CHEMISTRY

Food Packed Skin-Tight With Shrinking Plastic

➤ FOOD CAN now be packed into loose-fitting plastic bags which can be shrunk to fit their contents as they are sealed, Dr. Robert D. Lowry of the Dewey and Almy Chemical Co., Cambridge, Mass., told the American Chemical Society in Chicago.

The plastic used is a special type of saran with a vinylidene chloride base. When immersed in water at about 200 degrees Fahrenheit the film shrinks 30% to form a skin-tight package.

Such dissimilar materials as glass, aluminum, paper, cellophone, vinyl and polyethylene are being used to keep moisture in food packages and to keep out oxygen that would impair food flavor. Today's pre-packaged foods demand wrappings that will not stretch, wear, puncture, tear or allow vapors to seep in or out.

Science News Letter, September 26, 1953

PUBLIC HEALTH

Diatoms in Garbage Pail Prove Egg White Fraud

➤ MICROSCOPIC FOSSILS in cheap and plentiful diatomaceous earth have helped catch a food law violator when inspector and scientist worked together.

A frozen egg processor was suspected of extracting discarded egg shells from garbage pails and adding the salvaged egg white to his product.

Paul Conger, Smithsonian Institution diatom specialist, told the American Institute of Biological Sciences meeting in Madison, Wis., that when some of the diatom material was thrown in the garbage pails, it was simple to examine the suspected frozen egg material and prove positively by microscopic examination that it contained diatoms of the same species used as a tracer by the food inspector.

Science News Letter, September 26, 1953

MEDICINE

New Drug Checks Nausea, Vomiting

➤ A NEW drug that stops nausea and vomiting with very little side effects was announced at the meeting of the American Society for Pharmacology and Experimental Therapeutics in New Haven, Conn.

The drug is called Chlorpromazine by its manufacturers, Smith, Kline and French Laboratories of Philadelphia. Chemically it is 2-chloro-10(3-dimethylaminopropyl) phenothiazine hydrochloride. Good results in tests with drug-induced vomiting and swing sickness in dogs were reported by Drs. Leonard Cook and John J. Toner of the Philadelphia firm.

Preliminary tests in patients in whom vomiting from numerous causes was a treatment problem were reported by Drs. Bartis Kent, George Morris, Stanley Rogers and Ralph Knight of Baylor University College of Medicine, Houston, Tex.

One dose of the drug gave complete relief of symptoms in 53 of 67 patients. In another 11, vomiting was stopped and nausea lessened. One had relief of vomiting without improvement of the nausea and two were not helped.

The drug can be given either by mouth or by injection into the muscles, and can be repeated.

The side effects noted were sedation in 38 cases, dizziness in 26, dryness of mouth in 15, slight rapid heart action in 16, mild blood pressure lowering in 13. The sedation and dizziness were mild in most cases. All side effects were milder when the drug was given in small doses.

Science News Letter, September 26, 1953

ASTRONOMY

Asteroid Discovered By Belgian Astronomer

➤ A HITHERTO undiscovered minor planet has been located in the heavens by a Belgian astronomer, S. Arend of the Royal Observatory at Uccle. Too faint to be seen by any but the larger telescopes, the asteroid is 12th magnitude and located in the constellation of Pisces, the Fishes. News of its discovery is being relayed to American observatories by Harvard College Observatory which is the clearing house for such observations.

Science News Letter, September 26, 1953

INVENTION

Fuel Mileage Indicator Helps Check Consumption

➤ A FUEL mileage indicator that may be the delight of economy-minded motorists and government officials has been invented by William J. Sturtz of Los Angeles.

Resembling a speedometer, the device registers the number of miles achieved to a given gallon of gasoline, the total number of gallons consumed on a certain trip, and the number of gallons used each hour.

The idea, according to Mr. Sturtz, is to provide the motorist with means of figuring out the fuel consumption either per mile or per hour, and to help him check the economy of fuel consumption at various speeds and with various gasolines.

The device is driven partly by a cable that connects into the speedometer-drive mechanism and partly by a cable that is powered by a fuel meter installed between the fuel pump and carburetor of the vehicle.

The device registers the number of miles as they are clicked off on a gallon of gasoline. Just before the gallon is expended, a bell sounds to attract the motorist's attention. Then the miles-per-gallon indicator resets to zero and begins recording the miles obtained on the next gallon of gas. Mr. Sturtz's invention is protected by patent No. 2,649,709.

Science News Letter, September 26, 1953

IN SCIEN

DENTISTRY

Tiny Amebae in Mouth Exist on Bacteria

➤ NO MATTER how hard you brush your teeth, your mouth contains tiny harmless amebae that are dependent upon certain bacteria for their existence.

Dr. Gordon Ball and John Clayton Jr. of the University of California at Los Angeles reported to the American Society of Protozoologists meeting in Madison, Wis., that the organism, known as *Endamoeba gingivalis,* is found about the gums and in the tartar of the teeth. It appears to be dependent upon bacteria to help it digest and utilize its food. It was found that even in an adequate nutritional medium the amebae died in the absence of bacteria.

The reason for this has not been clearly demonstrated. It is thought that the amebae require certain enzymes from the bacteria, without which they are unable to digest or utilize food.

These amebae are apparently harmless but are similar in this respect to other such organisms which do invade tissue and cause infection in the intestine. In the case of bleeding or other disorders of the gums, the endamebae may feed on red and white blood cells but apparently do not contribute to the gum disorder.

Science News Letter, September 26, 1953

CHEMISTRY

New Tough Rubber Needs No Vulcanization

➤ A NEW rubber which does not have to be vulcanized was reported to the American Chemical Society meeting in Chicago.

Combining a new type of styrone resin with a chloroprene rubber, in different proportions, gives a family of rubber products with valuable new properties. Described by Dr. R. J. McCutcheon and reporting work done by him, with Dr. H. S. Sell, at the Goodyear Tire & Rubber Co., Akron, Ohio the new rubber would be spoiled by vulcanization. It can, however, be processed on machinery designed to handle rubber of the conventional sort. Of outstanding toughness, the new material does not become brittle at low temperatures.

Only one other type of rubber which avoids the vulcanizing process is on the market. The ingredients of that material are styrene acrylonitrile resin blended with nitrile rubber. The new rubber is different chemically, and can be blended to show properties ranging from the stiffness of polystyrene to the waxy texture of polyethylene.

Science News Letter, September 26, 1953

SCIENCE FIELDS

CHEMISTRY

Cooking Fat Odor Doomed by Antioxidants

➤ THAT UNPLEASANT cooking fat odor from restaurant kitchens will be a thing of the past when chemicals that repulse oxidation in fats and drying oils come into wider use.

Chemists have devised synthetic antioxidants that now are able to protect against rancidity in baked and fried foods, as well as the complex materials in other foods and animal feeds, H. R. Kraybill and L. R. Dugan Jr., of the American Meat Institute Foundation, Chicago, reported to the American Chemical Society meeting in Chicago.

The synthetic antioxidants are of what are called the "hindered phenolic type."

Packaging materials for fats and fatty foods are also being made with antioxidants, while the chemicals may be important in delaying rancidity in cured meats and foods sterilized by high energy radiations.

Natural antioxidants have been obtained from the fruit of the osage orange, but the synthetic ones have the property of retaining their protective properties through the cooling process.

Science News Letter, September 26, 1953

BIOLOGY

New Test Evaluates Fungicide Value

➤ SAID TO be the first reliable test of the effectiveness of drugs in killing fungus infections, a new, accurate technique has been developed by University of California at Los Angeles scientists in research at the Los Angeles Veterans Administration Center.

This was reported at the annual meeting of the Mycological Society of America and the American Institute of Biological Sciences in Madison, Wis.

Dr. J. E. Tarbet and Dr. T. H. Sternberg of the U.C.L.A. Medical School developed the new technique.

The technique not only indicates the fungicidal powers of the drugs but also suggests dosage levels necessary to combat the infection.

The drug to be evaluated is injected into the mice in various dosages. Then blood serum from the mice is seeded in test tubes with the infecting fungus. The rate of growth of the fungus in various serum cultures indicates the effectiveness and adequate dosage levels of the drug.

Many antibiotics and other drugs have been effective in killing fungi in the test tube but have proved ineffective in living animals. The new technique is in effect a "living animal" test.

The need for effective fungicides has been accentuated in recent years. Not only are they needed in combating such diseases as coccidioidomycosis, histoplasmosis and actinomycosis, they are also in demand for treatment of fungus complications that sometimes follow antibacterial therapy.

Science News Letter, September 26, 1953

NUTRITION

Algae to Give Oxygen For Human Use in Space

➤ ALGAE, LIKE the green scum on ponds, will provide oxygen for space explorers living at high altitudes above the earth if studies now underway at the University of Texas prove practical.

This was forecast by a report to the American Institute of Biological Sciences in Madison, Wis., by Dr. Jack E. Myers and Dr. J. Neal Phillips Jr., who have found ways to increase the growth of algae in sunlight. These little aquatic plants use light energy more efficiently to store energy in mass growth and oxygen production if exposed to alternate periods of light and dark. The Texas scientists stir the growing mass of algae culture and high turbulence gives the desired light fluctuations. Overcrowding of the algae is prevented by automatic methods of diluting the culture as the many billions of cells become too crowded.

Progress achieved has caused the Department of Space Medicine of the U. S. Air Force School of Aviation Medicine to support research for future use.

Science News Letter, September 26, 1953

MEDICINE

TB Remedy Promising In Fungous Disease

➤ "ENCOURAGING" RESULTS with the new TB medicine, isoniazid, in treatment of a highly fatal fungous infection, actinomycosis, are reported by Drs. Leon V. McVay Jr. and Douglas H. Sprunt of the University of Tennessee College of Medicine and John Gaston Hospital, Memphis, in the *Journal of the American Medical Association* (Sept. 12).

This disease attacks cattle as well as humans, and is better known under the names "lumpy jaw" and "wooden tongue."

The Memphis doctors tried the TB medicine, isoniazid, because in many ways actinomycosis is similar to tuberculosis. Larger doses, however, are needed in the treatment of the fungous infection.

Their good results came in three patients who had the fungous infection in the jaw, neck and face. Prolonged observation of a large number of cases will be needed, they point out, to determine the full value of isoniazid treatment of actinomycosis.

Science News Letter, September 26, 1953

CHEMISTRY

Blood Plasma Extender Made by Germs in Soil

➤ SUPPLEMENTING DEXTRAN as a blood fluid addition, known as a plasma extender, chemists see the possibility of using similar material, and have set up a series of tests which such material must pass to be considered a possibility for this life-saving work.

Drs. Chester E. Holmlund, Saul A. Schepartz and James J. Vavra of the University of Wisconsin reported before the American Chemical Society in Chicago their success in finding in the soil substances similar to dextran but of slightly different chemical configuration, which they call levans. These materials are formed by bacterial action in the soil. Of the variety of such substances isolated by the research team, assisted by Dr. Marvin J. Johnson, one compound referred to as levan No. 248 seemed most promising.

Injected into the veins of a rabbit, it was found to have not only no bad effects, but to persist in the blood stream many times as long as commercial dextran. Methods of extracting levan from suitable cultures and obtaining the maximum quantity were reported by the Wisconsin team.

Science News Letter, September 26, 1953

PHYSIOLOGY

How Cows Digest Shown By Artificial Stomach

➤ USING AN artificial cow's stomach, a group of scientists at Iowa State College, Ames, Iowa, feed into it a variety of cellulose products in an effort to learn how cows can digest wood.

New light on this important but little understood factor in cattle raising has been shed by this research, reported to the American Chemical Society in Chicago by Drs. Warren D. Kitts and Leland A. Underkofler.

In the cow's extra stomach, called the rumen, where cellulose digestion is carried on, cellulose is broken down by bacterial action and turned into sugar-like chemicals which furnish nourishment to the animal. In the artificial rumen which these research workers have constructed, the steps by which this breakdown is effected are followed, and the complex materials drawn off at intervals are analyzed by the process of chromatography.

The rate of breakdown is slowed down, in this artificial "stomach," by adding thymol, an antiseptic, and sodium fluoride, a poison. These chemical manipulations have allowed the research team to learn that the digestive process can break down carboxymethyl cellulose, an artificial type of cellulose simpler than wood.

The end product of cellulose digestion was found by these researches to be glucose, the sugar found in the blood stream.

Science News Letter, September 26, 1953