

CHEMISTRY

Spearmint Flavor Comes From Peels of Oranges

► CHEMISTS have now synthesized a spearmint flavor out of the peels of oranges and grapefruits.

The new product announced to the American Chemical Society meeting by Dr. Carl Bordenca of the Southern Research Institute in Birmingham, Ala., will supplement and partially replace the natural material in chewing gum and other materials.

Natural spearmint oil has been variable in supply and quality in recent years. The new process will utilize a by-product of the citrus canning industry. The chemical synthesized is carvone, which is a compound also present to the extent of 65% in natural spearmint oil.

Dr. Rufus K. Allison and Dr. Philip H. Dirstine, of the same institute, joined Dr. Bordenca in the research.

Science News Letter, September 16, 1950

METEOROLOGY

Russia and U. S. Still Exchange Weather Reports

► WEATHER is one of the few things on which Russia and the United States continue to agree. Despite the war in Korea, weather reports from Vladivostok and other stations close to the Korean border continue to be broadcast to the world four times a day.

We reciprocate—and from reports from all over the northern hemisphere both Russian and American weathermen make their forecasts. Sometimes reports, not only from Russian stations but from those controlled by this country, are delayed or do not come through at all.

U.S. Weather Bureau officials report, however, that there has been no deliberate stoppage on the part of the Russians, contradicting a recent Drew Pearson column.

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CHEMISTRY

Radioactive Adrenaline Traced through Body

► ADRENALINE, gland chemical famous as a lifesaving stimulant in many a dramatic case, has now been made with radioactive carbon from the Atomic Energy Commission's plant at Oak Ridge, Tenn.

Synthesis of the radioactively-tagged compound was reported by Dr. Richard W. Schayer of the Rheumatic Fever Research Institute, Northwestern University Medical School, at the meeting of the American Chemical Society in Chicago, Ill.

Adrenaline is converted into at least five substances in the body, studies with the radioactive form suggest. From his findings

so far, Dr. Schayer described the fate of adrenaline injected into the body as follows:

"Adrenaline is removed from the blood by the body tissues, where it is converted into one or more new substances differing in properties from the original adrenaline. The new substances are then released from the tissues back into the blood stream, from which they are picked up by the liver and kidney for possible further change and excretion.

"The identity of the substance or substances found in high concentration in the blood is of interest and will be investigated in later studies," Dr. Schayer stated.

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INVENTION

Shower and Dress On the Beach

► COMBINATION dressing room and shower bath, a collapsible affair that can be carried to the beach under the arm and set up where wanted, is among inventions on which the government issued a patent recently.

When set up, it is a circular shelter, just big enough to hold one person. It has a base with uprights to support a surrounding curtain, and bucket of water overhead. The bucket is called a sprinkler pail, and has a stopcock to control the flow of water.

This invention is suitable for use by campers and others, the inventor, Franklin B. Brown of Los Angeles, claims. For his work he received patent 2,519,430. Guy ropes and pins may be used to hold the shelter upright during a high wind, he states.

Science News Letter, September 16, 1950

INVENTION

Trim Your Lawn with Used Razor Blades

► NOW you can trim your lawn with used razor blades too dull to shave your face. Used blades form the working edge in a grass cutting implement on which a patent was issued by the government recently.

The important part of the implement is an elongated holder to which a series of blades, end to end, are attached. An elevated handle at one end of the holder keeps the hand of the operator safely off the ground. Important is a flat metal shield, with its forward edge open, that fits over and under the blade holder.

When in use the blades project outside this open edge. But at other times the shield is slid in a reverse position over the blade holder where the cutting edge can do no damage to handlers.

This razor-blade grass-cutter brought patent 2,520,464 to Cornelius A. Hubner, Butler, N. J.

Science News Letter, September 16, 1950

IN SCIEN

CONSERVATION

California Forest Fire Danger Is High

► CALIFORNIA forestry officials sat on the "most explosive fire season in 26 years" as deer hunters oiled their rifles and prepared to take to the woods on Sept. 16.

Listed by the U. S. Forest Service as the driest state in the union, California has already had more than 4,000 forest and range fires this year. They have claimed six lives and burned more than 200,000 acres, to a total estimated damage of \$5,000,000.

Perry A. Thompson, U. S. regional forester, and DeWitt Nelson, state forestry chief, warned that the forest fire danger is now at its peak. Months of dryness have left forests like tinder. Fires can travel a mile in a few minutes under such conditions, they said.

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INVENTION

Stainless Steel Given Many Colors by Chemical Process

► STAINLESS steel in many colors, for ornamental use and for interior fixtures and furniture, varies from yellow through green and blue to purple when treated chemically in a process which received a patent from the government recently.

This now widely-used, rust-resistant steel alloy is ordinarily of a dull or satin-like appearance if unpolished, but has a mirror-like metallic hue when finished. It can be painted, of course, but paint coatings are usually unsatisfactory because they do not tie in properly with the properties of the steel.

In this process, the colors are obtained by chemical action with the metal surface. The steel is immersed in a bath of water to which a small quantity of phosphoric acid has been added. The acid is by weight from 0.25% to 5% of the solution.

The steel remains in the solution for a period ranging from 20 minutes to 20 hours. A colored, thin, translucent, and usually somewhat iridescent, film forms on the surface. The bath is kept at about the boiling point. Full color is seldom obtained in less than 20 minutes, and appreciable changes in color are obtained up to 20 hours.

Patent 2,521,580 was issued to Regina L. Hornak, Baltimore, Md., and John J. Halbig, Middletown, Ohio, for the process. Rights have been assigned to Armco Steel Corporation, Middletown.

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CE FIELDS

MEDICINE

Exchange Resins May Put End to Salt-Free Diets

► CHEMICALS called ion exchange resins may put an end to the monotonous no-salt diet which many patients with dropsy from heart disease and other ailments must now follow.

Good results with these chemicals in both animal experiments and trials on human patients are reported to the American Chemical Society in Chicago by two groups of scientists: Drs. Evan W. McChesney, Frederick C. Nachod and Maurice L. Tainter of the Sterling-Winthrop Research Institute, Rensselaer, N. Y., and Drs. A. E. Heming, T. L. Flanagan and M. F. Sax of Smith, Kline and French Laboratories, Philadelphia.

Dropsy, or edema as doctors term it, is an accumulation of body fluid. It occurs in cases of congestive heart failure, cirrhosis of the liver and some cases of high blood pressure. The fluid accumulates because the body is unable to get rid of enough sodium, such as is contained in common table salt.

Drinking large amounts of water to wash out the salt and at the same time reducing drastically the intake of salt have been measures used to overcome the dropsy.

Using the same principle developed during the last war to remove salt from sea water to make it drinkable, the two groups of scientists have developed special ion exchange resins to remove salt from the patient's body.

In order to avoid robbing the body of potassium as the sodium is being removed, a combination of ammonium and potassium forms of the resin was adopted by Dr. Heming and his associates.

The "cation exchange resins" used to remove salt in dropsy cases should not be confused, Dr. Heming pointed out, with "anion exchange resins" used in treating stomach ulcers. The latter type work by "binding" the acid in the stomach.

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PSYCHOLOGY

Quarter Looks Bigger to Rich Child than to Poor

► A QUARTER looks bigger to a ten-year-old rich child than it does to a poor child, Drs. Bernard G. Rosenthal and Janice Houghton Levi of the University of Chicago told the meeting of the American Psychological Association in State College, Pa.

This is true also of other coins—a penny, a nickel, a dime and a half dollar. It is the same whether he has the coin on hand

or whether he is making the judgment from memory.

The ten-year-olds tested by the psychologists made their judgment by adjusting the size of a circle of light on the screen of a box until it matched his idea of the size of the coin.

Rich children as compared to the poor showed a greater tendency to say that they would spend money on themselves rather than on others. And more rich children said that they would rather save their money than spend it.

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METEOROLOGY

Weather Flashes On Broadway

► WEATHER matters less on Broadway than most places. Nevertheless the newest Great White Way sign advertising a life insurance company translates the official forecast into steady green for sunshine ahead, steady orange for clouds expected, flashing orange for rain and flashing white for snow. Future temperature changes are shown by jumps in bands of light.

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CHEMISTRY

Tartaric Acid From Coal Product

► BAKING powder can now be made from wholly American materials, thanks to the commercial synthesis of tartaric acid. This ingredient has previously been made from deposits that form during the aging of French wine.

Prof. James M. Church of Columbia University's chemical engineering department told the American Chemical Society in Chicago that tartaric acid should soon be made as cheaply from benzol, a coal-tar product, and hydrogen peroxide, as it can be recovered as a by-product of the European wine industry.

Chemical manufacture of tartaric acid was stimulated by the shortage of tartrates and the high prices of the wine industry product that followed World War II. Obtaining natural tartaric acid as a wine by-product is a slow and complicated process, involving much labor and handling of materials in southern France. Users of the chemical in the United States were affected by the fluctuations of the wine industry and tariff regulations.

Chemical manufacture of tartaric acid begins with a similar chemical structure, maleic anhydride, which is made from coal-tar benzol. Combined with hydrogen peroxide in the presence of a little tungsten oxide as catalyst, a water solution of the maleic anhydride gives a pure tartaric acid that can be crystallized out simply.

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CHEMISTRY

Antibiotics May Fight Fungi and Insects

► INSECTS and fungi in the future may be fought with the same kind of materials, antibiotics, that are saving human lives by the thousands from a whole array of infectious diseases.

A new antibiotic with high potency as a fungicide was reported to the American Chemical Society by Dr. John Little of the Vermont Agricultural Experiment Station, Burlington, Vt. Isolated from the roots of a tropical flowering plant, *plumeria multiflora*, it is called plumericin.

Chemists are searching for new chemical fighters of disease in all sorts of growing substances. The prime hope is that new antibiotics will prove more effective against diseases already combated by penicillin, streptomycin, aureomycin, etc., or against ills untouched by them.

Some of the new substances prove too toxic to human beings to be used medically and these, if they can be made cheaply enough, may prove useful in the war against insects, mildew, molds and other pests that affect the things man uses instead of his health.

Another antibiotic, netropsin, obtained from the same family of organisms that produces streptomycin and terramycin, was reported by Chas. Pfizer and Co. chemists as a promising weapon against clothes moths and carpet beetles.

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MEDICINE

Ultrasound, Unheard, Hits Nervous Tissues

► ULTRASOUND, which cannot be heard by human ears, affects nerves more than any other tissue of the body, Dr. Warren A. Bennett of the Mayo Foundation, Rochester, Minn., reported in Boston to the American Congress of Physical Medicine.

The findings came from studies in which dogs with spontaneously occurring tumors were treated with ultrasound. Scientists at the Mayo Clinic and Foundation are trying to learn whether ultrasound waves can disintegrate cancers and other tumors and whether the way in which these high frequency sound waves are reflected can be used to detect cancers.

"The destruction due to ultrasound," Dr. Bennett reported from his experience in treating dogs, "depends on the duration and intensity of treatment along the type of tissue through which the sound passes. The lack of destructive selectivity has led to the destruction of normal tissues as well as the tumor. Marked changes appear to be irreversible."

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