

TECHNOLOGY

New Clothing for Fighters

To clothe men properly, designers have produced plastic long underwear, bullet-proof vests, "thermos-jug" boots, and a 19-pound cold-weather outfit.

By ALLEN LONG

► PROPER CLOTHING is one of the most important weapons that the armed forces must give their servicemen. Like a machinegun, an ack-ack gun, or a bazooka, clothing is used to fight an enemy. The enemy is an environment to which the serviceman is not adjusted. Cold winds, icy waters or thin atmosphere can be as dangerous to the fighting man as the enemy's bullets. He may use 75% of his energy just staying alive.

To give the American GI the proper clothing, experts have gone into huddles and produced some unique fashions that are making headlines. You will not see these fashions in this year's Easter parade. Chances are that most of the suits available have been shipped to Korea where they are needed.

Among the new things the serviceman is wearing are these: foam-like plastic underwear which also doubles at the same time as the outer garment; bullet-proof vests with protective plates sewn in alarmingly loose; "itchless" underwear for sailors; and boots so warm that soldiers call them "thermos jugs." A weird-looking, skin-tight "space suit" now clothes the jet-age test pilot.

Ship Clothes in Cans

And to top it off, clothes now are being shipped in cans just like live lobsters for the housewife who wants her sea-food fresh.

The suit that has made the biggest splash so far is the Army's Coldbar uniform. It keeps its wearer warm whether his skin is wet or dry. Both testers and skeptics have donned the five-pound outfit and jumped into the chilly waters of the Potomac River. Even the skeptics have been convinced that the Coldbar uniform is really something to talk about.

Made of vinyl plastic that resembles sponge rubber, the uniform works on the "vapor barrier" principle. The idea is to trap body heat in tiny holes in the fabric and to hold the heat there.

A soldier wearing the Coldbar uniform can fall off a treacherous footbridge as he tries to cross an icy Korean stream. When he hits the water, it will feel like someone poured ice water down his neck. The suit will keep him afloat in the water, even if he's wearing a field pack. In a short time, the ice-cold water will begin to warm up, and in a few minutes, the soldier will feel warm as toast.

The skeptics did not believe that until they tried out the suit themselves. They are convinced now that the outfit does all the Army says it does. Said one: "Although I was soaked literally to the skin, that water began to lose its chill and soon felt quite cozy."

Coldbar uniforms come in two pieces, jacket and trousers. The serviceman wears nothing under the suit at all. Theoretically he needs nothing over the suit. But since the plastic material can be torn, usually a "covering" of a regular Army jacket and trousers is slipped over the suit to protect it from jagged twigs and sharp rocks. If the suit is torn anyway, a little glue patches it up.

When still in the design stages, a few Coldbar uniforms reportedly were sent to Korea for actual field tests. Once a soldier had tried it out, the report goes, he was reluctant to give it up, even if it was not perfect. Today, thousands of the perfected uniforms are clothing troops in Korea.

Hard-hitting Marines in Korea now are sporting what they call "shrap-jackets." Weighing 7¾ pounds, the jackets are said to be from 90% to 95% successful in preventing serious wounds of the torso, although the Navy's Bureau of Medicine and Surgery says accurate statistics will not be available until a survey in Korea is completed.

The jackets are made of glass cloth and a synthetic resin. Called Doron, the material is curved to fit the contour of the body. "Plates" of the material are an eighth of an inch thick and about five inches square. They are sewn into the pockets of heavy nylon vests and overlap like fish scales.

Stops Bullets Completely

To the Marine, the jacket may look alarmingly unprotective. But to a chunk of lead from a .45 caliber pistol or machinegun, the jackets are tough, even at point-blank range. Those bullets are stopped completely. Fragments from a United States-type grenade exploding at three feet are arrested by the jacket before they critically hurt the Marine. Devastating mortar blasts at 10 feet also are less of a hazard to Marines wearing "shrap-jackets."



LATEST MILITARY FASHIONS—The sailor on the left models the Navy's new cold-weather uniform which weighs 19 pounds, and which keeps him warm by trapping air between its many layers. The soldier (right) sports the Army's Coldbar plastic underwear which keeps him warm, as well as afloat, even in icy rivers.

The secret of the jacket lies in its material and in its construction. The many layers of resin-impregnated glass cloth cushion the bullet or shrapnel as it enters the jacket. By not pressing the layers together tightly, designers have increased the cushioning effect of the vest and thus have increased its effectiveness.

Meanwhile the Army announced an "armored jacket" of its own which also now is serving front-line soldiers in Korea. Made of laminated nylon covered with a water-proof outer shell, the jacket is expected "to reduce battle casualties considerably."

"With its use, it is believed that wounds which otherwise result in death will be reduced to injuries only, and the severity of wounds incurred will be lessened," the Army said.

A companion piece to the armored jacket recently has been developed to protect the soldier's hips, abdomen and groin. When "uppers" and "lowers" are worn, the entire torso is protected.

Statistics on the Army's version of the bullet-proof jackets show that the garments deflect about 65% of all types of missiles and reduce chest and upper-abdominal wounds by about 60%.

"Itchless" Underwear

The Navy got a few laughs when it announced its new waffle-weave "itchless" underwear. The laughs came mostly from newspaper readers, though, and not from scratching sailors. Made entirely of cotton, the underwear was a part of an intense Naval project aimed at clothing men warmly who must stand watch on wave-drenched decks above the Arctic Circle.

The underwear is much warmer than the woolen suit it replaces and wears twice as long. Its waffle-weave design creates a three-dimensional honeycomb effect which provides tiny air pockets in the fabric to hold in the sailor's heat and keep the cold out. It will be issued to Arctic-bound sailors as soon as they squirm and scratch their way through the present supply of woollies.

The Navy awarded its highest civilian honor—the Distinguished Civilian Service award—to two Brooklyn men who perfected a cold-weather uniform recently adopted by the Navy. Salvatore V. Gianola and Dominick E. Maglio designed a suit of

clothing that weighs only 19 pounds and is guaranteed to protect men at 40 degrees below zero. One of their developments is the insulated rubber thermoboot which has produced spectacular results in Korea by protecting the feet of U. S. troops from frostbite. Grateful soldiers affectionately call boots of this type "thermos jugs."

Jet-Age Suit

That strange-looking, skin-tight, man-from-Mars suit profusely pictured in the nation's press recently is the Air Force's answer to the test pilot's problems of stratospheric flight in this jet age.

Called simply the T-1, the suit at present bridges the widening gap between man's super-modern airplanes and his body which cannot be made over to fit the planes.

Designed at the Aero-Medical Laboratory at the Air Force's Wright-Patterson Air Development Center, Dayton, Ohio, the suit was created to save the lives of pilots at high altitudes if an enemy bullet or mechanical troubles cause the plane's cabin pressure to fail. The suit is worn uninflated, but goes into operation automatically when the air pressure around it gets too low.

Such an outfit, already credited with saving one life, is needed because at the high altitudes now attained by some of America's latest aircraft, a pilot can be killed in seconds if air pressure around him goes down. Water in his body will boil at 60,000 feet, clogging his circulatory system with air bubbles and actually causing his body to double its size.

Furthermore, at high altitudes the pilot needs oxygen under pressure to satisfy the breathing requirements of his body. Plain oxygen is not sufficient. It must be compressed to "supercharge" the pilot's lungs. If he does not have it, he dies. And with new jet planes zipping through the skies at dizzying angles, the forces on the test pilot's body are terrific. He needs an

"anti-G" suit also which counteracts the magnified forces of gravity on his body.

The T-1 fits the bill. It has a built-in anti-G device and it applies pressure to the pilot's body when cabin pressure fails. It even has an emergency bottle of compressed oxygen which the pilot straps to his thigh. While plunging downward through the thin air in bailouts, the pilot uses the compressed oxygen until he reaches a level where he can open his parachute and breathe the air.

These, by no means, are all of the recent developments in military clothing. The garments and suits described here, however, are some of the latest. It may seem that the pinnacle has been reached, that man has met the last challenge. But he has not.

As science pushes the frontiers higher into the sky, and deeper into the sea, and as wars and economics force man to go to climates to which he is not accustomed, he will surpass even these triumphs in textiles.

Science News Letter, February 21, 1953

BIOCHEMISTRY

Two New Antibiotics Available to Physicians

► DOCTORS ARE about to have two more antibiotics, so-called mold remedies, to prescribe for their patients.

One, called magnamycin, which is effective against germs that resist penicillin, aureomycin and terramycin, is now being made available to physicians by its manufacturer, Chas. Pfizer and Co. of Brooklyn, N. Y.

The second is a new antibiotic against tuberculosis which has undergone trials at Fitzsimons Army Hospital, Denver. It is called Viomycin, comes from an organism found in Florida soil, and will be available to physicians soon, state the manufacturers, Parke, Davis and Company, Detroit.

Science News Letter, February 21, 1953

BARGAIN PARADISES OF THE WORLD

Do you know where to find an island right near the U. S. so nearly like Tahiti in appearance, beauty, and color even the natives say it was made from a rainbow? (And that costs here are so low you cannot only reach it but also stay a while for hardly more than you'd spend at a resort in the U. S.?)

Do you know where to find the world's best mountain hideaways or its most dazzling surf-washed coastal resorts, where even today you can live for a song?

Do you know where it costs less to spend a while, the surroundings are pleasant, and the climate well night perfect in such places as Guatemala, Mexico, the West Indies, Peru, France, along the Mediterranean, and in the world's other low cost wonderlands?

Or if you've thought of more distant places, do you know which of the South Sea Islands are as unspoiled today as in Conrad's day? Or which is the one spot world travelers call the most beautiful place on earth, where two can live in sheer luxury, with a retinue of servants, for only \$175 a month?

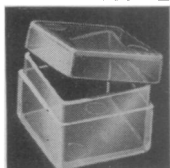
Bargain Paradises of the World, a big new book with about 100 photos and 4 maps, proves that if you can afford a vacation in the U. S., the rest of the world is closer than you think. Authors Norman D. Ford and William Redgrave, honorary vice presidents of the Globe Trotters Club, show that the American dollar is respected all over the world and buys a lot more than you'd give it credit for.

Yes, if you're planning to retire, this book shows that you can live for months on end in the world's wonderlands for hardly more than you'd spend in a few months at home. Or if you've dreamed of taking time out for a real rest, this book shows how you can afford it.

In any case, when it can cost as little as \$24.50 from the U. S. border to reach some of the world's Bargain Paradises, it's time you learned how much you can do on the money you've got. Send now for **Bargain Paradises of the World** on a money back guarantee if not satisfied.

Price \$1.50. Send cash, check or money order and mail with ad and address to HARIAN PUBLICATIONS, 6 BROADWAY, GREENLAWN (LONG ISLAND), NEW YORK.

CARGILLE TRANSPARENT BOXES



20 for \$1.00 & up

For small OBJECTS & SPECIMENS Useful in ALL LABORATORIES Fine for HOME WORKSHOPS, etc.

Write for New Leaflet SNL-TPB

R. P. CARGILLE LABORATORIES, INC. 117 Liberty Street New York 6, N. Y.