

CHEMISTRY

Wood Alcohol Can Be Made Drinkable

► **POISONOUS** wood alcohol or methanol can now be changed into half as much of the drinkable kind, ethyl alcohol or ethanol, by a new chemical process developed by U. S. Bureau of Mines chemists.

This new chemical method is not expected to have any effect on the price of whiskey, but it does interest chemists who expect to adapt the new reaction to making other new products.

In the new process worked out by Irving Wender, R. A. Friedel and Milton Orchin of the Bureau of Mines synthetic liquid fuels office, synthesis gas, which is a mixture of hydrogen and carbon monoxide, combines with wood alcohol when heated under pressure with the help of cobalt. This is similar to the Fischer-Tropsch reaction which makes ethyl alcohol from coal.

Important theoretical and commercial implications are expected from this new method that is made known in a communication to the journal, *SCIENCE* (Feb. 23).

Science News Letter, March 3, 1951

HORTICULTURE

Pollen Kept for Winter In Deep Freezer

► **BEE-COLLECTED** apple pollen can be quick-frozen, kept in a deep freezer for a year—and used successfully next season in the artificial pollination of apple blossoms.

Using this delayed-action method, fruits have been set and matured on several varieties of apples, it is reported by W. H. Griggs, George H. Vansell and J. F. Reinhardt of the University of California at Davis.

Bee-collected pollen has not been used extensively in artificial pollination of orchards because of two main handicaps: (1) it loses viability rapidly, and (2) no quick and effective method of applying it has been developed.

To secure bee-collected pollen in quantities, the University of California scientists set up a perforated screen trap that scraped the pollen pellets from the legs of the bees as they passed through the screen to the hive. With this trap, they could collect as much as two and a half pounds of the pellet pollen in a day from a single colony. This amount greatly exceeds the three to five ounces of pollen dust a person can gather by hand, working steadily during an eight-hour day.

In contrast with hand-collected pollen, life of pollen from the pellets is extremely short. At room temperature it lasts only a few hours. In a cold storage it may be good for as much as two or three weeks—but this may not be long enough for practical use.

To prolong this period, the University of California researchers resorted to quick freezing in the field as the pollen was col-

lected. At the laboratory they stored it in a deep freezer, maintaining a temperature of minus 51 degrees Centigrade in the container by the weekly addition of 40 pounds of dry ice.

In laboratory tests, the quick frozen samples gave germination as high as 96% after being stored for 12 months.

Field trials made in 1950, using the same orchard from which the pollen was originally collected in 1949, confirmed the laboratory findings.

This increase in stability of the bee-collected pollen should assure its future use in artificial pollination, say the three scientists.

The second hurdle yet remains to be overcome—a quicker and more economical method than hand brushing to do the artificial pollination. Studies on this second phase are now in progress at Davis.

Science News Letter, March 3, 1951

HORTICULTURE

Cultivate Crops Even If Weed-Killers Are Used

► **FARMERS** should cultivate their crops even if they control weeds by chemicals.

Tests on corn for three years by Connecticut Agricultural Experiment Station scientists show that in a hot dry summer like 1948 cultivated plots yielded over 60 bushels per acre, compared with only slightly more than 15 bushels for uncultivated crops with weeds controlled by 2,4-D. In an ideal corn year, like 1950, the difference was much less, with the chemical control plot lagging only 15 bushels behind the cultivated crop.

The cultivated corn was better quality, too. But cultivation can be overdone, the scientists say.

Science News Letter, March 3, 1951

INVENTION

You Can Take Patented Sleep in Bathtub Now

► **YOU** can sleep in the bathtub in safety and comfort, or you can take an invigorating steam bath, with a bathtub "accessory" on which the government has issued a patent.

This accessory includes a pad to fit the bottom of the tub, an adjustable inclined pillow for a head rest, elongated wings to fit both sides of the tub, and two arm rests.

For steam baths there is a flexible cover of waterproof fabric that is attached to the upper edges of the side pads, with an opening at the head end to fit around the neck of the user.

The pads may be of the inflatable type, made of air-tight rubber or rubberized fabric. A less private use for the invention is as an outdoor pad, suitable for use on the beach or lawn. Inventor is Walter C. C. Burton, Columbus, Ohio. Patent 2,541,029 was awarded to him.

Science News Letter, March 3, 1951

IN SCIENCE

ENGINEERING

Power Forecast Based on Light Intensity Record

► **CONTINUOUS** record of the amount of light from the sky, made by a new meteorological instrument, will enable electric light companies to forecast power needs more accurately than can be done otherwise. The instrument records daylight intensity under various weather conditions.

This is a major concern to power companies, since there is a direct relationship between light intensity and power load. Studies show that a cloudy day with no sunshine adds about 40,000 kilowatts to the light load, a very humid day in summer adds twice as much and a clear cold day in winter requires an additional 50,000 kilowatts.

The new instrument, called an illuminometer, is a development of the Bendix Aviation Corporation in cooperation with the U. S. Weather Bureau. Operating on the photoelectric principle, it employs two units including a sensing element on the roof of a building and a recorder inside. The recorder contains a chart on which a permanent record is made.

The photoelectric cell in the sensing unit varies its electrical output proportionally with visible sunlight. Filters over the cell neutralize heat effect, and limit the light effect to that seen by the human eye.

Science News Letter, March 3, 1951

METALLURGY

Process for Making Low-Carbon Steel

► **A PROCESS** for making stainless steels of low-carbon content brought Robert M. Briney, Douglaston, N. Y., patent 2,542,177, with rights assigned to Union Carbide and Carbon Corporation of New York City. It is for steels containing 12% or more of chromium, and nickel if wanted. Because of low-carbon content, they are steels of improved quality.

This improved method of making stainless steels follows present methods of forming a bath of molten steel containing chromium but differs in the treatment of the slag formed on the top of the bath by using a ferrochromium containing silicon to reduce and recover the oxides in it. The process shortens the time required to make a unit quantity of chromium steel and lessens the cost.

Science News Letter, March 3, 1951

E FIELDS

ENTOMOLOGY

Fleas Live In Animal Nests

► WHERE do fleas come from? They come from the nests and burrows of the animals on which they feed. This suggestion is put forth by Dr. F. C. Evans of the University of Michigan and Dr. R. B. Freeman of University College in London. The scientists captured small wild animals from woods near Oxford University, England, and removed and counted all their fleas. When some of the same animals were recaptured 24 hours later, the same number of or more fleas were removed from them, the scientists report in the *ANNALS OF THE ENTOMOLOGICAL SOCIETY OF AMERICA*.

Science News Letter, March 3, 1951

PSYCHIATRY

Nude Parents Cause Child's Emotional Upset

► PARENTS should not go about the house nude in the hope of sparing their children from being too inhibited.

So Dr. Mary O'Neil Hawkins, New York psycho-analyst, told the meeting of the American Orthopsychiatric Association here recently.

Not only does this practice fail to spare the children emotional injury, it can actually do them great harm, Dr. Hawkins told her colleagues. It would be different if the children saw other people going about without clothing. But when it is only their parents that they see without clothes, the experience may be very disturbing.

Neither should children in primary schools be given "enforced freedom" to select what they want to study, Dr. Hawkins said. Often children have a fear or dislike of learning something new. A little force (not too much) or pressure on the part of the teacher will overcome this fear and the child will develop interest in the new subject.

These and some other modern ideas on the bringing up of children are thought by parents and educators to be applications of psychoanalytic theory. Actually they are based on a misunderstanding and misinterpretation of Freud's earlier ideas, Dr. Hawkins explained.

Freud's great contribution, early in his career, was the finding that many of the psychological difficulties of adults can be traced to emotional hurts incurred in childhood. Later Freud stressed the importance of the development of the super-ego, or conscience, and the need to redirect ag-

gressive and other socially harmful impulses into useful directions.

Today, parents have been scared into going to extremes to keep their children from any possible psychological hurts. In so doing they fail to prepare the children for life in our present-day society.

Science News Letter, March 3, 1951

MEDICINE

Clue to Lung Edema In Hypothalamus Injury

► A CLUE pointing to injury of a special part of the brain as the cause of lung edema has been discovered by Dr. Harry D. Patton and Joseph E. Gamble, graduate student, at the University of Washington Medical School, Seattle.

Victims of lung edema are said to "drown" in their own body fluids. The disease occurs when blood and water from the blood gather in the lungs. This causes a "waterlogging" that is often fatal.

Dr. Patton has succeeded in causing edema in the lungs of rats by injuring a specific point in the hypothalamus, deep in the brain. This area controls heart activity and other vital functions.

The research is believed to provide the first clear instance where lung edema has been traced to a definite part of the brain.

"Lung edema is a puzzling complication caused by a wide variety of body injuries," Dr. Patton explained. "We hope our work may lead to an understanding of why head injuries often result in certain types of edema."

Dr. Patton found that injuries of pinpoint size, administered in a certain part of the hypothalamus, caused the lungs of the rats to fill with fluid and swell to twice their usual size. Frequently, death resulted within a matter of minutes.

Science News Letter, March 3, 1951

MEDICINE

Cancer Transplanted To Aid Cure Search

► SEARCH for better chemical weapons against cancer will be aided by a new method evolved at Jackson Memorial Laboratory, Bar Harbor, Me., for transplanting cancers or other tumors. By this method tumors can be transplanted successfully from one animal to another of different hereditary background.

The method was developed by Drs. Nathan Kaliss and George D. Snell, research associates at the laboratory. They found that by first injecting dried, powdered normal mouse organs, such as liver, kidney and spleen, and then injecting live tumor, the transplanted tumor will grow even when it comes from a mouse of different hereditary strain than the recipient mouse.

Previously, transplanted tumors have

been made to grow under similar conditions by first giving a series of injections of dried, powdered tumors followed by inoculations of live tumor.

Transplantable tumors are important in research concerned with the effects of different chemicals on cancer tissue. Chemicals believed capable of destroying cancers are first tried on transplanted tumors in mice and fertilized chicken eggs, then on spontaneous tumors in mice and, if successful results have been obtained, finally on cancer patients.

Transplantation studies with tumors also have importance in attempts to learn more about the basic differences between cancers and normal tissue growth.

Science News Letter, March 3, 1951

MEDICINE

Progress Reported in Treating Bone Tumors

► SURGEONS have made considerable progress in the past half century in treating cancer-like tumors of the bone. At the turn of the century such tumors were treated by amputation. Today the patient can be helped as much by less mutilating methods, Dr. Marcus J. Stewart of the Campbell Clinic, Memphis, Tenn., pointed out at the recent meeting of the American Academy of Orthopaedic Surgeons. Many people, incidentally, confuse the word tumor with cancer. Not all tumors are cancers. The word tumor comes from the Latin meaning swelling. There are many kinds of tumors. The bone tumors Dr. Stewart discussed are called giant cell tumors because in the tumors are certain large cells with many nuclei. These cells are known as giant cells.

Giant cell tumors can attack any bone in the body. They occur just as often in men as in women and usually in young people between 20 and 30 years of age. The tumors are found most frequently in the regions of the knee, shoulder and wrist. In the beginning the chief symptom is pain, and later there is swelling about the affected area.

The symptoms, Dr. Stewart said, are usually noticed six months to two years before the patient consults a physician. Such tumors, when left alone, have the tendency to turn cancerous in a certain percentage of cases.

The most successful and the most universally accepted method of treatment, Dr. Stewart said, is to cut out that part of the bone where the tumor is located. A less radical method is carefully to scrape all of the tumor tissue out of the affected bone and then fill the cavity with chips of bone taken from another part of the patient's body. He said his study showed that these methods brought better results than that attained by irradiation.

Science News Letter, March 3, 1951