

## Do You Know?

Plastic *plumbing* now used in aircraft is 50% lighter than old-time metal.

Coating the surface of a farm smoked *ham* with salad oil will delay the development of surface mold.

Consumption of *silver* in 1943 totalled 118 million ounces, with 71 million ounces being accounted for by essential industries.

Occupied *Holland* in 1943 produced one-half as much milk as in 1940, less than one-half as much butter, and one-third as much cheese.

*Carbon brushes* for electric generators, now in use in aircraft, last several hundred times as long in high altitudes as those previously used.

*Pearls* are occasionally found in the shells of the abalone, an edible univalve species of snail found under water on rocks off the California coast.

With increasing demand for motor and motor vehicle crates, a monthly production of *hardwood plywood* totaling 42 million square feet will be needed to meet 1944 requirements.

We entered the war with 10,000 fewer *locomotives* and 600,000, or 25%, fewer freight cars than in 1917; however, modern cars average 25% greater capacity and are moved 50% faster.

South American alpacas, llamas and other similar *high-altitude animals* are able to live in high mountains because they require relatively little oxygen to breathe or water to drink, and have heavy fleeces.

Over 6,000,000 *loofa sponges* were produced in Cuba in 1943; this material, formerly obtained from Japan and China, is the entangled fibrous mass in the inside of the loofa gourd and is used as water filters in marine engines.

*Scrap rubber* turned in by the public since 1942, totalling some 750,000 tons, is being used at a rate of about 35,000 tons a month to make vital military products, and for recapping civilian auto tires, and for other purposes.

MEDICINE

# Navy Medical Warfare

**New type care developed for U. S. servicemen wounded in South Pacific amphibious fighting gives them better chance for recovery than any fighters in history.**

► A COMPLETELY new but carefully developed phase of medical care is giving American servicemen wounded in the fierce amphibious warfare in the South Pacific a better chance of recovery than any fighters in the history of military medicine.

Baptized in the fire of the Solomons invasions, and functioning smoothly in the brilliant Marshalls attacks, the new phase brings men back alive who would have been left to die on the field in the last war. The story of this dramatic medical warfare, was told to a Science Service representative by Capt. Lucius W. Johnson (M.C.) USN, who has just returned to Pearl Harbor from combat areas in the South Pacific, where he helped organize naval medical facilities, literally in the foxholes themselves.

Actual statistics of the number of recoveries among wounded U. S. fighters and the numbers of men removed to rear area hospitals without mishap are military secrets, but the percentage of success is one of the bright spots of the Pacific war, Captain Johnson believes.

He told Science Service:

"The most striking thing about this war is the difference in hospital wards in combat areas compared to the last war. Then, tetanus, gas gangrene and huge suppurating wounds met the physician's eye on every side, and evidence of great suffering was everywhere.

"Today none of these things is seen. The men are well nourished and comfortable, and their recovery virtually certain," Captain Johnson said.

Behind this morale-building improvement in the care of war's casualties, is a swift chain of events beginning with a naval hospital corpsman in the foxhole and ending with the aseptic steel of expert surgery in luxury-equipped naval hospitals far behind the guns.

The first care a wounded serviceman receives in amphibious warfare is given by the hospital corpsman. These men, Captain Johnson stressed, are the first essential of naval medicine. They go into the foxholes and often dig them themselves. They care for the wounded on the firing line. They are equipped to do minor surgery, care for fractures, stop

hemorrhages and treat shock. The ultimate outcome of an injury depends upon what is done immediately by a hospital corpsman, or naval doctor, at the time of injury.

The immediate local application of the new sulfonamides which prevent the growth of infectious bacteria has greatly reduced the number and severity of infections. Each of these drugs is useful for a certain type of infecting organism. The naval hospital corpsman is well supplied with sulfonamides and carefully instructed in their use.

Following first aid by the hospital corpsman, a wounded fighter is carried to a nearby field hospital. These are portable units set up under canvas almost on the firing lines. Here the first-aid treatment is supplemented, and, if necessary, the patient is prepared for quick transportation to the nearest advanced base hospital.

The advanced base hospital is the Navy's medical answer to amphibious warfare. It is a specially designed unit of varying size, which can be quickly set up and easily moved as the fighting front progresses. It may house from 25 to several thousand beds. Each has its special equipment and complement of personnel according to its special needs, for the advanced base hospital is functioning from the equator to the Aleutians.

Behind the advanced base hospital are the splendid, modern naval hospitals in safe areas, distant from the actual fighting. Here final treatment of patients can be carried out under ideal conditions, with the best food, medicines and professional skill. The sick and wounded are brought here by hospital transports, called "sea-going hospitals." The transports are large, comfortable ships carrying 500 to 1000 troops, and are staffed with specialists capable of carrying on treatment begun on the scene of battle. Their medical personnel is expert in the technique of loading and unloading patients—a job requiring great ingenuity and speed.

Sometimes, however, a wounded man needs immediate surgery and the elaborate care and equipment possible only



**MODERN KNIGHT**—This latest flak helmet designed to protect the head and neck of aerial gunners is made up of many small metal squares and is lined with sponge rubber to reduce shock and concussion. Head and neck wounds, suffered by 25% of air casualties, should be greatly reduced by this headgear. Official U. S. Army Air Forces photograph.

at the big hospitals far from battle. For these emergency cases, the Navy operates a fleet of special ambulance planes, carrying up to 30 wounded. As soon as an advanced base is occupied, the naval construction battalions build airstrips for these planes, and the long trip to a safe-area hospital is reduced from days to hours.

When, during a field tour, Captain Johnson arrived at Munda, the Japs were still shelling our beachheads with mortars concealed in the hills. One of their shells landed in the middle of a Navy chowline at breakfast time and a fragment struck a man in the occipital bone, located at the base of the skull. The fragment pierced his brain. Immediate dressing was done by a naval physician, but the injury required the most delicate surgical care, and quickly. He was flown by ambulance plane to the hospital at Espiritu Santo and 20 minutes after he left the plane was on the operating table. A skilled neuro-surgeon removed the shell fragment from the brain. After several weeks, the patient, now in excellent spirits and good physical condition, was returned to the United States for rehabilitation.

Less dramatic, but of wider benefit, is the brilliant naval research into war-time diseases, or diseases which become particularly dangerous in war. One of these is tetanus, most horrible death a man can die. Not a single case of te-

tanus has been seen in this war, thanks to protective inoculation given all enlisted men and officers as part of their naval "medical indoctrination." Tetanus inoculation was developed for the Navy by Capt. W. W. Hall (M.C.) USN, editor of the Bureau of Medicine and Surgery's *News Letter*. A constant terror in the last war, tetanus no longer lurks on the battlefield or along the hospital corridors. Its elimination is of incalculable benefit.

Backing all naval research is a staff of medical scientists gathered from civilian life and the naval medical corps by the surgeon general of the Navy, Vice Admiral Ross T. McIntire. This body of distinguished men is called the Naval Research Commission. Its headquarters is at the National Naval Medical Center in Bethesda, Md., and its job is the constant search and perfection of new surgical and clinical techniques, new drugs and sera. Like everything else in war, the pace with which research results are given practical expression is amazingly swift. Before the war, it was usually a matter of months or years before the findings of the laboratory were available to practicing physicians. Today it can be a matter of days, or even hours.

The output of the Naval Research Commission is published in a pocket-size, photostated *News Letter* by the Bureau of Medicine and Surgery, and regularly available to all naval medical staff

officers. The perfection of the Navy's system of medical care is due to more than military discipline and good administration. Behind these phases is expert research, made quickly available.

Men and officers of the Navy realize in a very practical way the protection their crack medical staff gives, and their morale in battle is none the worse for this realization.

But even the most sober-minded of medical officers will admit that above and beyond all their drugs and skill is one "magic medicine" which produces the most miraculous cures—a trip back home, for rehabilitation. Orders to Tulsa or Flatbush produce a boost in morale which confounds even Surgeon General McIntire's learned staff.

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#### METALLURGY

### New Type Copper Powder Produced by Electrolysis

➤ A NEW TYPE of copper powder recently produced in the electrolytic refining of copper was described at the Milwaukee meeting of the Electrochemical Society by W. H. Osborn and S. B. Tuwiner of the Phelps Dodge Corp., Laurel Hill, N. Y. The powder is useful as a bronze powder but does not have the properties necessary for sintered metal products.

This new crystalline metallic material may be obtained as a by-product in refining copper by electrolysis; quantity production will depend upon future uses which may be developed. It is

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