

IN SCIENCE

TECHNOLOGY

New Compound Makes Ozone-Resistive Rubber

► IMPROVED RUBBER products, resistive to ozone, were described at the rubber chemistry division of the American Chemical Society meeting in Buffalo, N. Y., by scientists of the Du Pont Company, Wilmington, Del. The improvement is due to the addition of a material known as "Hypalon" S-2 chlorosulfonated polythene.

Ozone in the atmosphere is the principal cause of the cracks that appear in natural and many types of synthetic rubber. These scientists developed various types of rubber compounds with marked resistance to ozone by blending the new elastomer with them. "Hypalon" S-2 was exposed by them to air containing 1,350 times the normal amount of ozone without showing a single crack.

The Du Pont scientists responsible for the development include Robert T. Currin, Ward J. Remington, William B. Clark, John J. Ondrejcin and George H. Bowers. The ozone-resistive additive is now being produced on a semi-commercial basis. It is recommended for use in any rubber which is to be exposed to the weather.

An agent for preventing discoloration of white rubber products was described at the same meeting. Information concerning a new radioactive method for measuring how fast gases penetrate inner tubes and rubber sheet materials was presented. New silicone rubbers for use at extreme temperatures were described, also the results of studies of vulcanization with radioactive sulfur.

Science News Letter, November 8, 1952

MEDICINE

Ear Trouble May Be Due to Allergies

► MANY CASES of stubborn ear trouble, more than one out of 10, are due to allergy, Drs. Eugene L. Derlacki and George E. Shambaugh of Chicago find. The ear is lined with exactly the same kind of membranes as the nose and sinuses, Dr. Derlacki pointed out at the meeting of the American Academy of Ophthalmology and Otolaryngology in Chicago.

The outer part of the ear is covered with the same skin as the rest of the body. Skin and nasal lining are extremely susceptible to allergic disease, as hay fever sufferers and victims of hives know.

Drs. Derlacki and Shambaugh studied 993 patients and found in 115, or 11.6%, of them that allergy was the cause of the trouble. The usual treatment for such diseases was of no avail but when the patients were studied for allergies, they were found to be sensitive to such varied substances as drugs, cosmetic products, foods and inhalants including dust, feathers and pollens.

In one instance a young Army officer suffered for four months from itching and a discharge from both ears. After careful questioning, the physician found that he had a habit of eating chocolate fudge al-

most every night and that the symptoms would start about four hours afterward. A woman who had an operation on the bone in her ear recovered from the operation with improvement in hearing, but the site of the operation refused to heal. She was found to be sensitive to wheat and was cured when she omitted it from her diet.

Allergy of the middle ear has been mistaken for chronic otitis media, and a large proportion of Dr. Derlacki's and Dr. Shambaugh's patients suffered from this painful condition. One woman who said she had had ear trouble all her life was relieved when she had injections of an extract of house dust, they reported.

As to the inner ear, allergy has been incriminated again in a condition characterized by an accumulation of fluid, a kind of "dropsy of the ear," Dr. Derlacki said. The patient complains of a sense of pressure and of roaring in the ear, accompanied by attacks of vertigo.

Science News Letter, November 8, 1952

PHYSICS

Microwaves Now Can Measure Smoke in Air

► MICROWAVES NOW can be used to measure tiny amounts of smoke in the air as well as to carry television programs from coast to coast.

Under an Army Chemical Corps grant, Prof. H. C. Thacher, Jr., of Indiana University, and graduate student Paul B. Dorain have adapted a machine that pipes the ultra-high-frequency radio waves into two test chambers. One chamber is filled with pure air. The other contains air with traces of smoke.

Traveling at different speeds through the two different air samples, the microwaves reveal the amount of smoke in the impure air. The instrument's sensitivity permits it to measure as little as six hundred-thousandths of an ounce of smoke in a cubic foot of air.

The smoke-measuring machine was adapted from a device originally developed at the National Bureau of Standards by George Birnbaum.

Science News Letter, November 8, 1952

CHEMISTRY

Chemical Arrests Plant Growth Safely

► A NEW plant growth regulator which, at low concentrations, stops the growth of tomato plants and the flowering of marigolds without killing the plants or causing visible damage has been discovered by Drs. W. B. Ligett, Calvin N. Wolf, R. E. Hay and D. P. Uhl of Ethyl Corporation Research Laboratories, Detroit, and the Battelle Memorial Institute, Columbus, Ohio.

The chemical, Ethyl-214, is alpha-cyano-beta-(2,4-dichlorophenyl) acrylic acid. Tests with it are reported in *Science* (Oct. 10).

Science News Letter, November 8, 1952

BACTERIOLOGY

Bacteria in Air Make Vitamin B-12 From Dust

► COMMON BACTERIA that occur in the air can convert dust materials into vitamin B-12, the vitamin that prevents pernicious anemia.

This was reported by Dr. W. J. Robbins of the New York Botanical Garden to the Conference on Growth of Protozoa, held by the New York Academy of Sciences.

Dr. Robbins and his co-workers, Annette Hervey and Mary E. Stebbins, made a search worthy of Sherlock Holmes to detect production of B-12 by these minute organisms. First they placed water from which all impurities had been removed into a place where it would be contaminated by the air. They left it alone for two months.

At the end of that time, the scientists placed a culture of one-celled green plants, called *Euglena*, in the water. These plants will not grow except in the presence of B-12. As the *Euglena* thrived, Dr. Robbins and his co-workers deduced that B-12 was present. They were able to measure the vitamin content of the water by the amount of *Euglena* growth, and found two millionths of a millionth of a gram (a micro-micro-gram) of the vitamin in each milliliter of water.

As the water was completely sterile and pure at the beginning of the experiment, the scientists were able to deduce that bacteria from the air which fell into the water had converted food material present as dust in the air into the vitamin.

Science News Letter, November 8, 1952

TECHNOLOGY

Mass-Produced Glass Parts Can Be Welded

► ELECTRIC WELDING principles have been adapted to glass, permitting highly technical products to be manufactured better on a mass scale, M. R. Shaw, Jr., research engineer for the Corning Glass Co., reported to the Middle Eastern District meeting of the American Institute of Electrical Engineers meeting in Toledo, Ohio.

Mr. Shaw said electric glass welding develops higher temperatures within glass bodies than flames do. The high temperatures are reached faster, and without danger of destroying the surface of the material or of distorting the main body of parts. The heat can be controlled accurately, even by unskilled operators.

Welding voltages run as high as 20,000 volts when glass is being joined. Currents vary from the standard 60 cycles to ultra-high-frequency currents.

Science News Letter, November 8, 1952

E FIELDS

NUTRITION

Even False Teeth Need Good Diet

➤ A GOOD diet is essential for good teeth—even false teeth.

On the right diet, mouths will be more comfortable and the false teeth will work better and longer, Dr. Dorothea F. Radusch of the University of Minnesota School of Dentistry declared at the meeting of the American Dietetic Association in Minneapolis, Minn.

This is because diet affects the gums and bone around the teeth as well as the teeth.

"The basic rules to keep the mouth healthy are the same at all ages," she said.

"We all need to eat the highly nutritious meat, milk, eggs, butter, fruit and vegetables and whole grain and enriched cereals in proper quantities. We should all use sparingly the various kinds of sweets."

Science News Letter, November 8, 1952

MEDICINE

Danger in Neglecting Mild Stomach Discomfort

➤ A WARNING on the dangers of neglecting "indigestion" appears in the *Journal of the American Medical Association* (Oct. 18). The warning comes in a report on stomach cancer by Dr. William A. Cooper of New York Hospital, Cornell University Medical College, New York.

The "most obvious single factor" that can lead to earlier diagnosis and treatment of stomach cancer, with its greater hope of cure, is reduction of the delay by the patient in seeking medical attention, Dr. Cooper declares.

Pain, vomiting or hemorrhage from the stomach, that is, vomiting blood, are symptoms that will send the average person to his doctor in a hurry. But unfortunately, there are many less dramatic symptoms that the average person neglects which might mean stomach cancer. "Gas," "indigestion," discomfort in the upper belly, a feeling of fullness, slight nausea or loss of appetite are among such symptoms.

These symptoms, or the feeling that the stomach is not right, may be very slight and even vague. They may come and go. The average person with these symptoms will try a little "soda bicarb," or some other home remedy, or some new remedy from the drug store advertised to relieve "gas" or "sour stomach."

Such remedies may give relief and the person feels fine again, for a time. So the average man or woman goes along, trying the same or another remedy the next time his stomach feels "off." This may go on for months or years, until the favorite rem-

edy fails to help. Then the patient goes to his doctor and then, if he has cancer, it is all too likely to be in an advanced stage when the chances for cure are not good.

The delay, Dr. Cooper says, is not founded so much on wilful neglect. It has its origin in ignorance, fear, and the hope "that the next day or week will be better."

A good many lives might be saved if more people would get smart, gather up their courage and go to the doctor when seemingly mild stomach discomfort first is felt.

Science News Letter, November 8, 1952

BIOCHEMISTRY

Tissue Extract Substance Makes Fat Outside Body

➤ FOR THE first time, scientists have succeeded in extracting from living tissue a water-soluble substance which can make fat.

What may be the first step toward production of fat from sugar outside the living body was announced by Dr. Samuel Gurin of the University of Pennsylvania School of Medicine at the Symposium on Nutrition in Boston sponsored by the Harvard School of Public Health and the New England Postgraduate Assembly.

The achievement will, it is hoped, give scientists new information about the intermediate steps in the complicated synthesis of fat in living tissues.

Normally the liver makes fat out of sugar and starches. Livers of diabetic animals, however, cannot do this. Fasting or even a drastic change in dietary such as a high protein diet will, Dr. Gurin pointed out, have a similar effect in lowering the liver's ability to make fat.

Insulin stimulates this process in normal livers but has no effect on liver slices living outside the body when they are taken from rats or cats with diabetes.

The growth hormone of the pituitary gland in the head and that other famous pituitary hormone, ACTH, also have been implicated as substances which can in some way stop the synthesis of fat by living tissue.

Science News Letter, November 8, 1952

GENERAL SCIENCE

To Survey Technical Manpower in Defense

➤ COMPLAINTS THAT scientists, engineers and technicians drafted or called back into the Armed Forces are not being properly utilized will be "looked into" by a new Defense Department commission headed by Brig. Gen. David Sarnoff, chairman of the board of the Radio Corporation of America.

He has just taken office as head of the new Citizens Advisory Commission on Manpower Utilization. Its primary job will be to look into the Armed Forces' tables of organization to see whether they are as efficient as possible.

Science News Letter, November 8, 1952

MEDICINE

Weaker Sex Stronger In Surviving Burns

➤ THE SO-CALLED weaker sex again has shown itself to be the stronger. This time it is in ability to survive burns plus starvation.

Males lose weight faster when starved, and die at a greater rate when burned after fasting, than females. Experiments showing that this is true for rats have been reported by Drs. L. P. Munan and A. Einheber of George Washington University School of Medicine, Washington.

The experiments were made in a study of chemical treatment of burns. The rats were fasted before the burns in order to investigate possible sex differences under more rigorous conditions than burn alone.

At 24 hours after burn, only nine percent of the males were still alive, while 49% of females were living. At 48 hours after burn, no males were living but five percent of the females still survived.

The last surviving female outlived by 48 hours the last starved, burned male survivor. This is "noteworthy," the scientists point out in *Science* (Oct. 17).

As to weights, males lost as much in 50 hours as females in 75 hours.

Besides anatomical differences that could account for the sex differences in survival, the liver processes male and female sex hormones differently. This differential process is accentuated in starvation, resulting in an increased ratio of female to male hormones. The female hormones, therefore, may give females greater protection against burns, either directly or through liver action or other indirect body chemical processes.

Science News Letter, November 8, 1952

BIOPHYSICS

Atomic Goggles Made From Cadmium Glass

➤ ATOMIC GOGGLES to protect human eyes from neutrons and other atomic energy radiations and even atomic bombs are now available.

The new glass, containing cadmium, has been developed by a group of University of Pittsburgh scientists, headed by Dr. Alexander Silverman. It was announced at the 50th anniversary celebration of the L. J. Houze Convex Glass Co., Point Marion, Pa., sunglass makers, as the world's first practical transparent absorber of neutrons.

Neutrons are penetrating particles of atomic fission. They damage eyes insidiously. To get equal protection the new glass need be only three times the thickness of pure cadmium sheet.

The goggles will be used in atomic energy plants, at atomic test explosions and around atomic accelerators. The glass will be used in peep holes in atomic installations.

Transparent glass 50% more absorbent of X-rays and gamma rays than any previous shielding glass was also reported.

Science News Letter, November 8, 1952