

PUBLIC HEALTH

Meningitis Preventive

Sulfadiazine has cut down meningitis deaths in the Army by 90%. Epidemics can be warded off by giving the drug to all members of a unit.

➤ A SAVING of 90 out of 100 soldier-lives from meningitis death has been achieved by sulfadiazine, figures from the Office of the Surgeon General show.

The meningitis death rate in our Army in the present war is less than 3%, whereas it was 93.2% in the Revolutionary and Civil Wars and 39.2% in World War I, the War Department announced.

The germ that causes meningitis is so susceptible to sulfadiazine, the Army's commission on meningitis has found, that as little as two grams (about one-fourteenth of an ounce) of the drug will banish the germs from the nose and throat of most persons for a period of several weeks.

"This fact makes it possible to head off epidemics by the occasional adminis-

tration of sulfadiazine to all members of a military unit, especially under such circumstances as embarkation on a troopship," the War Department announcement states, crediting the explanation to Dr. John J. Phair, of the School of Hygiene and Public Health, Johns Hopkins University, who heads the commission on meningitis.

"Of 100 soldiers tested in experimental work at Fort Meade, Md., 92 showed presence of the germs on several occasions during the test period of 68 days. None was sick, apparently because the majority has an immunity to the infection. It is only when large numbers of men, some immune, some not, are thrown together, as in military camps, that epidemics occur."

Science News Letter, June 17, 1944

ENGINEERING

Laboratory Dust Storms

Volcanic ash from Arizona is blown onto Army trucks for as long as 50 hours to test their wear from dust and sand.

➤ AUTOMOTIVE engineers are creating artificial dust storms to supplement field tests of Army motor cars and of dust-proofing devices, the National War Materiel meeting of the Society of Automotive Engineers was told by R. P. French, of the Studebaker Corporation. The controlled storms serve the purpose better than the natural variety. Mr. French explained that storms may be produced upon demand without relying upon the whims of the weather, and dust or sand of any type and from any part of the world may be used in the tests.

A dust-test room, for Army engineers and the SAE War Engineering Board, was built for the purpose of studying how to protect motor vehicles operated in dusty regions against excessive wear caused by dust and sand.

In a typical test, an Army truck is placed in the dust-test room, fan blades and compressed air jets blow up the

dust for as long as 50 hours, while engineers watch from a special observation chamber.

The dust used in most tests is a highly abrasive pure volcanic ash, obtained near Phoenix, Ariz. Sand-blast refuse, practically pure silica, is also used.

Mr. French reported results as showing that dust passes through the air cleaners of engines in great quantity and causes as much cylinder wear in 1,000 miles of test operation as would result from 20,000 miles on the road.

Generators and starters become packed with dust, which sometimes wears away insulation from wires and makes the starter inoperative. Clutch housings fill with dust, and ignition coils and high-tension wires attract a coating of dust which holds moisture.

Brakes also collect dust, but little reaches wheel bearings. In spite of closed doors and windows, Army truck cab interiors get a quarter-inch dust layer.



FM WALKIE-TALKIE—The range of this new radio exceeded all expectations during training operations and is regarded by the Signal Corps as one of their most valuable items of radio equipment.

Samples of oil, taken after a 50-hour test, showed sediment by volume to be as high as 3.8%, in the transfer case.

Mr. French concluded that there are indications the dust room will facilitate developing methods for protecting passengers as well as mechanical parts from dust and damage.

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Records Detonation

➤ DETAILS of the design, development, and operation of a new indicator for measuring vibration in engines, recording detonation, measuring pressures in guns, and even making jet propulsion studies were described by C. E. Grinstead, R. N. Frawley, F. W. Chapman, and H. F. Schultz, all of Research Laboratories Division, General Motors Corporation, at the National War Materiel meeting.

Not only does the new indicator take measurements, it was explained, but used in combination with a camera, it makes permanent visual records of engine performance.

The electrical condenser-type indicator was described as being small enough to permit installation in modern engines, so rigid as to eliminate the effects of vibration, and so critical as to register manifold pressure changes of as high as 6,000 cycles a second. (*Turn to next page*)

In probing the secrets of engine operation, the engineers showed a calibrated, high-pressure, combustion-chamber rec-

ord of an aircraft engine running at 2,600 revolutions a minute.

Science News Letter, June 17, 1944

GEOGRAPHY

Road to Paris

The route from the center of the beachhead landings on the French coast to Paris passes through rolling country with many excellent roads.

► FROM the center of the beachhead landings along the 75-mile coast of the Baie de la Seine, it is approximately 150 miles to the city of Paris. The area between is known geologically as the Paris Basin. This extensive basin includes the valleys of the Seine, of the Somme to the north, and of the Loire to the south. Back from the low, level landing beaches the terrain of northern France consists principally of low rolling hills, well cultivated, with no elevations over 650 feet in height. Many excellent roads lead to the French capital.

An excellent mainline railroad also leads from the invasion area to Paris. It is a familiar line to many Americans who in prewar days landed from trans-Atlantic liners at the great port of Cherbourg on the tip of the Cotentin Peninsula and travelled from there to Paris. For some 50 miles or so it parallels the invasion coast from five to fifteen miles inland. Caen, the center of reported heavy early fighting between Nazi defenders and Allied paratroops, is on this line and about ten miles south of the center of the coast where the landings were made.

The river Seine which empties into the English Channel at Le Havre passes through Paris on its way to the sea. The distance is about 140 miles. The route to Paris from the invasion head follows the course of the river. The area between the invaded coast and the hub city of France contains many cities and towns and a large population.

The Allies in Normandy, once well established, will be admirably situated for inward drives in three directions. The central drive can follow the route directly eastward into Paris, to add that city to Rome in the list of liberated national capitals. The second could go directly southward to bottle up the German forces in the Brittany peninsula area. The third drive could turn to the northeast, paralleling the coast and passing through Rouen and Amiens. This

route is behind the Nazi coastal inland fortification line, reported to be some ten miles back from the coast defenses themselves. It leads on to Belgium and to Germany itself.

The summer months normally provide the best weather for invasion activities in the northern French area. Until the middle of September there will be a season of little rain, clear skies, warm days and cool nights. Country dirt roads are passable, dry fields can be crossed by jeeps, trucks and tanks. The waters in the English Channel and in the strait of Dover are more quiet than at other seasons.

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MEDICINE

"Black Gold" for Repairing Broken Bones Is Shown

► "BLACK GOLD" for repairing broken bones, torn nerves and broken skulls, soon to be available to civilian surgeons, was shown in various forms for surgical use at the meeting of the American Medical Association in Chicago.

"Black gold" is the nickname of the coal black ore, tantalite, from which the lustrous gray metal, tantalum, is derived. This metal is not irritating to living tissues, is ductile, malleable and resists corrosion.

It can be drawn into wire so fine the surgeon feels for it rather than sees it. In this form tantalum is used to repair nerves and to make surgical stitches where cosmetic results are important. Metal sheets so pliable they can be molded to fit the body's contours can be used to replace lost parts of the skull, ears, noses and other parts of the face.

One war veteran has a tantalum "belly wall," according to a report from the Johnson and Johnson Research Foundation which, through its subsidiary, the Ethicon Suture Laboratories, is sponsoring the exhibit.

Tantalum supplies are limited, so its use, except for research purposes, has heretofore been limited to the military services. It will soon be available to civilian surgeons through a War Production Board allocation, Dr. Gustav S. Mathey, president of the Johnson and Johnson Research Foundation, announced.

Science News Letter, June 17, 1944

SCIENCE NEWS LETTER

Vol. 45 JUNE 17, 1944 No. 25

The weekly Summary of Current Science, published every Saturday by SCIENCE SERVICE, Inc., 1719 N St., N. W., Washington 6, D. C. NORTH 2255. Edited by WATSON DAVIS.

Subscriptions—\$5.00 a year; two years, \$8.00; 15 cents a copy. Back numbers more than six months old, if still available, 25 cents. Monthly Overseas Edition: By first class mail to members of the U. S. armed forces overseas, \$1.25 a year. To others outside continental U. S. and Canada by first class mail where letter postage is 3 cents, \$1.25; where letter postage is 5 cents, \$1.50; by airmail, \$1.00 plus 12 times the half-ounce airmail rate from U. S. to destination.

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Entered as second class matter at the post-office at Washington, D. C., under the Act of March 3, 1879. Established in mimeographed form March 18, 1922. Title registered as trademark, U. S. and Canadian Patent Offices. Indexed in Readers' Guide to Periodical Literature. Abridged Guide, and in the Engineering Index.

The New York Museum of Science and Industry has elected SCIENCE NEWS LETTER as its official publication to be received by its members.

Member Audit Bureau of Circulation, Advertising Representatives: Howland and Howland, Inc., 393 7th Ave., N.Y.C., Pennsylvania 6-5566; and 360 N. Michigan Ave., Chicago, STate 4439.

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