

METEOROLOGY

Storm That Hit Portugal Not Tropical Hurricane

THE VIOLENT storm that struck Spain and Portugal Feb. 15 and 16, causing damage in Lisbon and the Bay of Biscay port of Santander, was not a tropical hurricane, despite its abnormal severity, C. L. Mitchell, of the United States Weather Bureau, told Science Service.

These countries are south of the hurricane belt, he stated. Such storms, which sometimes reach the southeastern United States, generally move westward. Then they may curve to the north, as the New England hurricane of a few years ago did, or curve to the northeast.

Mr. Mitchell said that the Weather Bureau has no data giving the course of the recent storm before it reached Europe. In normal times, radio reports from shipping would have enabled them to follow closely the progress of such a disturbance. These have all been stopped on account of wartime precautions.

Press reports indicate, however, that the storm did come in from the sea. Later it moved on over Europe, though again wartime censorship prevented the Weather Bureau from receiving early and accurate reports.

Science News Letter, March 1, 1941

RESOURCES

High Purity Magnesium From Scrap Castings

MAGNESIUM production may be increased considerably with a new process. This light metal is so important that the Office of Production Management has caused the entire production in this country to be applied in the defense program. Principal use is in aircraft, since the magnesium alloys are even lighter than aluminum of similar strength.

Charles E. Nelson, chemist of the Dow Chemical Company, is the inventor of the new process. For it he has just been granted U. S. Patent 2,231,023, which, in turn, he has assigned to his employers.

Fundamentally, the process is one of distillation. Pieces of impure metal are melted and vaporized. The vapors condense on a cooler surface. By ordinary distillation, some of the most objectionable impurities are hard to remove. Magnesium in which these are present, especially iron, nickel and copper, corrodes quite rapidly.

Mr. Nelson says that he has found

that if the metal is vaporized by heat, in a vacuum chamber, and in the presence of such metals as lead, tin, bismuth, calcium, silicon and antimony, "the impurities can be removed to the extent that the rate at which ordinary commercial magnesium corrodes is greatly reduced."

His patent covers this method, and apparatus for accomplishing it. The magnesium, with from 10% to 50% of lead or other metals, is placed at the bottom of a retort, from which the air is exhausted. The vapor deposits crystals of high purity on a cylinder projecting down from the top and cooled by circulation of water inside. Still higher purification can be obtained by using filters in the retort, a method on which another patent is pending.

With a retort 16 inches in diameter, a pressure inside of 1/25,000th of an atmosphere and a temperature of 1300 degrees F., it is possible to distill off from three to four pounds of magnesium per hour, he says.

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CHEMISTRY

Negatives Can Be Reduced With Patented Chemical

REDUCTION of over-exposed or over-developed photographic negatives can be done with a chemical known as sodium guanidine ferricyanide. According to a recent patent, this has many advantages over older reducers, particularly where it is desired to effect the removal of a slight fogging without affecting materially the rest of the image. (*Patent 2,229,891, assigned to American Cyanamid Co., N. Y.*)

Science News Letter, March 1, 1941

MARINE BIOLOGY

Octopus Named in Honor Of President Roosevelt

AN OCTOPUS species from the Galapagos islands, hitherto unknown to science, has been named *Octopus roosevelti* in honor of President Roosevelt in a new Smithsonian Institution publication prepared by Dr. Helen G. Stuart of the University of Southern California. Specimens of the animal were brought back by Dr. Waldo L. Schmitt of the U. S. National Museum, who was on the presidential cruise among the islands in 1938. A number of other marine species captured on this cruise have already been given the name *roosevelti*.

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IN SCIEN

PHYSIOLOGY

Identity of New B Vitamin Is Now Announced

IDENTITY of a new B vitamin, needed by rats to keep their hair from turning gray, is announced by Dr. S. Ansbacher, of the Squibb Institute for Medical Research (*Science*, Feb. 14).

This member of the vitamin B complex is p-aminobenzoic acid. Besides its role in preserving hair color in black and piebald rats, the vitamin is needed by chicks and bacteria for growth.

Human importance of this vitamin at present probably attaches less to its effect on hair color than to its action on sulfanilamide. Dr. Ansbacher points out that last year D. D. Woods and P. Fildes, in England, reported that in test tube experiments the vitamin, or acid, nullifies the action of sulfanilamide in checking growth of hemolytic streptococci. This seems to raise the question, for medical scientists to answer, whether doses of vitamin B complex which many people are now taking should be stopped during sulfanilamide treatment.

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RADIO

Radio Interference Found With Portable Receiver

RADIO interference can be quickly located with a new portable radio receiver especially designed for such service. It can also be used to locate underground pipes. Self-contained batteries, or the regular A. C. or D. C. power lines can be used to run it. (*Sprague Products Co., North Adams, Mass.*)

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INVENTION

Lifts Snap On To New Plastic Heels

PLASTIC HEELS for ladies' shoes are now available, and are arranged so that the worn lifts can be pulled off and new ones snapped on, without the aid of nails. A spring on the side of the leather causes them to snap firmly into place. (*General Electric Co.*)

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CE FIELDS

PHYSICS

Instrument Measures Tiny Variations of Texture

A SURFACE with tiny depressions not more than $1/600,000$ th of an inch deep would seem very smooth as far as the human touch could detect, but these minute variations from perfect smoothness, which might cause increased wear and possible failure of closely fitting parts in an airplane engine, are revealed by a new instrument—the profilograph.

Speaking before the meeting of the American Physical Society at Massachusetts Institute of Technology, a research trio from the Mellon Institute of Industrial Research told of the new device. They are F. W. Adams, Lee Devol and H. R. Letner. It makes use of a fine tracing point, and a system of magnification with optical levers. That is, the slight movement of a mirror causes a considerable shift of a spot of light reflected by it.

By tracing a series of contours of a surface along parallel paths, they reported, it is possible to prepare a relief map, highly magnified in a vertical direction, of the surface being studied. This, they said, can be done with machined, lapped or etched surfaces used in many industries. It is relatively simple to use, they reported.

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CHEMISTRY

Making Calcium Gluconate Speeded by Research

CALCIUM gluconate, valuable drug in the care of expectant and nursing mothers and of other persons needing quick additions of calcium to their blood, can be produced more rapidly and cheaply as a result of new researches by scientists of the U. S. Department of Agriculture.

Until a few years ago, calcium gluconate could not be used in medicine because of its excessive cost. Then Department chemists discovered that certain strains of mold, fed upon glucose solution, could produce commercial quantities of gluconic acid at very low cost. Added to calcium carbonate, in the form of common chalk, it converted that com-

pound into the valuable calcium gluconate.

The most practicable production procedure is to grow the mold in sheets in slowly rotating drums, through which air is forced, for the respiration of the mold plants. Difficulties were encountered when the gluconic acid concentration piled up, retarding the fermentation process. Chalk added at this stage resulted in the formation of a good deal of undissolved calcium gluconate, clogging up the drum.

The difficulties were resolved when three Bureau of Agricultural Chemistry researchers, A. J. Moyer, E. J. Umberger and J. J. Stubbs, discovered that the addition of a little borax or boric acid to the fermenting liquid keeps the calcium gluconate in solution and lets the molds finish their work. Later, the gluconate may be separated from the solution, free from boron.

By removing the solution from time to time, the same mold growth may be used over and over again. Efforts are now being applied to the problem of making the process continuous instead of semi-continuous, and thus further reducing the cost of making calcium gluconate.

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INVENTION

Invention Rejects Slugs Put in Slot Machines

TWO PATENTS were granted to cover attachments to slot machines or telephone pay stations for automatic testing of coins to select only authentic ones and to reject slugs. One was number 2,230,566, issued to Alfred Hakanon, North Arlington, N. J., and assigned to the Peerless Weighing and Vending Machine Corporation; the other, number 2,230,352, to Frederick A. Hoyt, East Orange, N. J., who assigned it to Bell Telephone Laboratories. In each, magnets detect iron slugs, and cause their return.

Mr. Hoyt's invention uses an extra, more powerful magnet to test the electrical conductivity of the coin or slug. As it passes through the field of this magnet, eddy currents are set up in it. Then it hits a small anvil, and bounces into the proper opening. If its conductivity is not correct it hits the anvil with too much or too little speed, and, in either event, misses the hole. As it is necessary for the coin to enter the testing mechanism with a correct speed, it falls first into a V-shaped groove, which almost stops it, so that all coins start with the proper velocity.

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AGRICULTURE

Tuberculosis Picked Up By Pigs From Chickens

IT IS very bad for pigs to let chickens stray into their pens, the U. S. Department of Agriculture warns.

Not that the hogs are henpecked. But chickens are carriers of avian tuberculosis, to which swine are more susceptible than the fowls themselves. This has been proved in experiments carried out by scientists of the Bureau of Animal Industry, at the Beltsville, Md., Research Center.

Fifty chickens and 31 hogs, all reacting negatively to the standard tuberculin test, were penned with 50 chickens known to be tubercular. They were kept together for a year, when the tuberculin test was repeated. Positive reactions were obtained from 93.5% of the hogs, whereas only 54% of the previously non-tubercular chickens reacted.

The remedy, Department scientists point out, is obvious and simple. Keep all chickens, even apparently healthy ones, severely away from the piggens.

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ORNITHOLOGY

Rare Whooping Crane Increasing in Numbers

WHOOPING cranes, an almost extinct species, show a slight increase in population on the Aransas National Wildlife Refuge in southeastern Texas. This season's count is 26, as compared with 22 last year.

Total numbers of whooping cranes now in existence are not known, for the bird is very retiring and lives in places as remote from man as possible. Estimates vary from as few as 80 survivors to as many as 200.

Science News Letter, March 1, 1941

INVENTION

Photoelectric Cell Drops Headlight Screen

POLARIZING screens to eliminate automobile headlight glare have been talked about for some time, though they would greatly reduce the efficiency of the lights. To avoid this, an inventor proposes that a photoelectric cell be placed on the front of the car. When another car approaches, this "electric eye" operates a mechanism to lower the screens into place, so that they only operate when needed. (*Patent No. 2,230,262, Leon Pollack, Brooklyn.*)

Science News Letter, March 1, 1941