

MEDICINE

Blast Death Explained

Sudden death during bombings is believed due to jamming shut of the epiglottis, roof of voice box, while the lungs are empty of air.

► A NEW explanation for sudden death from blast appears in the *Lancet*, medical journal published in London (June 26).

In these blast deaths, which occur during bombings, the victim is not hit by the bomb or its fragments and the body usually shows no sign of injury or at least of injury bad enough to have killed the victim.

These deaths may be due to forcible jamming shut of the epiglottis while the lungs are empty, in the opinion of Dr. F. C. Eve, senior consulting physician of the Royal Infirmary at Hull and deviser of a rocking method of giving artificial respiration. No other satisfactory explanation of sudden death from blast has yet been given, he states.

The epiglottis is the lid or roof of

the voice box. The high pressure wave from the bomb, both in air and water, compresses the chest, forcing out some air, Dr. Eve explains. The chest, being elastic, then expands and air is drawn sharply inward. This inrush of air might slam down the epiglottis and its effect would be reinforced by the low pressure wave of the blast which sucks the chest walls outward just as it sucks glass out of windows.

If the lid of the voice box is jammed shut this way when there is only a little air in the lungs, the victim cannot force it open because he has not enough air in his lungs to provide sufficient pressure. With the epiglottis jammed shut, no air can get into the lungs, either, so the victim swiftly dies.

To answer the objection doctors are

sure to make, that in such a case the victim would show signs of suffocation, which blast death victims do not, Dr. Eve cites from the medical literature three cases of sudden death due to food jammed in the upper part of the windpipe. The victims in these cases did not turn blue or show signs of choking.

Cases of death from the epiglottis being jammed shut are probably not so rare as commonly believed, Dr. Eve says. He thinks that both in blast victims and other sudden death victims this cause may often be missed, as it nearly was in a case of electrocution he saw.

His experiences and experiments with fingers cut from rubber gloves and placed over bottles subjected to blast waves lead him to suggest certain methods of treatment and perhaps prevention of blast deaths. For prevention, he advises wearing a broad belly bandage which need not be very tight but must be inelastic.

For treatment, the doctor should try to pull up the jammed epiglottis with his finger or a crochet hook. Or he might plunge a small hollow needle or even a knife into the windpipe, perhaps also blowing into it, so as to get air back into the lungs to force open the epiglottis. After this, but not before, artificial respiration may be used if necessary to restore the victim. The epiglottis-opening procedure, with needle, or finger, must be completed within four minutes, he warns, if the life is to be saved.

Science News Letter, July 31, 1943

PSYCHOLOGY-PHYSIOLOGY

"White Noise" in Planes Studied By Scientists

► METHODS for solving the problem of "white noise" in airplanes, which is apt to get whiter and therefore worse as faster planes are built, are reported by Comdr. Leon D. Carson, U. S. Navy, Dr. Walter R. Miles, Yale School of Medicine, and Dr. S. S. Stevens of Harvard, to the Federation of American Societies for Experimental Biology.

White noise is to sound what white light is to light, the scientists explain. It is heard when all sound frequencies are added together, just as white light is seen when all colors, or light wave frequencies, are added together. The person on the ground listening to a plane high overhead hears only the low frequencies of the propeller. Inside of a really fast-moving plane, all the frequencies are heard together. Usually, the greater the speed, the whiter the noise and the more objectionable it is to the ear. (Please turn page.)



VISUAL AIDS—At the Medical Replacement Training Center, at Camp Pickett, Va., this studio is operated where five enlisted men work constantly at making plastercast models of legs, arms, heads and other parts of the body for the instruction of medical soldiers for the battlefield jobs. Some models show fractures, injuries and wounds of all sorts, and some illustrate the various functions of organs or show pressure points, muscles, veins, and so on.

White noise is not only disagreeable but produces temporary deafness and spoils communications. Three remedies are suggested by the scientists.

First, the noise in a plane can be made less white by improved aeronautical design or by application of sound absorbent materials.

Second, communications can be improved even in the midst of white noise by use of high-fidelity microphones and earphones, equipment which the scien-

tists state is not yet being widely used in airplanes though a few major improvements are in process.

Third, the microphone and earphones should be shielded from the noise by acoustic devices. Oxygen masks could be designed to include a microphone shield to cut out some of the white noise racket, and the ear can be shielded by an acoustic socket designed to provide a tight seal against the head.

Science News Letter, July 31, 1943

METALLURGY

Powder Hard as Diamond

Super-tool material, product of powder metallurgy, is considered important factor in speeding up production of ordnance and munitions.

► A POWDER product practically as hard as a diamond is a significant factor in speeding up our production of ordnance and munitions, Prof. Gregory J. Comstock of the Stevens Institute of Technology pointed out in Science Service's Adventures in Science program over the Columbia Broadcasting System.

It has been estimated that without this super-tool material, the Axis would have required at least a year longer to complete their preliminary preparations for aggression, Prof. Comstock, the world's first and only professor of powder metallurgy said of the hard cemented carbide-tool material, a product of powder metallurgy.

Metal powder friction materials, Prof. Comstock stated, have been developed which have made it safe to operate

clutches and brakes without charring at a much higher temperature than previously thought possible.

Porous metal powder bearings are in fact metal sponges which permit oil to go through the bearings like the wick in an oil lamp. In this way the oiling of inaccessible bearings has been materially simplified.

"When it was demonstrated that an article which had previously been manufactured by the normal established practice could be molded from metal powder for less money, and in many cases, at a higher production rate, industry became keenly aware of powder metallurgy," Prof. Comstock remarked concerning the present general interest in applied powder metallurgy.

Science News Letter, July 31, 1943

PHYSIOLOGY

Gray Hair Vitamin Tested

Chances of restoring color to grayed locks are demonstrated to be small in new test with nineteen elderly men and women. Turns some hair green.

► HOPE THAT taking vitamins will restore gray hair to its natural color is considerably lessened by the latest report from scientists studying the problem.

In only two out of 19 gray-haired elderly men and women did a significant change of hair color occur with intensive vitamin treatment over a period of eight consecutive months, Dr. Harold Brandeone, Dr. Elizabeth Main and Dr. J.

Murray Steele, of New York University, report to the society for Experimental Biology and Medicine.

The change became apparent after two or three months and tended toward a return to the original color. After three months, the change increased slowly in intensity until the drugs were stopped.

The most common change in the 17 other patients was the appearance of a yellow or greenish cast to the gray hair.

Growth of scattered, wiry black hairs also became apparent. In several patients there was thought to be a greater luster without change in color, and one man whose hair was sparse had an increase in the number of hairs.

The two men whose hair color changed without any doubt were among seven given daily doses of two B vitamins, calcium pantothenate, para-aminobenzoic acid and brewer's yeast. Others in the study were given one or the other vitamin plus the yeast.

Both these vitamins which are found in yeast with the other B vitamins have been reported as effective in curing gray hair in both human beings and animals. The wide publicity given some of these reports, the New York investigators state, "made it seem desirable to plan studies of rather long duration in order to quantify more carefully the degree of change to be expected after use of pantothenic acid and para-aminobenzoic acid."

For judging change in hair color, three methods were used: (1) photographs were taken before, during and after treatment; (2) samples of hair were clipped from a given area at the time the photos were taken; (3) all patients were seen by the same two observers at least twice a month and notes taken of any observed change.

"Subjective opinions were more accurate than photos and less discouraging than hair samples," the scientists state, pointing out that a very definite color change must occur before it is apparent in the hair clippings.

The three researchers are making a similar study on younger persons. The 19 reported on were patients in the Goldwater Memorial Hospital with chronic diseases such as rheumatoid arthritis, general hardening of the arteries and Parkinsonism.

Science News Letter, July 31, 1943

CHEMISTRY

Crude Oil from Pine Stumps Is Chinese Development

► A PROCESS for extracting crude oil and a gasoline substitute from pine tree stumps has been perfected by a young chemistry instructor of Fukien Christian University in China.

This new process is a military secret for the present but the Chinese Army is already using the gasoline substitute obtained from the hundreds of thousands of tree stumps left as a result of timber exportation from the Fukien Province's forests.

Science News Letter, July 31, 1943