

your body felt the impact of the rushing air. Almost at the same time came the cloud of gases and the swirl of leaves swept up by the rushing man-made wind. And then a piece of rock some 15 inches long bounced out ten feet beyond the mouth of the mine.

It takes an hour to clear the mine of vapors and dust and then again we venture back. The going is now even harder than before, for rocks and fragments are splattered down the whole adit.

Ultimately, with skinned shins and scarred shoes, you reach the former face. And there is a pile of rock half as high as a man and beyond it a hollowed-out place. The steel flooring, at least on this particular blast, will be of little use, for instead of being under that pile of rock it has been blown back some 20 feet down the shaft. More pictures are taken, and then the miners come in to start the tedious task of cleaning up for the next drilling and blast.

Science News Letter, April 24, 1937

METEOROLOGY

South Polar Weather Data To Be Published

WEATHER figures and facts amassed during Admiral Byrd's South Polar expedition are now being digested and arranged for publication at the U. S. Weather Bureau, by Meteorologist George Grimminger, who was with Admiral Byrd in Antarctica.

Mr. Grimminger is being aided by six Works Progress Administration employes. The project will require eight months for its completion, and will involve an expenditure of \$4,500. A formidable amount of reducing, correcting, evaluating, and editing is involved before the work will be ready for the printer. Scientific publication is expected early in 1938.

The report, when finally published, will be unique. It will be not only the first meteorological report ever published by the U. S. Government on the South Polar regions but also the first ever published by any country to include observations made in the upper air over Antarctica by means of balloons, kites and airplanes. No previous Antarctic expedition was equipped to take these observations of air movements and other data concerning the South Polar air currents which breed much of the world's weather.

The data were obtained in temperatures ranging from freezing to 72 degrees below zero.

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CHEMISTRY

Major Forward Step Made Toward Chlorophyll Synthesis

Chemistry Meeting Hears Also of New Solvent, New Male Sex Hormone, and Powerful Local Anesthetic

A MAJOR forward step toward the chemical synthesis of chlorophyll, the green coloring matter of plant leaves upon which depends nearly all life on earth, was disclosed to the Chapel Hill meeting of the American Chemical Society.

About 70 compounds closely related to chlorophyll have been prepared and some of them have strange and powerful physiological properties. One compound, for example, was injected into rats in small amounts of 10 milligrams and virtually bound the animals to a life in darkness in order to live. As long as they remained in the dark they showed no effect. When removed to daylight they died in a few hours.

Dr. Paul Rothemund of Antioch College, in describing his researches on these chemical relatives of chlorophyll, also told of a German chemist who tried some of the substance on himself with the result that he too, was bound to a life "after dark." For ten months he could not go out into the light without having his face swell up, suffering intense pain, and having patches of his hair fall out.

While none of Prof. Rothemund's products are identical with those found in nature he believes that he or someone else will produce eventually a substance indistinguishable from the natural product.

Funds from the National Research Council, the Chemical Foundation and drug manufacturing companies have supported the Antioch researches.

Powerful Solvent

A new world of chemical research was thrown open before the meeting with a description of a chemical solvent that makes possible a whole new series of chemical reactions. In the new solvent water, usually considered a neutral compound, forms a base and reacts with acids to form new chemicals.

Reporting five years of study of the solvent, known as selenium oxychloride, Prof. Gilbert B. L. Smith of Brooklyn Polytechnic Institute said, "Such strange

things happen to substances dissolved in this solvent that chemists must revise their theories of ionization as applied to acids, bases and salts."

Selenium oxychloride is a heavy straw-colored liquid that freezes at about 65 degrees Fahrenheit. It has a corrosive action on many common materials.

Describing its oxidizing properties, Prof. Smith said: "Once some of it froze over night, broke its containers and dripped on the wooden floor of one of the laboratories at the Institute. It ate right through the floor and dripped down into the physics laboratory below. The selenium oxychloride destroyed several instruments in the physics laboratory and even attacked bakelite fixtures."

To picture to his audience the strange properties of selenium oxychloride, Prof. Smith envisioned the world as it might be if the solvent were as prevalent as water and stood in the latter's place as the widest known solvent.

Mountains, said Prof. Smith, would consist only of glass or feldspar, two of the few substances which the solvent will not dissolve. All bridges and boats would have to be constructed of platinum or tungsten.

From the time the temperature went below 65 degrees in the fall the whole world would be a great frozen mass. Snow would fall every time it became colder than mild springtime and when it rained man would have to carry umbrellas made of glass, tungsten or platinum.

New Male Sex Hormone

A new male sex hormone known as epiallopregnanolone has now been isolated and made synthetically, it was announced by Dr. R. E. Marker of Pennsylvania State College on behalf of his colleagues, R. V. McGrew, E. L. Wittle and D. M. Jones.

In most minute amounts this hormone aids the development of male sex characteristics in birds and other animals, including humans. Its source was the urine of expectant mothers.

Two other male sex hormones have previously been obtained, testosterone from the sex glands, and androsterone.

The sex hormones, Dr. Marker believes, do not act primarily as physical stimulators of specific organs but rather by chemical combination in the body.

This supposition is strengthened by evidence showing that when the sex hormones are administered they cannot be recovered in their original form. They are recovered as decomposition products, showing that they have entered into chemical combination in the body.

Vitamin in Salt

Table salt rich in vitamin B is now a distinct possibility, Prof. L. R. Cerecedo of Fordham University reported.

Among the four more important vitamins, A, B, C, and D, vitamin B is most lacking in modern diets.

Prof. Cerecedo has found that synthetic sand-like materials, of the general nature of the zeolites used as water softeners, have the ability to take up vitamin B from cereal and yeast extracts.

These synthetic vitamin sponges retain the vitamin until they are treated with salt solution when they transfer the vitamin to it. After evaporation of the water a residue rich in vitamin B is obtained.

The amount of vitamin B in the amount of salt ordinarily shaken on food at the table would be more than sufficient to supply that which is known to be lost in the cooking because of heat and water extraction. It appears probable that the amount of vitamin B which could be obtained from the daily sprinklings of salt would equal the vitamin obtained by eating three yeast cakes.

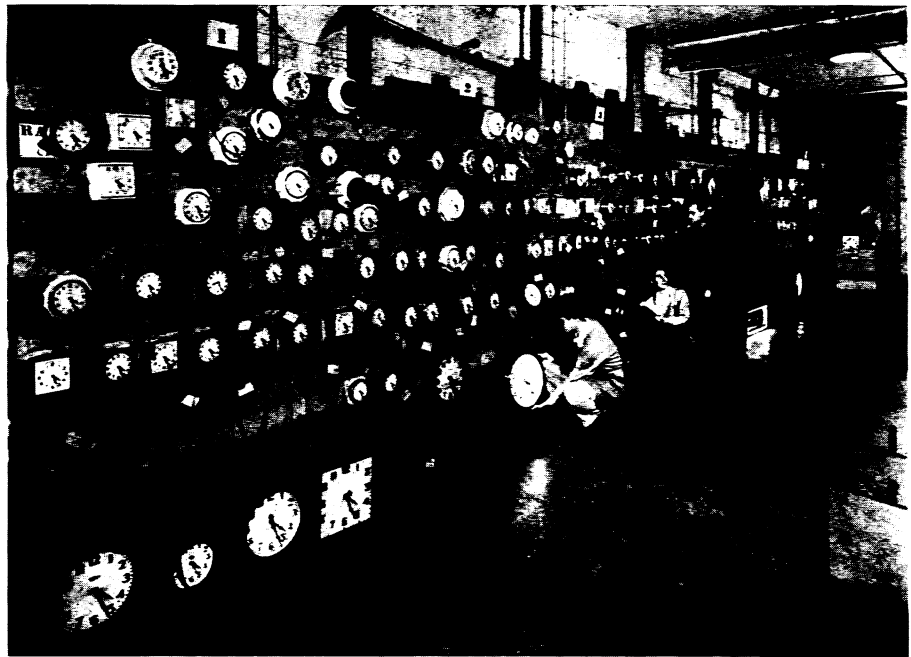
Local Anesthetic Reported

A local anesthetic 10 to 15 times as powerful as procaine or cocaine was reported to the meeting by Dr. Samuel D. Goldberg of a Brooklyn, N. Y., chemical company and Willet F. Whitmore of the Polytechnic Institute of Brooklyn. The studies were made on experimental animals.

The new organic anesthetic, known as moncaine, is slightly more toxic than is procaine but can be used in smaller amounts.

Tonsil, tooth and eye operations have been performed with the new anesthetic, which is claimed to be an improvement over the combination of procaine and epinephrin now widely used.

The long search of science for an im-



ADJUSTING FOR BOULDER DAM POWER

One hundred and seventy-two clocks (count 'em) were only a small part of the enormous total of 125,000 which needed readjustment when the supply of electricity from Boulder Dam came in recently. These clocks formerly operated on 50 cycle current and the new power source is 60 cycle current. Thus each one had to be slowed down to overcome the gain of 12 minutes each hour which the shift would have caused.

proved local anesthetic extends from the discovery of ether as a general anesthetic in 1848, to the development of cocaine as a local anesthetic in 1885 and the creation of novocaine, or procaine, in 1905, said the scientists.

But along with procaine it was found necessary to use some agent which would localize its effect so that the combination of procaine-epinephrin has been adopted. Some patients are unable to take this local anesthetic, however, so the research work goes on.

The moncaine anesthetic and another known as amylocaine, which was also reported by the Brooklyn scientists, are another step on the way. Further testing and a wider experimentation in human beings is being carried on, they pointed out.

Right Way to Cook Fish

The old-fashioned rules in the family cook book for cooking fish may have to be revised because of the report to the chemists' meeting by Maurice E. Stansby of the U. S. Bureau of Fisheries, College Park, Md.

It seems there is a "best" way of cooking fish for every season of the year, based on chemical studies of the oil content of the fish at the particular time it is caught. The fish's oil content, said

Mr. Stansby, is a measure of its value in calories of food energy.

Fish having high oil content, he declared, should never be fried since the frying process decomposes the highly unstable fish oils and gives a rancid flavor. Some fish can be fried at some seasons of the year when their bodies have a low oil content, but should be broiled or baked at other seasons.

Common mackerel is one fish whose body oil content varies widely throughout the year, said Mr. Stansby. Its oil content is commonly quoted as being 7.1 per cent. but it varies from a minimum of from two to three per cent. in the spring to as much as 30 per cent. in the late summer and early fall. Thus the food energy content of a pound of mackerel varies from 450 calories in the spring to as much as 1,000 calories in the fall.

Maybe the consumer will be having dated fish yet.

Science News Letter, April 24, 1937

Packaged poultry, ready for the oven, is now being sold.

Bouncing cranberries is no playful game, but a test of cranberries in grading them for market: berries in bad condition won't bounce.