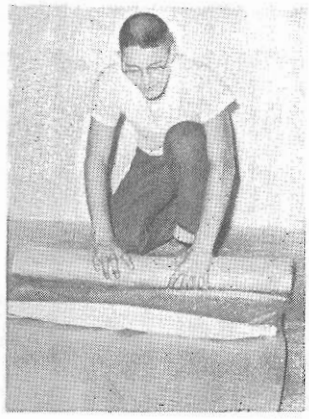


I almost forgot.—Use 16 gauge aluminum, or galvanized sheet iron such as tinsmiths use for furnace work.
Bending over the edges as shown tends to keep the pieces rigid. Use a wooden mallet.

When assembling, slip the ends of the hinge thru the sides at Y and then fasten the bottom piece in place with the wing nuts. The hinged top should come down over the sides and back evenly & without binding.

A VERSATILE PAPER SLEEPING BAG

By PETE CZURA



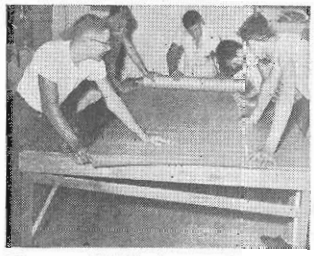
A NICE FEATURE of this "throw-away sleeping bag" is that you can make one in less than an hour. You can use it for an overnighter, a weekend camp or a longer trail hike; and you can leave it behind, if you want.

Materials used in the construction of the bags shown here were: a roll of Sisalkraft paper, a hand stapler, large shears, a ruler, staples and some old bed sheeting. The paper is a rugged 6-ply laminated type which is available at most lumber yards. The paper and staples for making five of these sleeping bags cost an average of $1.09 per bag.

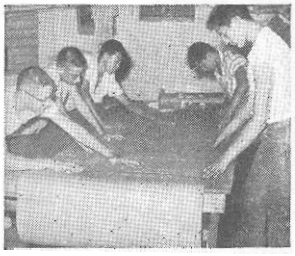
Most boys will find that a six foot bag is plenty long enough, but if you happen to be the basketball center type you will have to add to that length. Remember that when you add an inch to the length of the bag, you have to add two inches to the total length of paper you cut off the roll. There's a top and bottom to your bag, you know.

Some of the fellows made deluxe versions by inserting a liner made of old sheeting before stapling cloth and paper together. But, this bag is not intended to compete with sleeping bags costing a great deal more. It is strictly a one-shot proposition, or possibly for special emergency work. It has been proven to provide plenty of protection from spring and fall weather, and is resistant to rain and ground moisture. It should, however, get the same protection you give your regular sleeping bag; a ground cloth underneath and a tarp on top for wet weather.

Completed, these bags weighed less than two pounds apiece. Shorter versions of this bag can be whipped up for use as foot warmers at football games, ice fishing and other outdoor sports where the spectator or sportsman is idle for long periods. The foot warmer type may prove to be a salable item if you live near a college stadium.



Measure off 14' of paper to make a 6' sleeping bag with a 2' head flap.



Mark off 6' and double over paper at that point. Fold sides in ½".

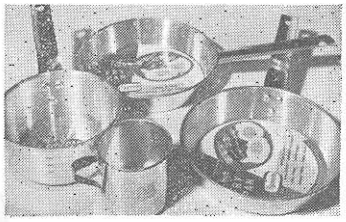
Begin stapling at fold and work to top. Space your staples ½" apart.

Finally, staple cloth draft curtain to bag mouth. Use old sheeting.

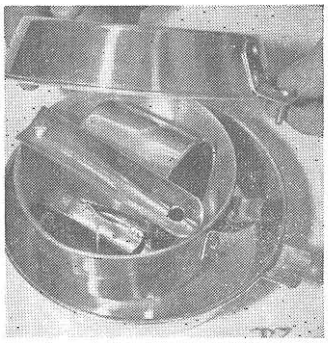
ALUMINUM COOK KIT

By JOHN TAYLOR

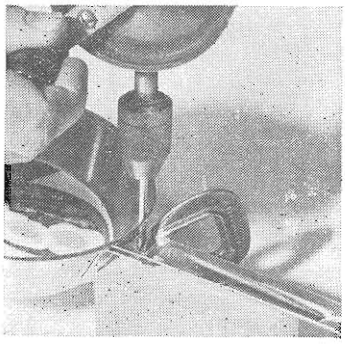
TRAILSIDE chow will look and taste better if it's cooked and served in an attractive and practical cook kit. Here's one you can make using "five and ten" store utensils. All you have to do is cut three handles with a hack saw, smooth saw cuts with a file, drill three holes, and make a bag. Use extra handle as extension.



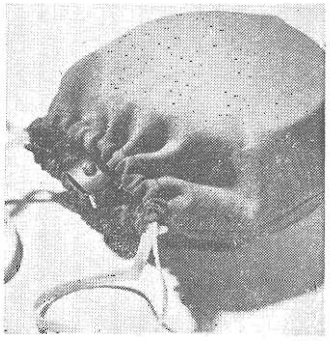
Start with these aluminum utensils: Two 7" fry pans (7" x 1½" deep), one 2-cup saucepan (5¼" x 2⅜" deep), one drinking cup (2¾" x 2¾" deep). Also get two 10-24 x ½" and one 10-24 x ¾" round head aluminum machine screws; wing nuts.



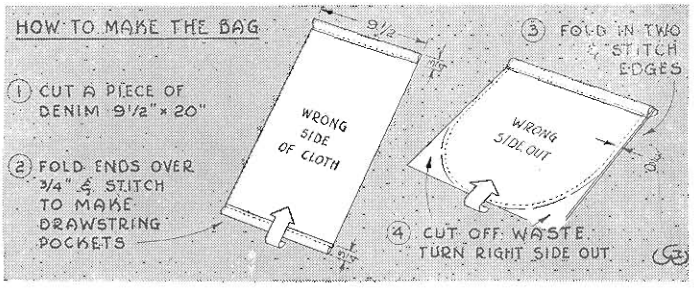
Kit packs like this. Use ¾" bolt to fasten fry pan handles together.



Cut all handles ¾" from pan edge. Drill 3/16" bolt holes; clamp work.

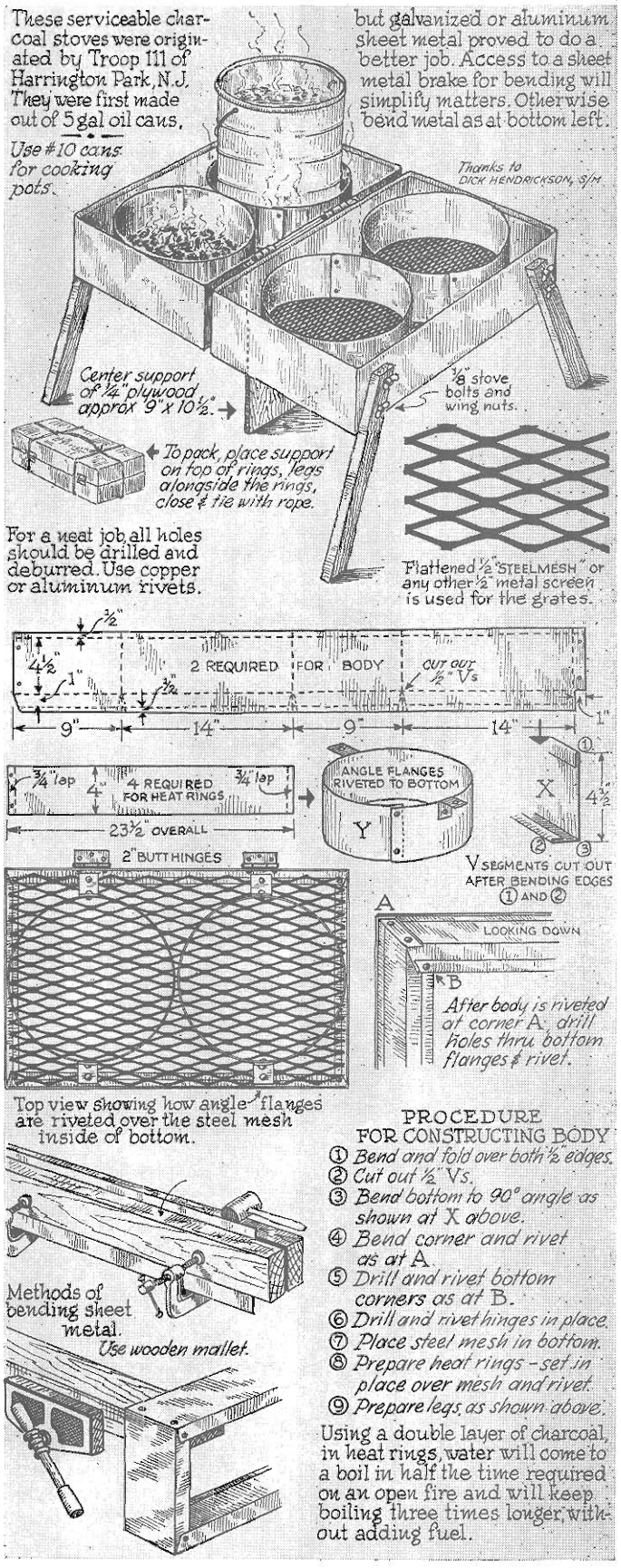


Kit packs in lightweight denim bag; two 24" shoelaces make drawstrings.



4-BURNER CHARCOAL STOVE

By BEN HUNT



GREEN BAR Bill

THE HOME ON YOUR BACK

For two solid days in early August I felt like a Mexican jumping bean as I hopped back and forth over Idaho's Farragut State Park to greet Scouts from around the globe arriving for the Boy Scout XII World Jamboree. Every few minutes buses drove up before subcamp gateways, and out poured streams of broadly smiling Scouts in uniforms of khaki and green, blue and red, brown and gray. The boys threw their packs on their backs and hiked off singing for the campsites that were to be their homes for the Jamboree.

Here were the Scouts from Austria and Switzerland toting their greenish-gray *rucksäcker* and the Scouts of Norway their aluminum-framed *Bergan's Meiser*. The black-haired Scouts of Italy carried their *Alpinieri* sacs, the blond boys of Denmark their *Kit-Kat* packs. Packs upon packs of many different designs, and pack frames made of native wood, of metal rods or tubing. The Scouts had come fully prepared for a magnificent camping experience, most of them with everything they needed for making camp right on their backs.

What these Jamboree Scouts coming from afar managed to do, you should be able to do right within your own patrol. You *can*—provided you make it your aim to build up a gang of expert campers, each fellow with a pack of adequate size, and each fellow knowing how to pack it.

Before you let the boys of your patrol go ahead and get just any kind of pack, give them a demonstration of the size they'll need for the kind of camping you'll want to do.

Bring to a patrol meeting all the things you yourself would take to camp and add to it the part of patrol gear you would expect to carry. Stack everything in a neat rectangle, about as wide as your back. Then tie strings around the pile and measure the dimensions of the pile of gear. You'll probably come up with a size of about 15 inches wide, eight to ten inches deep, 18 to 20 inches long—that is, unless your sleeping bag is particularly bulky, in which case you could roll it up into a sausage and fasten it to the outside of the pack.

The three best packs I know of for Scout camping fit those dimensions:

The official Yucca Pack is about right for long weekends and camporees. It will take most of your gear inside and has outside rings to which you can lash your blankets or a tent.

If you have your mind set on wilderness treks, you'd probably pick the Camper Pak rather than the Yucca. It's somewhat larger and has three big outside pockets that'll keep all small items within easy reach.

The official Yucca Pack has been a standby for many years. It's roomy, water-repellent, sturdy, has side D rings, and a roomy outside pocket for easy access.

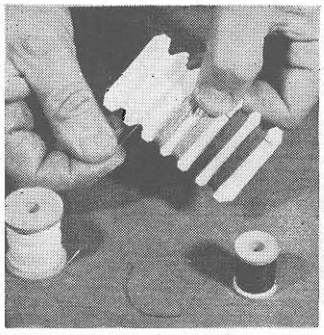
Camper Pak is great for long trips. Added advantage is that the pack has usual shoulder straps but also has loops to fit official packframes. It has a zippered pocket.

All the items of this well-stocked kit fit inside an eyeglass case.

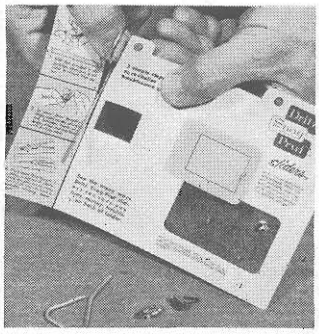
Personal Sewing Kit for Camp

By GLENN WAGNER

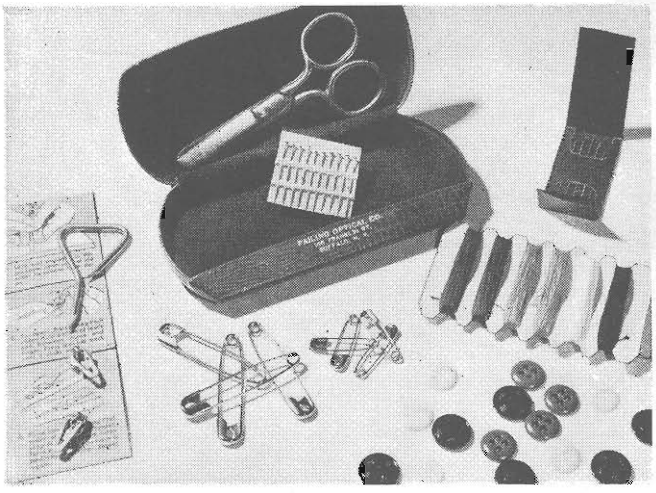
IT ALMOST ALWAYS happens while you're having a swell time camping out. You rip something, lose a button, or a zipper jams. But if you carry this combination sewing and repair kit in your gear you'll be ready for any emergency. To make one, start by locating a discarded eyeglass case. Then gather together these items: a small pair of scissors, about a dozen straight pins, four large and four small safety pins, an assortment of white and khaki buttons, a set of five assorted needles in a folder, a couple of zipper repair slides and repair tool. Make the cardboard thread card and wind an assortment of black, white, light, and dark khaki thread on it. To eliminate confusion, we suggest you pack the buttons and safety pins in a small wax paper bag (not shown in photo), fold over the top, and store it in the bottom of the case. Note we kept the zipper slide replacement directions to remind us—just in case.

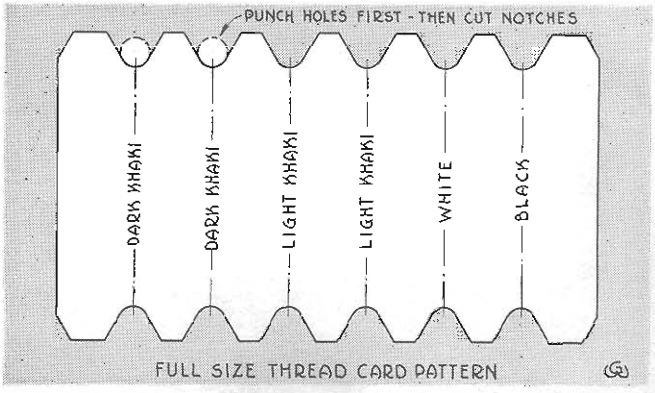


Wrap card with 135 turns of light weight thread in various colors.

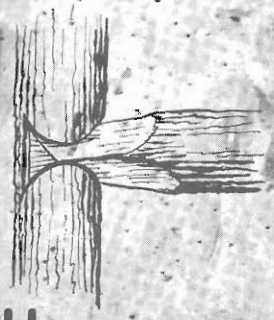


Snip the replacement directions from the zipper slide display card.





CAMPCRAFT QUICKIES



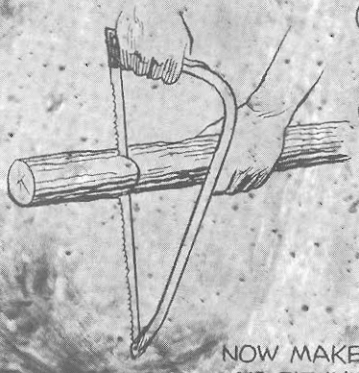
THE DOVETAIL NOTCH

THIS NOTCH WILL FIRMLY JOIN TOGETHER TWO PIECES OF WOOD WITHOUT NAILS, WIRE, OR ROPE. YOU CAN MAKE IT QUICKLY WITH JUST FOUR SAW CUTS AND A FEW KNIFE AND AX STROKES.

1. SAW A CUT SLANTING TO YOUR RIGHT, NOT QUITE HALFWAY THROUGH THE BRANCH OR POLE. (AVOID KNOTS...START WELL IN FROM END TO AVOID SPLITTING WHEN DOVETAIL IS DRIVEN IN).

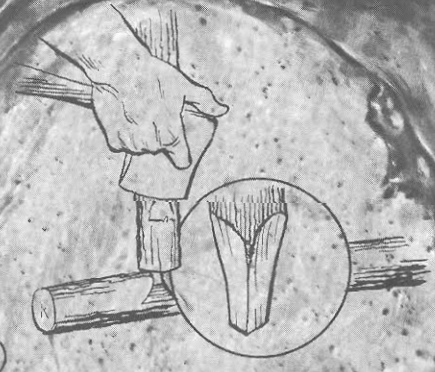
2. MAKE AN EQUAL CUT SLANTING TO YOUR LEFT.

3. MAKE TWO SAW CUTS CLOSE TOGETHER IN THE MIDDLE OF AND TO THE SAME DEPTH AS THE SIDE CUTS.



4. WITH YOUR KNIFE, PRY OUT THE WOOD FIRST ON ONE SIDE THEN THE OTHER UNTIL THE NOTCH IS CLEANED OUT AND READY FOR THE DOVETAIL.

NOW MAKE THE DOVETAIL TO FIT INTO THE NOTCH.

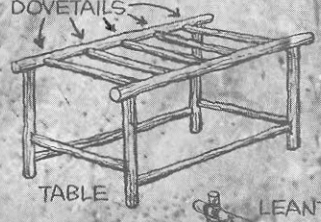


5. HOLD THE BRANCH TO BE FITTED AND SHAPE THE BASE AND SIDES WITH YOUR AX. MAKE END A BIT SMALLER THAN THE NOTCH.

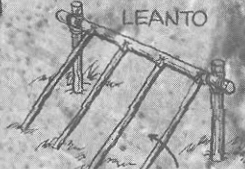
6.

DRIVE DOVETAIL INTO NOTCH— IT'S DONE.

MANY THINGS CAN BE MADE BY USING DOVETAIL NOTCHES. FOR EXAMPLE...



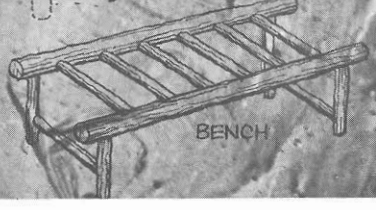
TABLE



LEANTO

FIREPLACE

TARPAULIN OR THATCH OVER



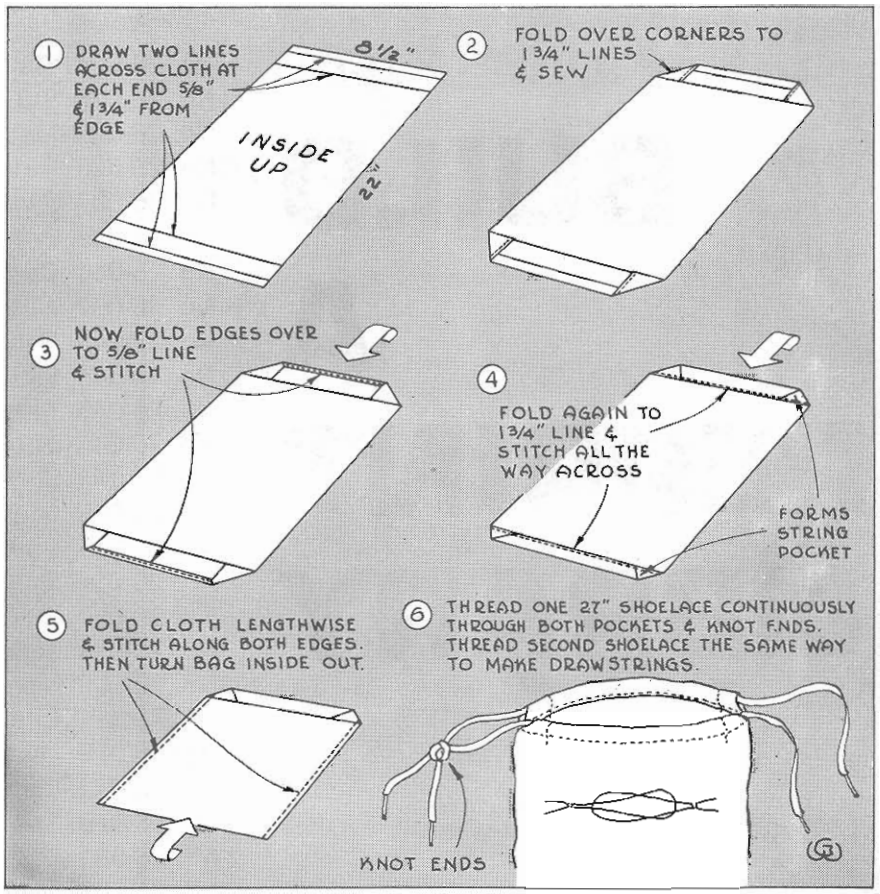
BENCH

HOW TO MAKE

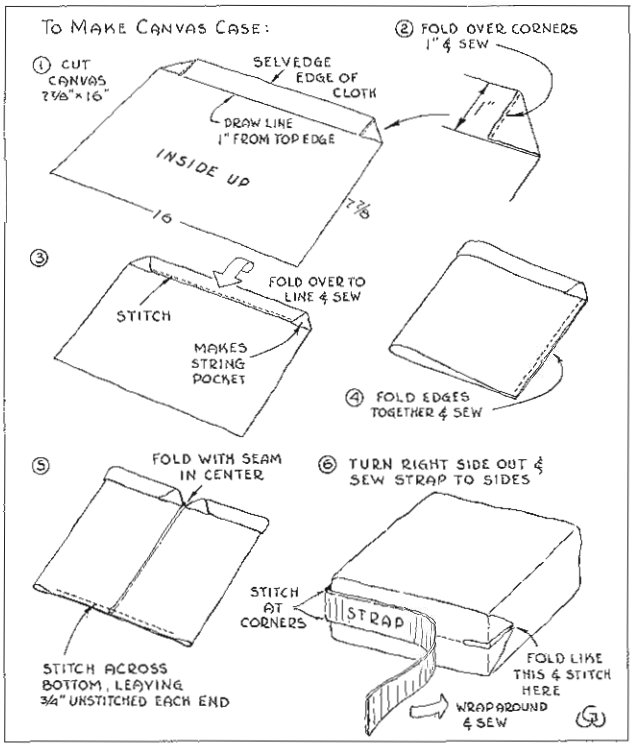
A DITTY BAG

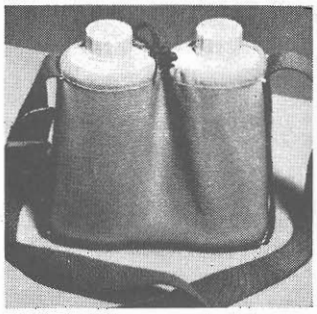
By GLENN WAGNER

ALTHOUGH IT measures only 8" x 10", this little ditty bag will hold all those odds and ends that are so hard to stow in a large back pack. Shoelace drawstrings keep the bag shut tight, yet allow you to get at the contents easily. To make one, you need a piece of light canvas or denim 8½" x 22" and two 27" shoelaces. Use a sewing machine if possible for stitching. Add a colorful patch, if you like, for decoration.

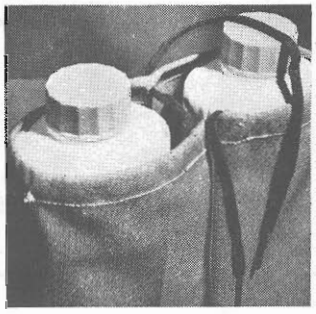


TWO EMPTY 12 OZ. FLEXIBLE plastic detergent bottles carried in a canvas bag will carry enough water for a man-size thirst—or carry concentrated juice in one bottle and water in the other! This canteen is easy to make, is unbreakable, lightweight, convenient to carry.





Materials: two detergent bottles, piece of canvas, 27" shoelace, and a ¾ or 1" wide x 54" webbing strap.



Bottles are secured in bag by shoelace drawstring. Note how one end threads through opposite hole.

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By JOHN TAYLOR

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