

INVENTION—ETHNOLOGY

**Diesel Engine Principle
Invented By Malays**

THE COMPRESSION ignition principle of the Diesel engine was invented by Malay natives at least a thousand years before it was invented in Germany.

Herbert W. Krieger, U. S. National Museum curator of ethnology, supports this claim by showing one of the old high-compression fire lighting gadgets of the Malay Peninsula, considered probably the most efficient fire making idea that primitive men ever thought of. It is a tightly wrapped plunger which is forced into a wooden cylinder by a blow of the hand. At the bottom of the cylinder is a bit of tinder, which lights when the blow compresses the air in the cylinder, thereby generating heat.

Crediting primitive men with other brilliant inventions, Mr. Krieger says that the textile industry was saved millions of dollars of royalties when an invention for winding cord so that it could be unwound with even tension turned out to be similar to an old Fiji idea. A Fiji twine ball, in the National Museum, prevented patenting of the device.

Science News Letter, August 19, 1939

CHEMISTRY

**Speedy Progress on
Vitamin K Chemistry**

SPEEDY progress has been made by scientists working at the chemistry of vitamin K in the hope of making it available in pure form. This is the vitamin which controls bleeding in one kind of jaundice and which may prove a life-saving remedy for infants threatened by a dangerous bleeding disease of the newborn.

When the anti-bleeding power of the vitamin for certain kinds of jaundice was discovered, patients had to be given it either in doses of alfalfa or in doses of fish meal—neither very palatable nor easy for sick people to take, and practically out of the question for week-old infants.

Crystals of the vitamin, which could be made into pills or dissolved in water, was what the scientists were after, and it now appears that the goal has been reached.

From St. Louis University School of Medicine comes the announcement that the vitamin has been isolated in pure crystalline form. The research team which achieved this consisted of Drs. S. B. Binkley, L. C. Cheney, E. A. Doisy,

D. W. MacCorquodale, R. W. McKee, and S. A. Thayer. Besides obtaining crystals of vitamin K from alfalfa and fish meal, these scientists have discovered its chemical structure and made synthetic chemicals with vitamin K activity. These chemicals are the kind known as quinones.

Almost simultaneously with the announcements from St. Louis came word from California that phthiocol, crystalline material which gives the tuberculosis germ its color, has vitamin K's anti-bleeding action.

All of this has come within the five years since Dr. H. Dam, of Copenhagen, and Drs. H. J. Almquist and E. L. R. Stokstad, of the University of California, announced almost simultaneously the discovery of this vitamin as an essential diet factor for protecting chicks from a fatal bleeding disease. Use of the vitamin for humans threatened by fatal bleeding in certain conditions was first announced in 1938 by Drs. H. R. Butt, A. M. Snell and A. E. Osterberg of the Mayo Clinic.

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MEDICINE

**Electrical Shocks Restore
Failing Blood Circulation**

SHOCKING a patient by electrical means is a promising treatment for failing circulation of the blood hailed by the *Journal of the American Medical Association* editorially. (Aug. 5)

Many a surgeon has watched a patient sinking into traumatic shock and many a physician has observed a patient exhausted by illness, the editorial explains, only to find there is some element in the mechanics of blood circulation beyond medicine's control.

Now Drs. G. G. Ornstein, Sidney Licht, and Myron Herman of Sea View Hospital, New York City, have reported a method of raising venous pressure in case of shock, particularly applicable to circulation failure under spinal anesthesia. Towels soaked in salt solution are wrapped around the patient's body and legs. Electrodes are connected and an induced electric current is applied. This causes a distinct rise in pressure of blood in the veins.

The original suggestion that low blood pressure arises from a failure in the tonus of the body's muscles which lowered the gentle pressure sending blood from the tissues into the veins and back to the heart came from Prof. Yandell Henderson and his group of investigators at Yale.

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IN SCIENCE

GENERAL SCIENCE

**Scientists Pool Resources
In \$60,000 Research Plan**

TO PROBE uncharted borderlands between the sciences, biologists, physicists, and chemists will start work on a two-year cooperative program of research in University of Pittsburgh laboratories, financed by a grant of \$45,000 by the Buhl Foundation supplemented by \$15,000 from the University.

Aims of the research include such basic problems as discovery of the nature of chemical changes within living cells, fundamentals of animal and human nutrition, more complete understanding of how complex animal bodies develop from single egg cells and study of the new artificially radioactive or "exploding" elements that can be used to trace the way in which various substances are utilized in the body.

The lone wolf scientific worker in his laboratory may be a romantic picture, but his method is wasteful, declared Dr. C. G. King, University of Pittsburgh professor of chemistry, chairman of the committee to coordinate the research. Pooling of equipment and knowledge is expected to be particularly valuable in the new experiments, as both physical and biological sciences are involved.

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ZOOLOGY

**Animals Have Aliases;
Do You Know These?**

ALIIASES among the animals: What is popularly called a gopher in the Chicago area is really a ground squirrel. In Florida, a turtle goes by the name of gopher. The real gopher (a mammal) is called a salamander. The true salamander is called a "Congo eel." Surprise! Floridians actually call real eels, "eels."

Our robin isn't, it's a thrush. The real one is a small British bird with red breast. The ground-hog is no relative of the pig; it's a ground squirrel or woodchuck. The black bass is a sunfish, not a true bass. The big-mouthed bass is called a trout in the south. The sea trout is charr in Labrador and a croaker along the south Atlantic coast. Authority: Field Museum of Natural History.

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E FIELDS

AGRICULTURE

First Perennial Wheat Is Claimed by Russian

THE WORLD'S first perennial wheat is claimed by Soviet scientist Tsitsin, who crossed wheat with couch-grass. In south Russia, there are two grain harvests a year; farther north, one crop of grain and one of fodder. The grain is much more bushy than ordinary wheat, its root system is deeper. Two potato harvests in one summer are another Soviet demonstration. Young tubers of the spring harvest, treated with a 2% ethylene-chlorohydrin solution, are planted in July for the fall crop. Authority: Tass, official Soviet news agency.

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METEOROLOGY

New Code Reports Weather by Numbers

FOUR times daily the teletype printers and telegraph clickers at the nation's central Weather Bureau in Washington break out into a rash of activity and start sputtering such messages as this: 55318 28200 32940 28/// 00195 65711 3650 LIGHT.

Packed into that brief message, that comes through at the lowest rate because it has less than ten units, is the complete picture of the weather and meteorological conditions at weather station 553 which is Omaha, Nebr.

The message is a sample of the weather Bureau's new numerical code for reporting weather from all over the United States and its possessions which has just been put into effect after fifty years of using over 10,000 code words to describe weather in telegraphic communication.

By the numbers code it is possible to report 99 different kinds of weather, 16 wind directions, more than 50 types of precipitation, about 30 kinds of clouds, about 10 degrees of wind velocity and visibility and such other information as barometric pressure, temperature and all the other factors which a forecaster needs to draw his national weather map.

Here is what the Omaha message means to the forecaster: Clouds covered less than one tenth the total area of the

sky and the visibility was 12 miles. The wind was light from the northwest blowing less than seven miles an hour. The weather at the time of observation was clear. Pressure was 1032.9 millibars and the temperature was 40 degrees Fahrenheit. The dew point temperature was 28 degrees Fahrenheit. Of clouds in the lower and middle levels there was none. High clouds of the fine Cirrus type were observed to the southwest. The ceiling was unlimited. In the preceding 12 hours a fine drizzle occurred which amounted to .11 inches of precipitation. The minimum temperature of the preceding six-hour period was 36 degrees and the maximum 50 degrees Fahrenheit. A light frost had occurred during that time.

By actual count it has taken 130 words to describe what the telegram, in code, packed into eight words.

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ASTRONOMY

Famous Woman Astronomer Finds 10,000th Variable

DR. Annie Jump Cannon, one of the world's foremost women astronomers and a pioneer in variable star research, has discovered the ten-thousandth variable star found at Harvard Observatory since search for them began in 1863. The star, known simply as HV10,000, is a faint, fluctuating star in the constellation Sagittarius.

In all some 17,000 variable stars are known. Studies of them are valuable not only to reveal clues to the mysteries of the stars themselves, but also as keys to other secrets of the heavens. Dr. Harlow Shapley, director of the Harvard Observatory, for example, uses the so-called Cepheid variables as a yardstick of the universe.

Indicative of the rapidly increasing rate at which Harvard is now tabbing stars of this type is the fact that the first 35 years of Harvard's search yielded just 100 new variable stars, an average of about three a year. By 1931, when number 5,000 was discovered, the rate had increased to 150 a year and today Harvard is finding them at the rate of 625 a year, better than one a day.

Harvard is now engaged on the most intensive and comprehensive study of such stars ever undertaken, surveying the 300 known variables brighter than eleventh magnitude. The program, financed by Harvard's Milton Fund, entails 5,000,000 observations on more than 200,000 plates.

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SURGERY

Rubber Used by Mayo Clinic To Make New Noses and Ears

PATIENTS who have lost an ear or a nose because of cancer, other diseases, or accidents, can have new ones that defy detection made from latex, the pre-vulcanized liquid rubber of modern industry.

The new latex spare parts, necessary not only to restore the patient's appearance but to enable him to make a living, have been used on a number of patients at the Mayo Clinic. Dr. A. H. Bulbulian, director of the Museum of Hygiene and Medicine, has just reported to fellow physicians the details of his method of making these latex spare parts.

The new noses can be held in place either by spectacle frames to which they are attached, or by small quantities of a liquid adhesive solution. They may be used temporarily, until the plastic surgeon can make a new nose or ear from the patient's own skin, and tissues, or they can be used permanently by patients whose age or financial condition makes plastic surgery inadvisable.

The ideal material for such spare parts, Dr. Bulbulian says, has not yet been found. Latex, however, when properly compounded and manipulated, has "a much wider range of possibilities as to form, color, texture and durability" than other materials so far tried. Within the past year Dr. C. D. Clarke of Baltimore, Md., has also recommended this rubber material for this purpose.

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PUBLIC HEALTH

Germicidal Light Curtains Available for Homes

INVISIBLE curtains of germ-killing light are the latest protection against the spread of disease available to hospital and home. They are synthetic super-sunbeams shining a death ray barrage for air-borne germs.

Sun lamps commonly used produce the effect of the tanning, vitamin-D-creating sunshine. The germicidal lamps broadcast another ultraviolet wavelength, number 2537. Tiny tubes using only 3, 5 or 15 watts of electrical energy can lay down a curtain of germicidal radiation over a cabinet, doorway or an alcove entrance. Similar lamps serve as sterilizing auxiliaries in operating rooms, doctors' offices and even restaurant kitchens.

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