

ENGINEERING

Synthetic Lubricants

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► NEW SYNTHETIC lubricants containing no petroleum oils, one suitable for use in machinery and in internal combustion engines, were described at the meeting of the Society of Automotive Engineers in Detroit. They are made from natural and other hydrocarbon gases, and are the result of 25 years of almost continuous research.

The report on the new lubricants was made by J. C. Kratzer of the Linde Air Products Company, D. H. Green of National Carbon Company, and D. B. Williams of Carbide and Carbon Chemicals Corporation. The development was conducted at the Mellon Institute of Industrial Research, Pittsburgh, and in industrial laboratories at Tonawanda, N. Y. and South Charleston, W. Va.

One of the new lubricants was described as the LB series, insoluble in water and adapted to lubrication of machinery, including internal combustion engines; the other as the 50-HB series, soluble in water and satisfactory for lubrication of metal, rubber and other materials.

Laboratory and road tests of automotive lubricants, known as LB-300 and LB-550, were said to show cleaner engine operation because of solvent action, easier starting at low temperatures, and smaller than normal deposits. Tests with military engines were reported to show that the synthetic lubricants assure greater freedom from sludge and varnish formation, better starting and operation in cold weather, and only slightly greater leakage.

The 50-HB series was described as being similar in properties to the LB, equal in lubricity, and completely soluble in water at room temperatures. They are satisfactory, the reporters stated, for use as brake fluids, cutting oils, and textile lubricants.

Outstanding advantage of both these series of new synthetics, they continued, is the possibility of exercising exact control, during manufacture, over viscosity and pour point. The oils are products of American science and industry; they differ chemically from German synthetics, and are said to be superior to them.

Rubber Supplies

Potential world production of 3,000,000 tons of rubber annually, or more than twice the estimated annual consumption, was characterized by President John L. Collyer of the B. F. Goodrich Company, as contributing to a complicated world surplus rubber problem which is a legacy of war.

Mr. Collyer recommended that, for purposes of national security, the American government accumulate a stockpile of natural rubber, and, further, maintain in operating condition plants capable of producing 600,000 to 700,000 tons of synthetic rubber annually.

Fuels for Diesels

► DIESEL engines can no longer be regarded as accommodating and tolerant consumers of petroleum oils which cannot be used for other purposes. The development of high-speed diesels has changed the situation; the diesel has become more selective in its diet, and is creating a demand for fuels having specific properties essential to efficient and prolonged operation.

This is the opinion of F. G. Shoemaker and H. M. Gadebusch of General Motors Corporation, stated at the same meeting. Experiments indicate, they said, that the type of service in which the diesel engine operates is the real criterion of its fuel requirements. Power developed by the diesel, they declared, appears to be directly proportional to the heating value of the fuel injected.

Highway Plans

► FUTURE plans for the development of two- to six-lane highways were revealed at the meeting by Herbert S. Fairbanks of the U. S. Public Roads Administration. He described the plans as visualizing city streets, main highways, and rural roads as elements of a nationwide system unaffected in its natural development by political boundaries and partitioned administrative authority.

The plans, he said, call for arterial through-ways instead of by-passes to serve

both intercity and local traffic, 224- to 300-foot rights-of-way, shoulders sufficiently wide to accommodate halted vehicles, and flat slopes on wide embankments for safety.

Lane widths, he explained, will be standardized at 12 feet, with two lanes on highways serving less than 2,000 vehicles daily, four lanes where traffic reaches 3,000 to 15,000 cars daily, and six lanes for heavier travel.

Rear-Engine Cars

► REAR-ENGINE passenger cars are a possibility by 1947, or whenever public demand develops. They will have the economy of small models and the roominess of large vehicles, William B. Stout of the Consolidated-Vultee Aircraft Corporation and the Graham-Paige Motors Corporation declared at the meeting.

Operation of an experimental car for 200,000 miles in eight years, he said, has demonstrated the practicality and advantages of rear-mounting of engines and of suspension that puts the vehicle's center of gravity below the level of support. He declared that rear-mounted engines make for better traction and easier steering, and permit of such better utilization of body space as to give large-car roominess to small vehicles.

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DENTISTRY

Fiberglas Used to Fill Root Canals of Teeth

► A SPECIAL form of radio-opaque Fiberglas yarn has been successfully used to fill root canals of teeth, Harry Maeth, D.D.S. reported, (*The Dental Digest*). Its use has several advantages, he said, among them the ability to verify stages of canal filling with the X-ray.

The material is easily handled, Dr. Maeth reports. It is worked into the canal from a piece about six inches long. Approximately 18 inches of yarn are required for the average-size canal. The automatic hand mallet, in addition to hand pressure, quickly forms the Fiberglas into a compact mass.

Other advantages of Fiberglas include great tensile strength and high dimensional stability. It is non-toxic, non-irritating, chemically stable and does not absorb water.

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The *fantail pigeon*, by selective breeding, has had the number of tail feathers increased from the normal 12 to 30 or sometimes even more.