

ENGINEERING

Rear-Engined Cars for U. S.

► REAR-ENGINED CARS are here to stay in European automobiles, and may soon find their way into American cars, the Society of Automotive Engineers meeting in Detroit learned.

"The idea that we have been building our passenger car 'backwards'—that the engine properly belongs at the rear rather than the front is not new," John R. Bond, consulting engineer and publisher of "Road and Track," told the Society.

Mr. Bond said that with consideration of the manufacturing cost, there is more potential savings in a rear-engine-transmission-differential, than in present day design. He concluded that there is "every reason to believe that a full-sized rear-engine car could command a premium price and if the waiting lists for Volkswagens are any indication, the American public is already 'sold' on the rear-engined car."

A European engineer, Fernand Picard of Regie Nationale des Usines Renault, told the Society that for piston displacements of less than 1,500 cubic centimeters, "the rear-engined car will not only maintain its

present position, but improve it."

In discussing the engine in the back, a third engineer, Brooks Stevens of Brooks Stevens Associates, had some interesting things to say about the car of the future in general.

He said that the most salable cars will be of evolutionary design and not those of the "space ship look." People of tomorrow, Mr. Stevens reminded the Society, will probably be very much like those of today and styling will not change radically. Weight and cost, he said, would depend on new material developments and processes. Power and performance would depend on highway design intelligence and safety factors.

"I am not sure," he concluded, "that Mr. or Mrs. Average America will necessarily be a better driver than we have today, but he will always want his car to look exemplary on the job it is to do or as a badge of the position he has attained, and if speeds were not to materially increase or become supersonic, he will always want his car to 'look' fast."

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MEDICINE

Serum Cures Mice Cancer

► AN "X" or unknown factor in the blood serum of guinea pigs completely cures two leukemic-like cancers in mice dying from the disease.

This possibly vital discovery has been made by Drs. John G. Kidd, Michael Haddad, Shirley Kauffman and Jean Elizabeth Todd, Cornell University Medical College and New York Hospital.

The lymphatic cancers that were cured with the serum are 100% fatal if allowed to run their usual course. When they are left untreated, the animals die within 30 days after the cancers are implanted and up to now nothing has been able to stop the fatal outcome. X-rays and the standard cancer-palliative drugs are useless at best and frequently make the animals worse.

But if the animals' bellies are filled with normal guinea pig serum 10 to 20 days after the cancer implant, they start to improve immediately, Dr. Kidd reported. Within 30 days the treated ones are healthy, and completely and permanently cured.

Serum taken from other animals, including horses, rabbits, and humans has been tried but with no effect. The guinea pig serum itself is effective only against two specific types of lymphatic cancer. In other types it, too, is useless.

Another mystery surrounding the anti-cancer factor is that it will only work when inside the animal. If the two vulnerable types of cancer are incubated with the serum in a dish, they remain unaffected.

These experimental results raise many questions about why the serum works. One possibility is that the animals themselves contain a "factor Y" which is needed to act in conjunction with the "X" factor in the serum. The cancer alone may contain the "factor Y," the researchers believe.

Further study is centered around isolating the important factor from the serum. The scientists are breaking down the serum into its separate components and testing the effect of each one on the cancer. By this method they hope to identify the active ingredient.

At present there is no practical application of the research to humans but if the mechanism of the cure can be solved, it may open up vast new possibilities for an effective cancer cure.

The research was reported by the American Cancer Society which supports the work.

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GEOPHYSICS

Earth's Magnetic Currents Mapped by Government

► THE EARTH'S MAGNETIC CURRENTS, where and how powerful they are, will be mapped during the International Geophysical Year by scientists of the U. S. Coast and Geodetic Survey.

The IGY, an 18-month study of the earth on a world-wide basis, starts July 1, and the Survey will conduct most of the

routine and special American magnetic studies during the period.

One mystery to be probed is the connection between magnetic storms and the northern and southern auroral displays. Changes in the earth's magnetic field affect navigation both by compass and by radio, so charts showing how the compass needle varies and predictions of radio reception are essential to safe shipping and flying.

Magnetic forces come from two sources. The strongest forces come from deep in the earth and are relatively stable. They do, however, change over many years and the charts must show such variations.

The hourly or daily fluctuations originate above the earth's surface and are related to sunspots and the aurora. These rapid changes will be given particular study during the IGY.

The Survey has seven permanent magnetic observatories in the United States, Alaska, Puerto Rico and Hawaii. It will add two temporary observatories and about 15 portable stations in the U. S. and Alaska. New instruments are being added to the regular stations in Fredericksburg, Va.; Tucson, Ariz.; College, Barrow and Sitka, Alaska; San Juan, P. R., and Honolulu.

In building magnetic observatories, special care is required not to use any magnetic materials. The buildings must also be heavily insulated to prevent temperature changes from affecting instruments, and light-proofed to preserve the records made on photographic paper.

Four observers with special magnetic instruments are stationed in Antarctica at Little America, Byrd, Wilkes on the Knox Coast and the South Pole.

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Questions

AERONAUTICS—What speeds have been predicted for supersonic transports of the future? p. 179.

ASTRONOMY—When will the next annular eclipse of the sun occur? p. 186.

ENGINEERING—What is a feature, now used in European cars, predicted for cars of the U. S.? p. 190.

PHYSICS—Who is the first winner of the Atoms for Peace Award? p. 179.

PUBLIC HEALTH—What are the new daily requirements of two B vitamins? p. 185.

ZOOLOGY—What fish is a close companion to the shark? p. 192.

PHOTOGRAPHS: Cover, pp. 181 and 183, Fremont Davis; p. 179, John J. Loughlin; p. 192, Eastman Chemical Products, Inc.