

ENGINEERING

New Diesel Oil Cuts Wear As Much as Nine-Tenths

► A NEW lubricating oil capable of reducing wear in diesel engines as much as nine-tenths was revealed in Tulsa, Okla., to the Society of Automotive Engineers by the Shell Oil Company.

It is a compounded heavy-duty type, which not only reduces wear, but promotes engine cleanliness, possesses oxidation stability at high level, and excels conventional heavy-type oils in stability at high piston temperatures.

The lubricant even corrects corrosive wear and fouling, whether caused by operating conditions, sulfurous fuel, or both, the engineers were told by J. A. Edgar, J. M. Plantferber and R. F. Bergstrom, all of the Shell Company, Martinez, Calif. The contents were not revealed.

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PHYSIOLOGY

Skin Coloring and Tan Depend on Skin's Chemicals

► SKIN COLOR and the skin tan produced under the sun's rays depend a lot on the copper and SH (short for sulfhydryl) in the skin, it appears from research by Drs. Peter Flesch and Stephen Rothman of the University of Chicago.

Formation of melanin, the pigment that gives the dark color to skin, is prevented by SH compounds. The sun's rays apparently eliminate the melanin-checking action of the SH. Copper comes into the situation through a copper-containing enzyme, tyrosinase. The action of this chemical is familiar to anyone who has seen peeled potatoes or mushrooms darken when exposed to the air.

The SH compounds keep balance with the copper-containing enzymes in the resting melanin cells, the scientists suggest. When ultraviolet rays or other agents act on the skin, the balance is upset. The SH groups are put out of action and the copper-containing enzyme can act freely to produce the skin pigment.

Details of the study are reported in the journal, SCIENCE (Nov. 5).

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PSYCHOLOGY

Male Declared More Emotional than Female

► THE MALE is the more emotional of the two sexes, despite popular opinion. Authority: Dr. John E. Anderson, psychologist of the University of Minnesota, who reported the results of his research on emotions to the Mooseheart Symposium on Feelings and Emotions in Mooseheart, Ill.

The number of emotional situations increases as a person grows older. But just

what you get emotional about changes as you solve life's problems one by one and leave emotion-provoking situations behind you, Dr. Anderson said.

You may not seem as emotional when you are grown as you did as a child or adolescent. But that may be due to the cumulative effect of social pressures to hide and control expression of your feelings.

Men, particularly, Dr. Anderson pointed out, are subject to great social pressure to hide and inhibit emotional expression and so become more "manly."

Emotions are no longer thought of by psychologists as isolated and distinct processes, he explained. Instead, they are changes in the level of energy expenditure related to the mobilizing of your personal resources to meet a new situation. That is why the emotions are constantly changing as an individual meets new situations and they one by one become an old story to him.

Actually no one knows just how much of the apparent complacency and poise of the older person is due to the accumulation of experience which dulls his feeling and how much to the social pressure which makes him play the role of calmness.

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ARCHAEOLOGY

Red Sea Level Has Not Changed in 3500 Years

► THE RED SEA, whose waters are given Biblical credit for the miraculous overwhelming of Pharaoh's army, has undergone no natural change in level worth speaking of in 3,500 years. This was disclosed before the meeting of the American Philosophical Society in Philadelphia by Prof. William F. Albright of the Johns Hopkins University, who served as archaeologist with the University of California African Expedition.

The party investigated the western shore of the Sinai peninsula, which was the wilderness where the Children of Israel wandered during their long pilgrimage. There they discovered the main point of embarkation for the Egyptian turquoise miners who worked in the region about 1500 B. C. This point was only a few yards above sea level, and soundings proved that it had never been under water for any length of time.

Although the Sinai region is a bleak desert now, Prof. Albright added, it has not always been such a barren wilderness as it was even in the time of Moses. Evidence was found by other parties of the expedition that only a few thousand years before then it had been a good hunting-ground for men of the later Stone Age.

Among the archaeological accomplishments resulting from the expedition has been "the successful decipherment of the so-called proto-Sinaitic alphabet, which is the oldest known form of the ancestral alphabet, to which all existing alphabets go back."

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IN SCIEN

MEDICINE

Cysts Found Responsible In Nerve Root Pain

► SCIATICA and other nerve root pain may in some cases be due to cysts on the front of the nerve roots in the spine instead of to a ruptured disk between the vertebrae, Dr. I. M. Tarlov of New York reports in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION (Nov. 6).

The day after the operation at which the cyst was discovered and removed the patient he reports was free for the first time in months from pain in her leg. She left the hospital well and happy on the eleventh day and within two months was able to carry on with her household duties.

In this patient's case the pain, numbness, tingling and disability were at first thought due to pressure on the nerve root of a ruptured disk between the vertebrae. But at operation the disk was found normal. Further examination and cutting away of tissue disclosed the cyst.

Dr. Tarlov urges surgeons to look for cysts in similar cases. He believes the condition is not rare. In the course of autopsy examinations he found such cysts in five of 30 adults, and a Swedish scientist has reported finding eight in 17 autopsies. About 10% of patients thought to have ruptured intervertebral disks turn out not to have them when the surgeon looks for them at operation. Cysts hidden beneath the arch of the sacrum may, he thinks, be the cause of the pain and other symptoms in these cases.

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ENGINEERING

Lubrication Simplified In Air Force Planes

► SIMPLIFICATION of U. S. Air Force lubrication requirements through standardization of lubricants and lubricating practices has progressed to a point where even the complex and intricate B-50 Superfortress requires only one grease and one oil, the Society of Automotive Engineers was told in Tulsa, Okla., by E. M. Glass, of the Air Material Command, Dayton, Ohio.

Standardization has resulted in reducing to 20 from 400 the number of different lubricants stocked by the 2,300 Air Force installations for maintaining 300,000 planes of 80 different models, he stated. Under the new program, cooperation between design and lubrication engineers is possible, while maintenance engineers are rid of jobs of plane lubrication which have become routine.

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CE FIELDS

AERONAUTICS

Ram-Jet Engines Tested On F-80 Wing Tips

See Front Cover

► RAM-JET ENGINES mounted on the wing tips of a U. S. Air Force Lockheed F-80 Shooting Star have been undergoing flight tests for nearly a year at Van Nuys, California, and Muroc, California, Air Force Base. The tests have been carried out by Lockheed personnel under the sponsorship of the Air Force.

The ram-jets used in the tests were made by the Marquardt Aircraft Corporation, Venice, California, and are of two types, one seven feet long and 20 inches in diameter, the other 10 feet long and 30 inches in diameter.

A high air speed is necessary to sufficiently compress the intake air for ram-jet engines to operate efficiently, so a "flying test stand" in the form of an F-80 was used. After the F-80 reached the required speed through its standard turbo-jet engine, the ram-jets were ignited. Then the turbo-jet was turned off and the craft was powered by ram-jet alone, as shown on the cover of this week's SCIENCE NEWS LETTER. It is the first man-carrying aircraft to fly under such conditions.

Mechanically simple, ram-jets are merely tubes made of stainless steel, aluminum and magnesium incorporating a grid where a liquid fuel is burned with the compressed air that is produced by the ram effect resulting from the high speed of the plane.

Test flights have been made by the F-80 to determine air and fuel flow, thrust and drag of the ram-jet units. The tests were made to improve and develop the ram-jet engines, not to increase the efficiency of the F-80.

The flying test stand is equipped with automatic observing systems and a motion picture camera to record instrument readings in flight.

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CHEMISTRY

New Home Spray Emulsion Aids Dust Allergy Victims

► ASTHMA and other allergy sufferers whose misery comes from house dust can have their homes made more nearly non-allergic by a new product reported in the ANNALS OF ALLERGY (Sept.-Oct.).

The product is called Dust-Seal. It immobilizes allergy-causing house dusts in rugs, carpets and other fabrics, as shown by the disappearance of symptoms in dust-sensitive persons, Dr. Arthur F. Coca of

Pearl River, N. Y., reports.

Some of the germs of colds and other respiratory diseases would also be immobilized since the method is a modification of the floor and fabric oiling found effective during the war in checking the spread of respiratory infection.

Dust-Seal is a water-emulsifiable mineral oil. It comes as a white paste which the housewife mixes with water and sprays on carpets and upholstered furniture, pillows and mattresses. The vacuum cleaner or the garden watering can may be used for the spraying.

The spray is odorless and quickly becomes quite invisible. It is non-volatile and the fabric is not made more than usually inflammable. It is said not to cause "notable injury even to fine Chinese and Turkish rugs."

Dust-Seal is manufactured by L. S. Green Associates of New York.

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PUBLIC HEALTH

Air Pollution Problem Confronts Administration

► HERE'S a national health protection job for the new Congress and the next administration: A clean-up of the air in industrial areas, so as to prevent another Donora tragedy in which industrial fumes held by fog killed a score of persons and made many others ill.

The Donora town council requested federal aid. But the federal health service cannot move into such situations as rapidly as might be either expected or helpful because it must wait for a request from State Health Departments. In this instance, election-day closing of state offices at Harrisburg, Pa., delayed by at least a day the aid the federal health service can give.

The danger is over in Donora now that the fog has been dispelled, and the same combination of fog and no wind may not happen again in years. Even if it did, the health danger could be largely prevented if the industry spent a good deal of money to prevent release of dangerous fumes into the air.

Donora is not alone in its air pollution danger. Los Angeles residents go about with inflamed eyes and sore throats much of the time because of air pollution from the industries in and around the city. Other industrial regions face much the same problems.

St. Louis is a notable example of a city that cleaned up its air, with resultant health benefits to its citizens. But while many cities have ordinances for control of air pollution and for smoke abatement, almost no state has any such legislation.

The problem is big enough, in the opinion of Dr. J. G. Townsend, head of the industrial hygiene division of the U. S. Public Health Service, to warrant more attention on the federal level.

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ICHTHYOLOGY

Rare Frilled Shark Caught Off Coast of California

► A FRILLED SHARK, one of the rarest of creatures that swim the sea, has been caught off the coast of California by a Santa Barbara fisherman named Pete Metson. Previously caught specimens had been known only from Japan and the west coast of Europe.

The frilled shark gets its name from a series of frilled folds that cover its six gill-slits, which are quite naked in practically all other species of sharks. The fish itself is long and very slender, so that it looks more like an eel than a shark. Mr. Metson's specimen was just under five feet long when caught.

Realizing that he had something unusual, Mr. Metson cleaned his specimen immediately and put it on ice. Later, after his boat had returned to base, he had it frozen. It is now at the California Academy of Sciences in San Francisco.

A careful anatomical study of the shark has been made by Dr. Elmer R. Noble of the University of California's Santa Barbara College. A colleague, Dr. Willard L. McRary, has assayed its liver oil for vitamin A content, which he found very low. They report their results in the journal, SCIENCE (Oct. 8).

Science News Letter, November 13, 1948

ENGINEERING

Oil Deficiencies Result in Over-Consumption in Cars

► EXCESSIVE oil consumption in automobile engines is not always due to mechanical defects in the engine but may derive from physical deficiencies in the oil, the Society of Automotive Engineers was told in Tulsa, Okla., by C. W. Georgi of Quaker State Oil Refining Corporation.

Although other properties may have greater significance from a technical aspect, oil consumption is of great practical value from the popular viewpoint, he said. Oil consumption tends to be the chief yardstick by which many motorists and operators judge oil quality. The investigations made by him on which he reported were with engines in good mechanical condition.

The properties of motor oils which have the greatest effect on consumption tendencies are volatility, viscosity and viscosity index, he stated. Oils having a low volatility within defined limits, high viscosity and high viscosity index tend to possess the lowest consumption characteristics.

Road tests to evaluate oil consumption were made in different vehicles due to the many variables involved. Tests in only a few cars give misleading results. Laboratory engine tests were made also. With proper selection and control of operating conditions, they gave results which correlate well with road tests.

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