CHEMISTRY

Helium Used in Safer Magnesium Production

➤ AN IMPROVED method for the production of magnesium from its ores is the subject of patent 2,353,193, issued to Dr. Royd R. Sayers of the U. S. Bureau of Mines and assigned royalty-free to the government. Standard procedure for freeing magnesium from its oxides is to heat it with a carbonaceous material, which takes up the oxygen and releases the magnesium in vapor form.

To prevent the magnesium from reoxidizing, hydrogen or some carbon-containing gas is usually introduced during the cooling process. This, however, forms dangerously explosive mixtures. Dr. Sayers substitutes the inert safety gas, helium, eliminating this difficulty. He also speeds the agglomeration of the cooling magnesium into droplets by subjecting the vapor to intense but inaudible supersonic vibrations.

Science News Letter, July 22, 1944

ASTRONOMY

Fremont Pass Observatory Highest in the World

See Front Cover

➤ HIGHEST permanent astronomical observatory in the world is the Fremont Pass Station of Harvard Observatory, pictured, snow adorned, on the front cover of this SCIENCE NEWS LETTER. It is located at Climax, Colorado, at the altitude of 11,500 feet. This station has the advantage of extremely clear skies and high atmospheric transparency. On moonless nights, stars are visible down to the seventh magnitude—stars only half as bright as those that can just be glimpsed under good conditions at sea level.

The station, however, has been devoted primarily to solar work. Artificial eclipses made inside of a telescopic device called the coronagraph enable the observer to record faint external surroundings of the sun that hitherto have been easily observed only at the time of total eclipse.

During the winter, the snow lies from six to eight feet deep on the level and may approach twenty feet in drifts. The unusual form of the "dome" is to facilitate the removal of snow from its surface. The climate of the station has been rather aptly described as consisting of nine months of winter and three months of poor skiing. Two local residents were heard in the following conversation: One of them said, "I missed summer this year, I was on the night shift that week." The reply was even more graphic: "You didn't miss much. It snowed both days."

Climax is thirteen miles from the famous mining town of Leadville, Colorado, which produced so many fortunes back in '79 and the early '80's. Fourteen-thousand-foot peaks abound in the region so that the observatory, despite its altitude, is still relatively low. Many astronomers have investigated the conditions for telescopic "seeing" from the tops of many Colorado peaks. The results were discouraging. Not only are the peaks frequently capped with clouds, but even when clear, the atmosphere above them is so turbulent that the images of stars boil and dance so actively that no satisfactory observations can be made. Apparently this condition is produced by currents of air ascending and descending over the peaks. Within the pass at Climax the flow is essentially stream-lined and the seeing is of excellent quality. The frequent snows and rains have their uses, for they serve to wash the air free from accumulated dust and produce a sky of a deep-blue color characteristic only of high altitudes.

Science News Letter, July 22, 1944

CHEMISTRY

Anti-Mosquito "Bombs" Can Be Used for Germs

➤ THE FREON GAS now being used successfully in "bombs" to fight mosquitoes in tropical regions can be used for fighting germs in the air of rooms, it appears from studies reported by Dr. Lyle D. Goodhue and Dr. E. R. McGovran, of the U. S. Department of Agriculture. (*Science,* June 23)

In warfare against mosquitoes the non-toxic non-flammable Freon gas, dichlorodifluoromethane, acts as solvent for the pyrethrum extract and sesame oil and furnishes the pressure and the energy to disperse the insect-killing chemical.

It can be used, with slight modification, to spray and disperse propylene glycol which has been found effective in killing many disease germs that spread through the air of offices, school rooms and the like closed spaces. For this purpose, the Department of Agriculture scientists find, ethanol must be added to the mixture of germ-killer and liquefied gas, since the propylene glycol is not very soluble in dichlorodifluoromethane.

Science News Letter, July 22, 1944

IN SCIEN

CHEMISTRY

German Lubricating Oils Show Few Signs of Decline

➤ GERMAN lubricating oils and greases captured in Africa and Italy, and subjected to analysis by a special group of chemists, show few signs of decline in quality, Capt. N. L. Klein states, (*Army Ordnance,* July-Aug.). The analyses do indicate, however, that there may be shortages in some of the petroleum raw materials taken for granted in American lubricating practice, for treated animal and vegetable fats and oils are substituted in the German products.

The analyses were made in industrial laboratories, with the cooperation of a joint committee appointed by the Society of Automotive Engineers and the American Petroleum Institute. Besides trying to get an estimate on the state of affairs in the German lubricants industry, the work was aimed at learning the uses to which captured enemy supplies may be put by our own forces, uncovering technical information of possible value to American industry, and ascertaining sources of crude oil and methods of refining.

Science News Letter, July 22, 1944

PUBLIC HEALTH

Infantile Paralysis Dimes To Be Used for Research

➤ MILLIONS of the dimes that were given by the mile to fight infantile paralysis, in honor of President Roosevelt's birthday, are to be used in research and education by 27 leading universities, laboratories and other organizations from coast to coast.

Grants totaling $1,128,770 made by the National Foundation for Infantile Paralysis were available July 1.

Three large grants provide for research over five years. University of Minnesota Medical School receives $320,000, Northwestern University Medical School is given $175,000 for basic research in physical medicine aimed at the disease, while $325,000 to the University of Michigan will allow field and laboratory investigations of infantile and related virus diseases.

Science News Letter, July 22, 1944

CE FIELDS

INVENTION

Absorbent Cellulose Powder Is Offered for Wounds

➤ A NEW KIND of dressing for wounds, an absorbent cellulose powder that is also mildly antiseptic, is offered by Julius Kent of New York City, for patent 2,353,243, rights in which are assigned to the Kent Chemical Corporation. Production is very simple. Cotton linters, ramie, cornstalk pith or some other relatively pure form of cellulose is soaked for about half an hour in a solution of orthoboric acid, which is afterwards dried at a temperature of from 80 to 140 degrees Centigrade and ground in a pebble mill.

Science News Letter, July 22, 1944

MEDICINE

Red Blood Cell Paste Speeds Healing of Ulcers

➤ RED BLOOD cells, an important by-product of plasma production, are now being made into a paste which speeds healing of old, infected burns, varicose and other ulcers, and extensive granulating wounds, Lieut. Clifford K. Murray and Capt. C. M. Shaar, of the Navy Medical Corps, report, (*Journal, American Medical Association,* July 15).

The red cell paste is applied directly to the wound after it has been cleaned, and is then covered with a sterile dry dressing. It is made by mixing red blood cell concentrate with a jelly of tragacanth and hexylresorcinol.

With 12 applications during two weeks, complete healing was achieved of a varicose ulcer that had persisted for 10 months and had been recurring over a period of 16 years. Similar good results were obtained in most of the other patients but the Navy doctors warn that the red cell paste is not a panacea for all chronically infected wounds. They believe it will be most successful in cases in which the slow healing is the result of local impairment of blood circulation. It would not be good for tuberculous or syphilitic ulcers, they point out.

The most plausible explanation of the healing action of the red cell paste is that it supplies required nutritional elements or proteins to tissues lacking them because of poor circulation of the blood.

The red cells are apparently absorbed to a certain degree by the tissues until the granulations reach the surface and a crust forms. This crust apparently serves as protection, source of nourishment and a scaffolding for the support of connective tissue. New skin extends over the surface of the wound under the crust and when the crust drops off, the surface is completely covered.

Science News Letter, July 22, 1944

PLANT PHYSIOLOGY

Rubber Yield Increased By Wounding Tips of Vine

➤ INCREASE in yield of rubber from the milkweed-related vine, Cryptostegia, is claimed on behalf of the method covered by patent 2,353,460, granted to John W. Haefele of Ridgewood, N. J. Customary way of harvesting rubber from this and certain other smaller rubber plants, like guayule, has been to grind whole masses of the vegetation in a ball or pebble mill. Where the rubber content is low, this becomes a rather expensive business, and may erase all profits. Mr. Haefele has discovered that wounding the tips of the Cryptostegia vine before cutting off the branches causes an accumulation of latex in the injured region, thereby increasing the harvest.

Patent rights have been assigned to the United States Rubber Company.

Science News Letter, July 22, 1944

CHEMISTRY

Experiments Show Effect Of Wax Sprays on Sunflower

➤ ENGINEERS needing to keep camouflage foliage green and fresh, drought-area farmers and gardeners everywhere, may benefit from research completed by Dr. C. L. Comar and Dr. C. G. Barr at the Michigan Agricultural Experiment Station on wax sprays to keep plants from withering before their time.

There is a great need for oil emulsion sprays that will keep the leaves from losing their moisture but not be poisonous in other ways. This requires separate tests for the effect on the leaves of each chemical considered for use in the spray. Much of this time-consuming work has now been done by the investigators on sunflower plants. Their research on chemicals and temperatures to be avoided will save time for others in perfecting the desired sprays.

Science News Letter, July 22, 1944

FORESTRY

Conservation Measures Taken to Save Pine Trees

➤ IN AN effort to get the most out of our dwindling supply of several western pine species, the Office of Price Administration requested lumber mills to manufacture lath in connection with lumber production. This measure was taken so that fuller use would be made of the logs, and that a minimum of the precious wood would go to waste.

Due largely to over-cutting and fires, the supply of western pine is far below normal. Lath made from slabs that would otherwise go to the burner will be used to manufacture boxes and crates needed for the shipment of war material, thus stretching the supply of wood for such purposes.

Science News Letter, July 22, 1944

MEDICINE

Penicillin May Be Inhaled As Pneumonia Treatment

➤ PATIENTS with pneumonia or other infections of the respiratory tract may in future get their penicillin by inhaling it through an oxygen mask, it appears from studies reported by Dr. Vernon Bryson, Miss Eva Sansome and Sidney Laskin, of the Carnegie Institution of Washington and the Long Island Biological Laboratory at Cold Spring Harbor, N. Y. (*Science,* July 14).

Penicillin, the scientists found, can be made into an aerosol by using a standard atomizer and compressed air. Compressed oxygen could also be used. Tests with a rabbit and mice showed that the penicillin particles in the aerosol do penetrate into the lungs where they could get to work directly on the germs causing the pneumonia. Penicillin remains unchanged chemically and does not lose its anti-germ activity when converted into an aerosol.

Since penicillin does not diffuse readily but is rapidly excreted, it is considered desirable to apply it directly to the site of infection whenever possible, in all but generalized infections. The inhalation method would make this possible in the case of respiratory tract infections. It might therefore make treatment more effective and save penicillin.

The first lot of penicillin used in the tests "had a distinct cheesy odor," the scientists report, but a subsequent allotment was virtually without odor and could be inhaled very comfortably.

Science News Letter, July 22, 1944