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COMET OR ASTEROID?

THE fast-moving object in the constellation of Leo, the lion, discovered on March 12 by Dr. Y. Vaeisaelae, of Turku, Finland, has been confirmed and photographed by astronomers at the Lowell Observatory at Flagstaff, Arizona. However, it is not yet known whether the new object is a comet or an asteroid.

A week after its discovery the Lowell observations, made by H. L. Giclas, show that the object is moving about one minute of arc every fifteen minutes, which is rather fast for an asteroid, especially since its apparent path is at right angles to the ecliptic and directly across the sky from the sun. If it is a comet it may have already come nearest the earth, for its motion is slowing down, which may indicate the object is going away. On the other hand, an asteroid (flying mountain) might appear to move this way, if it had an orbit of high inclination to the earth's orbit.

In a letter to Harvard Observatory, clearing-house for astronomical news in the western hemisphere, Dr. V. M. Slipher, director of Lowell Observatory, writes: "Herewith are two positions of the fast moving object, obtained by H. L. Giclas, of our staff. He photographed it both with the 13-inch search telescope and with our 9-inch Schmidt of 22-inch focus. On both negatives the images are not stellar but are somewhat diffused and have the appearance of comet trails."

The positions are: March 18 at 1: 27 A.M. EWT, 11 hours 12 minutes 45 seconds; plus 11 degrees 41 minutes; March 19 at 2: 08 A.M. EWT, 11 hours 15 minutes 3 seconds; plus 13 degrees 24.5 minutes.

This indicates that in the week after its discovery, the object has moved fifteen degrees or one twenty-fourth of the way around the sky. Its motion is just west of north. However, only large telescopes can see it, as it is of the thirteenth magnitude.—CHARLES A. FEDERER, JR.

THE MONTH OF MARCH

ALL over the world, March is the most variable, the most rapidly changing, the most uncertain month of the year. It may be stifling hot or bitter cold; it may be tempestuous or quiet; the sun may shine brightly or it may rain or it may snow. More likely it will be all of these, especially in New England, where samples of all the world's weather and all the year's weather are frequently compacted into this one month of March.

This turbulence of March weather is no accident, according to Professor Charles F. Brooks, director of the Blue Hill Meteorological Observatory of Harvard University at Milton. It has nothing to do with the sun crossing the equator at the vernal equinox except that this is a time of most rapidly changing temperatures, from cold to warm in the northern hemisphere, from warm to cold in the southern hemisphere. The turbulence and the rapid changes here are due to the clash of masses of warm air coming up from the south and of cold air coming down from the north, complicated by "highs" and "lows" crossing from west to east.

Here are some of the average temperatures for March in important cities of the world, furnished by Professor Brooks. The averages are for day and night together, which is about the same as for 10 A.M. local time.

The coldest cities, with temperatures from 17 to 25 degrees Fahrenheit, are Archangel, Moscow, Leningrad and Montreal. Moscow, although 300 miles farther south, is slightly colder than Leningrad, which is near the coast. Hovering a few degrees above the freezing point are Chicago, Boston, Bergen and Berlin. Warm, above 50 degrees, are Rome, Chunking and Los Angeles. Pretty hot, above 68 degrees, are Sydney, Buenos Aires and Dakar. Really hot, averaging over 77 degrees, are Rio de Janeiro, Mandalay and Port Darwin.

Port Darwin is the hottest and rainiest, with an average temperature of 83 degrees and an average rainfall of 10 inches for March.

Stormiest places are the southwestern Pacific and Indian Oceans, right on the routes to Australia and India. This is the monsoon season and hurricanes and tropical rains will abound until some time in April when the southeast trade winds will replace the northwest monsoon.

A NEW BLACKOUT BULB

A BLACKOUT bulb which eliminates need for special drapes and shades, gives ample light to avoid stumbling over furniture, yet can not be seen from the air has been successfully developed and tested by Army engineers at Fort Belvoir, Va., and will probably soon be on the market.

The new bulb is heavily coated with black except for an orange button about the size of a nickel on the bottom. It burns on average house current and will sell for about 25 cents. One bulb per room will provide enough light to permit occupants to see each other plainly, as well as furniture, doors and windows. Only the usual household curtains, drapes or shades are needed when this bulb is the sole source of light. Army pilots and engineers tested the bulb recently in a tiny town in New Jersey (only forty houses). Each home was equipped with the blackout bulbs and shades and curtains left up. When pilots flew over they were unable to see a single ray of light.

The bulbs were developed with the cooperation of the Nela Park Engineering Department of the General Electric Company at Cleveland, Ohio. Army engineers explained that orange was selected as the color for the light-emitting button, since it is near the red end of the spectrum, yet unlike red is not confused with exit lights. Red has been found to be the light least visible from the air.

While the blackout bulb will not permit reading or playing at cards, it is safer and more convenient than no light at all. It can be used to light sections of the house

where there are too many doors or windows for the practical use of blackout drapes. One room of the house can be blacked out completely to permit reading with ordinary light, while the rest of the house can be lighted with the special bulbs.—EDWIN NEFF.

INDUSTRIAL STARCH FROM CULL POTATOES

WEALTH from waste, through a typical exercise of American ingenuity and adaptability, was the story told at the conference by R. E. Gale, of Boise, Idaho, general sales manager of the Idaho Power Company.

Idaho baked potatoes are famous throughout the land; but, Mr. Gales reminded his hearers, selection of the big, smooth, high-quality tubers for this very particular purpose leaves the Idaho potato grower with enormous quantities of cull potatoes on his hands. While some of them are regularly used for stock feed, a discouraging number of carloads are simply wasted, for lack of a satisfactory low-price market. The freight haul to principal population centers is too long.

It was decided, in one Idaho region, to undertake the manufacture of industrial starch out of cull potatoes. The decision was made in early summer; production to start in October had to catch the crop.

Machinery was ordered—and priority and scarcity difficulties promptly encountered. Filling of the orders for certain vital parts of the equipment had to be postponed twice. Things didn't look too good. Then it was learned that in southern Utah, 600 miles away, a beet-sugar factory had closed down and was about to be dismantled. Parts of the machinery were adapted to potato conversion; some structural steel would also be made available. The deal was closed.

Certain necessary speed gears, for centrifugal extractors, were lacking and could not be obtained from regular commercial sources. That universal American source of emergency parts, the automobile junk yard, was put under draft and came through with the necessary gears.

So now the starch mill is a regular, wage-paying part of the potato-producing community.

RUBBER LATEX

How rubber latex that used to be used in making necessary articles of infants' wear now goes into insulation for light-weight communication lines was related before the conference by Dr. M. C. Teague, research chemist of the United States Rubber Company. Dr. Teague told his audience of the scientific juggling which he and his colleagues have been carrying on since the emergency began, to make the country's limited supply of rubber stretch farther.

The latex-insulated telephone wire, samples of which he showed, is produced by a multiple dip process using a special latex compound. It weighs only 30 pounds per mile, as compared with 168 pounds per mile of the older-type wire. The Government has already ordered more than 100,000 miles of the new wire, enough to go four times around the earth.

The list of latex articles used in war is a long one. It includes bullet-proof fuel tanks for airplanes, life rafts, pilot balloons, gas masks, aviator's helmets, blackout paint, sponge cushioning for use in tanks, submarines, gunsight eyepieces, and a thousand other things.

All of this has meant, of course, that civilians have had to get along without some of the things that have meant much to the amenities of modern life, especially the two-way stretch fabrics that have come to be standard parts of bathing suits, foundation garments, shoe tops, and "elastic" generally.

Again the rubber industry has come to the rescue. Dr. Teague told about a new "synthetic" latex made from reclaimed rubber, and exhibited samples of articles made therefrom. Of particular interest, to both military men and civilians, were elastic straps for gas masks, in which neither latex nor raw rubber had any part.

ITEMS

THE Australian News and Information Bureau reports that a new process discovered by an Australian firm will guarantee ample supplies of shark liver oil, rich in vitamins needed by infants. Eighteen months ago when vitamin oil imports from Newfoundland and Great Britain were plentiful, the shark livers were discarded. To-day they are the center of a new industry promising to keep infants healthy and fishermen employed. Fish liver oils are rich in vitamins A and D.

GOVERNMENT efforts to break up a monopoly in production of atabrine, a substitute for quinine in the treatment of malaria, recall the fact that two sulfa drugs were reported last September as possible substitutes for both atabrine and quinine. The two drugs are Promin, which is being tested also as a possible tuberculosis remedy, and sulfadiazine. The pre-war reports on the anti-malaria action of these drugs were somewhat encouraging, but their present status is a military secret. They may have turned out better or worse than the preliminary indications. It is no secret, of course, that a dozen research laboratories in this country are vigorously pushing the search for a substitute for quinine and atabrine. Whether or not we run into a shortage of these two drugs, doctors would like to have a better malaria remedy than either of them.

PLASTIC polaroid goggles which help a pilot's eyes get used to the dark have been perfected for the Navy by the Medical Research Section of the Navy's Bureau of Aeronautics. The goggles are equipped with a special lens which allows very little light to stimulate the portion of the eye's retina used in seeing in the dark. Without light, that part of the retina becomes adapted to the dark almost as quickly as though in complete darkness. The goggles permit the rest of the eye to see. Ordinarily, pilots on night duty either begin their watch "blind" or spend 20 to 30 minutes in a dark room to get used to the dark. By using the new goggles, a pilot may remain in a lighted room until ready to go on duty. The goggles can be made in mass quantities at one sixth the cost of present-type goggles, which require expensive materials. Three types of interchangeable lenses are available; one permits dark adaptation, a second eliminates glare and the third is standard clear lens for wind protection. A shipment of the new goggles has been made to England to permit tests by pilots.