

VITAL STATISTICS

Surgical Mortality Cut

► **MORTALITY FROM** major surgical operations has been cut by at least one half and, in several instances, by more than four-fifths in the past 10 years, figures from nine hospitals in different cities show. The figures have been compiled by statisticians of the Metropolitan Life Insurance Company in New York.

The operations covered in the report were removal of part or all of the stomach in ulcer and cancer patients, removal of the gallbladder, major amputation in diabetic gangrene, removal of the uterus, and Caesarean section for childbirth.

Hospitals where the operations were performed were three Chicago hospitals, the Mayo Clinic in Rochester, Minn., the Lahey Clinic, Boston, the New England Deaconess Hospital, Boston, Cook County Hospital, Chicago, Bronx Hospital, New York, and Millard Fillmore Hospital, Buffalo.

The record is all the more remarkable, the statisticians point out in their report,

because in recent years many more older patients have been operated on. For example, persons aged 50 or older constituted more than half the patients operated on in three Chicago hospitals in recent years, whereas less than 20 years ago the proportion over 50 was one-third.

The "long-range outlook" for patients who recover from major operations is also satisfactory.

This achievement is attributed by the statisticians to "the better training of surgeons, advances in surgical techniques, and the wide use of the newer chemotherapeutic and antibiotic agents to control infection. Surgical patients have also benefited substantially from improved anesthetic substances and procedures, as well as from better preoperative preparation and post-operative care. Blood transfusion has been used increasingly to prevent death from surgical shock.

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TECHNOLOGY

Electronics-Age Metal

► **GERMANIUM, THE** electronics-age metal that has made transistors possible, has been found in the ash of Kansas coal.

The results of preliminary spectrographic investigation of 24 samples of ash taken from Kansas coal showed that the germanium content ranged from 0.0036 to 0.0680% in the ash and from 0.00069 to 0.00480% in the total coal.

Using the price of germanium at \$295 per pound, as it was in February, 1954, John A. Schleicher and William W. Hambleton of the University of Kansas determined that the germanium content of the Kansas coal was worth from \$4.06 per ton of coal to \$28.40 per ton.

One sample, which contained 21.8 ounces of germanium per ton of ash, was valued at \$401.20 per ton of ash, if no germanium were lost in the processing. The scientists stated that this compared favorably with both present domestic and foreign sources of the metal.

The chief source of domestic germanium has been from the distillation of some residues derived from the smelting of zinc ores. In Germany, England and Japan, there are several plants already in operation that recover the metal from the fly-ash and residual ash of coal.

There has been some question in the past as to the practicability of getting germanium from coal because thicker veins of eastern coal showed low concentrations of the metal. However, the Kansas scientists pointed out that the Kansas coal seams are much thinner and that this might be a factor in the high concentration found in the study.

The U. S. Department of Interior Geological Survey is planning to conduct further investigation of the germanium found in the Kansas coal next spring.

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PUBLIC SAFETY

Urge Training Device to Teach Students to Drive

► **USE OF** an auto trainer for teaching high school boys and girls how to drive was urged by a group of scientists of the Driving Research Laboratory, Iowa State College, at the meeting of the American Association for the Advancement of Science in Berkeley, Calif.

The recommendation was based on study of the performance of contestants in the National Road-e-o in Washington, D. C., and that of 150 students at Iowa State College. The National Road-e-o tested ability of the contestant to maneuver a car in difficult situations.

About one-eighth of high-school students in the United States are now receiving automobile driving instruction. The usual plan is to teach the boys and girls in small classes of four students, spending much of the time in an automobile.

The system has been found to work out better for girl students than for boys. It has been criticized as spending too much time in teaching the fundamental skills of working pedals, levers, wheels and buttons, with not enough attention being given to the advanced stages of what emergency action to take to avoid an accident, or how

to manipulate the automobile so as not to create a traffic hazard.

Use of an auto trainer that would simulate actual driving conditions, the scientists explained, would permit the development of "defensive thinking" with respect to traffic accident situations.

The Iowa scientists reporting the study are Drs. A. R. Lauer, Earl Allgaier, Elmer B. Siebrecht and Virtus W. Suhr.

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METALLURGY

Study Metal Failure In Deep Oil Drilling

► **THE PROBLEM** of why metals fail during the drilling of very deep, high-pressure oil wells may soon be solved by a study being conducted by the Yale University department of metallurgy.

Under the direction of Prof. William D. Robertson, associate professor of metallurgy, the research project involves a study of the decomposition of alloys now used in drilling caused by the hydrogen sulfide found in oil wells.

"Because wells are now being drilled 10,000 to 15,000 feet deep, alloy steels must be used to withstand the terrific pressure," stated Prof. Robertson. "But drilling companies have discovered that these alloy steels react chemically to sulfur and to hydrogen sulfide, the gas emitted by underground sulfur deposits. The result is that after a few weeks' use, the casings fail, and must be replaced."

It is hoped that the study, which is being conducted under a research grant from the National Association of Corrosion Engineers, will find an answer either in terms of a new alloy, or a neutralizing agent for present alloys, that could save the petroleum industry millions of dollars annually, the metallurgist reported.

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ENTOMOLOGY

Red-Legged Widow Makes Speech Difficult

► **A RED-LEGGED** widow spider whose poison causes speech difficulties, aching shoulders and tightness in the chest was introduced by Dr. Ernest R. Tinkham, desert naturalist of Indio, Calif., to the first International Conference on Animal Venoms meeting with the American Association for the Advancement of Science in Berkeley, Calif.

The red-legged widow spider has abdominal markings like the male black widow spider, but the legs and cephalothorax are reddish brown.

The venom of the Gila monster, *Heloderma*, is "extremely poisonous," Dr. Tinkham said. He pointed out that the toxicity of this venom is the subject of much controversy, but reported his own case of being poisoned by a fraction of a drop of the *Heloderma* venom.

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