bright as in an average rainbow and may be seen only near sunset, increasing rapidly in brightness immediately after the sun sets.

Mother of pearl clouds have been reported most frequently after the passage of a center of low pressure, but have not been observed generally, on account of the thick low cloud obscuring their view. On the lee-side of mountains, however, the föhn winds dissolve these rain and storm clouds, permitting a view of the extremely high cloud. Mother of pearl clouds have been found to remain stationary for hours and on other occasions to move with velocities up to 100 miles per hour. On January 13, 1929, they were observed to fall a distance of one mile in an hour and a quarter.

The origin and constitution of these clouds has not so far been explained. The highest cirrus clouds formed from floating ice crystals are only eight miles high in these latitudes and until these mother of pearl clouds were discovered, the stratosphere was considered cloud-free except for the noctilucent clouds about fifty miles high and supposed to be associated with volcanic ejecta.

Observers in states and provinces just east of the Rockies would appear to be favorably situated to observe these extraordinary brilliant clouds especially during chinooks. The observer should note the time, arrangement and brilliance of colors as well as the direction and velocity of the cloud.

Science News Letter, January 28, 1933

CHEMISTRY

Find Second Vitamin Is Produced by Ultraviolet

THE ANTI-NEURITIC vitamin B has been produced by the action of ultraviolet rays on adenine sulphate, B. C. Guha and P. N. Chakravorty of the Bengal Chemical and Pharmaceutical Works, Calcutta, reported to *Nature*.

Thus it appears that two vitamins are produced by activation of a chemical with ultraviolet light. Scientists found several years ago that rickets-preventing vitamin D is formed by the action of ultraviolet light on ergosterol.

Vitamin B is found naturally in the bran layers of cereals, in vegetables, milk, eggs, liver and pancreas. Prof. Adolf Windaus of the University of Göttingen isolated the vitamin in pure form a year ago and gave it the chemical formula $C_{12}H_{17}N_3OS$. The Indian report indicates that the vitamin is the type of compound known as a purin.

Science News Letter, January 28, 1933

CHEMISTRY

Improving Processes Keep Alcohol Industry Upset

WHETHER or not we have beer, complete repeal or prohibition as is, ethyl alcohol will continue to be one of the most important chemicals of commerce.

The chemical industry could not do its part in our modern civilization if it were deprived of its copious drafts of the liquid that is at present forbidden as a beverage to Americans.

Ethyl alcohol is an essential solvent in many industries, and many articles in the stores without the least suggestion of alcohol about them could not exist without the utilization of this solvent which ranks next to water in usefulness. In perfumes and in radiator anti-freeze, in medicines and flavoring extracts alcohol is familiar to everyone as itself.

Even before prohibition alcohol used industrially and commercially was treated so that it could not be used as a beverage. In pre-prohibition days the government wished to be sure to collect the tax that was levied upon alcohol that was not denatured. In these days of prohibition the government denatures the alcohol with unpalatable and sometimes poisonous substances. Wood alcohol or methanol, the deadly sister to ethyl alcohol, is used in some cases. When so treated the industrial alcohol is difficult to use as a beverage.

Common alcohol of the ethyl variety is becoming known among chemists as ethonal. Once it could be called with accuracy "grain alcohol" but now large quantities of it are made synthetically from petroleum and coal and even larger quantities are still made by fermentation of molasses rather than by fermentation of grain.

Consternation was caused in the alcohol-by-fermentation industry not many months ago when successful synthetic processes for making ethyl alcohol began to be commercially important. For instance, at a plant at South Charleston, W. Va., alcohol is produced from either petroleum or the gases from coke ovens. The first step in this synthesis is the cracking of ethane, propane and other hydrocarbons obtained from coke oven gas or petroleum. This produces ethylene which is combined with water and then passed over catalysts to produce alcohol, which is purified through the use of another most useful chemical, sulfuric acid. As yet, however, synthetic production of ethyl alcohol is not so simple as the synthesis of wood alcohol.

While these chemical advances are threatening the market for molasses and grain as alcohol raw materials, there comes the hope that a process used by the Japanese and Chinese for fermenting rice cakes in the sun centuries before the birth of Christ may rescue the industry of making alcohol by fermentation. By a relatively new "amylo" process, utilizing mold fungi instead of the yeast of more familiar alcoholic fermentation processes, chemists believe that the cost of industrial alcohol produced from grain may be reduced so that it may compete with cheaper sources.

Due to the widespread manufacture of bootleg alcohol that has grown under prohibition, chemists are expressing some concern over the fate of the potential two billion dollar industry of light wines and beer if, as, and when re-established under authorization by Congress. They urge that when light wines and beer are legalized there be incorporated into the authorizing laws the requirement that the beverages be of the highest degree of excellence. They do not wish the beverage alcohol industry to be dominated by a class with bootleg standards and they desire to have restored to domination chemists equipped with all the new information that has been produced in the years when America has been "dry." For, although prohibition has been the rule of the land, this has not stopped fruitful scientific research on the making of alcoholic beverages.

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ZOOLOGY

Canadian Antelope Herd Healthy and Growing Fast

EFFORTS to raise antelope in captivity have at last succeded with the growth of a herd of 42 at Nemiskam, Alberta, to nearly 500 animals.

The raising of this most timid of wild animals without its being conscious of captivity was accomplished by Canadian government big game specialists, when they decided to save the antelope

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PETTED ANTELOPE

Warden Edgar McHugh, in charge of antelope at Nemiskam Park, feeding some of his charges

from the extinction which threatened it not long ago with the advance of settlements.

A small herd of 42 animals was found grazing near Medicine Hat. The area on which it was living was fenced in, unknown to the antelopes, and now the shy animals will come to be fed. The preserve here is one of two established in southern Alberta to save this once numerous animal.

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PHYSIOLOGY

Insulin Stimulates and Fattens Thin People

FOR HEALTHY lightweights who otherwise cannot be stuffed to pleasing plumpness, Dr. Harry Blotner of Peter Bent Brigham Hospital in Boston, recommends insulin.

In a recent report to the American Medical Association he describes the results of this use of insulin in nineteen healthy but skinny persons. They all gained weight immediately on three daily doses of ten units of insulin. Most of them held the gain after stopping the insulin.

Dr. Blotner found from careful study of these persons that insulin probably increases the appetite, so that the individual eats more; increases the assimilation of the food; acts as a tonic, making the individual feel stronger, more active and less nervous. No bad effects were reported, but insulin should be used on doctor's orders only.

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PHYSIOLOGY

Discoveries in Pure Science Conquer Deadly Poisons

Stain That Makes Germs Visible Under Microscope Found To Counteract Effect of Cyanide and Carbon Monoxide

SEVERAL thousand persons are killed each year by carbon monoxide gas and by cyanides. If half this number can be saved by the newly-discovered antidote, methylene blue, Mrs. Matilda M. Brooks and Dr. J. C. Geiger of San Francisco, will have made an epochal contribution to medicine and the welfare of mankind.

For Mrs. Brooks, working in the department of zoology, University of California, hit upon the idea of using the common bacteriological stain as an antidote for these two poisons, and Dr. Geiger, Director of Public Health, promptly put the idea into use and two lives have already been saved.

Mrs. Brooks, who also holds a doctor's degree, was doing research in biology, working in pure science when she made the methylene blue discovery. She knew that earlier investigators, chief among them Prof. Otto Warburg of the Kaiser Wilhelm Institute for Biology, Berlin, found in connection with work on yeast cells and other organisms that methylene blue counteracts the effect of cyanide and of carbon monoxide on living tissues. Dr. Brooks took the next step and tried the effect of methylene blue on animals that had been poisoned with carbon monoxide or with cyanide. She found it a successful antidote with small mammals, such as mice and guinea pigs, and in a report of her work to the Society for Experimental Biology and Medicine in April, 1932, she suggested the use of methylene blue in human cases of cyanide or carbon monoxide poisoning.

For First Aid Kits

When Dr. Geiger called on Drs. P. J. Hanzlik and C. D. Leake, professors of pharmacology at Stanford University and the University of California, respectively, for modern methods of treating poison cases, they suggested to him, among other methods, the methylene blue method for cyanide and carbon monoxide.

As a result of its successful use, methylene blue may become part of professional first aid kits, such as those carried by fire and police rescue squads. The method used at the Park Emergency Hospital, San Francisco, consists of injecting into the patient's vein a one per cent. sterile aqueous solution of methylene blue, which is listed in the U. S. Pharmacopoeia as methylthionine chloride. In the first cyanide poisoning case reported, 50 cubic centimeters, or nearly two ounces, were used. The patient stated that he had taken 15 grains of potassium cyanide in about 4 ounces of water.

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BOTANY

Plants of Yellowstone Springs Like it Hot

THERE IS an old nursery rhyme, "Some like it hot, some like it cold." The microscopic threadlike plants of the Yellowstone Park hot springs belong to the former category, Joseph J. Copeland of New York City College found.

The plants belong to the group known as the blue-green algae, and are among the most primitive forms of vegetable life. They are found in the coldest as well as the warmest of the earth's waters, and their special abundance in the Yellowstone hot springs gives those formations much of their rich coloring.

The temperature at which the algae grow most freely, Mr. Copeland found, was 40 degrees Centigrade, 104 degrees Fahrenheit. Some species, however, like it much hotter than that, refusing to grow at temperatures below 50 degrees Centigrade, 122 Fahrenheit. And there are certain species of these vegetable Salamanders that thrive at 80 degrees Centigrade, 176 Fahrenheit. The highest temperature at which living plants were found was over 85 degrees Centigrade, 185 Fahrenheit, or just 15 degrees centigrade below sea-level boiling point.

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