Vacuum Increases Capacity of Battery

Electro-Chemistry

Chemists Told How To Duplicate Nature's Tints

IF all storage batteries were put in vacuums, the world would be able to store about one-tenth more electricity than it does now.

The capacity of a storage battery is increased 9.2 per cent. when discharging in an atmosphere where the pressure is 10 millimeters of mercury, about two-tenths of a pound per square inch, Prof. Sakae Makio, of the Japanese Ministry of Communications Electrochemical Laboratory, reported to the American Electrochemical Society at its annual meeting last week. Atmospheric pressure is roughly between 14 and 15 pounds per square inch.

When put back in atmospheric pressure a battery will not return to normal operation until it has been charged and discharged for an hour and a half. Previous experiments show that increased pressure reduces a battery's capacity very slightly.

NATURE'S supply of "bloodstone" and natural iron oxide, which form the source of turkey red shades in paints and decorations, is being rapidly exhausted. Pigments of the darker shades can be made artificially by heating a copper ore to a powder. The lighter tints are much harder to attain.

But they can be produced by electrolysis, Walter H. Bruckner, of Columbia University, reported. Direct current passing from pure iron terminals through a sodium sulphate solution will cause iron hydroxide to be precipitated. The hydroxide can be gotten in fine-grained pure form and makes an excellent pigment for light red tints, he said.

BY forever pulling off the metal sheath as it is deposited out of solution on an iron alloy core, Prof. Jean Billiter of the University of Vienna makes seamless and endless tubing of copper, zinc and iron.

But this, his first method, was too slow, he said; only a few inches of tubing could be made in an hour. So a faster method was devised.

A lead core is now run continuously through the solution and metal is deposited on it as the core moves. Then the soft lead is melted away and the copper, zinc or iron tubing left. A tube five yards long and nearly one-tenth of an inch thick can be made in 24 hours.

THE curious metal, indium, only about a pound of which has been isolated from its ores, is produced 99.9 per cent. pure by electrolysis.

Although it is very rare and what little there is of it brings for experimental purposes about six times as much as platinum, scientists are hopeful that a use will be found for its peculiar properties. It melts at a much lower temperature than tin and is very soft and ductile.

Electrolysis separates it from the residue of such ores as iron, aluminum, titanium and silicon, where it is found in small quantities, L. R. Westbrook, of Cleveland, reported.

Science News-Letter, June 7, 1930

The Past Brought Alive

Paleontology

AS we can look into the heavens at night and see simultaneously light only a few seconds old, reflected from the moon, light several years old, shining from relatively nearby stars, and light as old as the dinosaurs glowing faintly from the nebulae, so also can we see a telescoping of time in the fossils exposed in various strata of the rocks. Thus is the past brought alive to us, welded into a conscious continuum with the present, and made a basis for such control of the future as man is able to exercise.

This was the keynote of a radio address given by Dr. John C. Merriam, president of the Carnegie Institute of Washington, over the Columbia Broadcasting System, under the auspices of Science Service.

Dr. Merriam spoke in part as follows:

"In these vast wildernesses of the past we may explore with a sense of reality like that in the wild and unknown regions of the present. The shifting continents of ancient time—the changing seas—world after world of strange forests and creatures that exceed the weirdness of fiction pass under the adventurer's eye. So fully aware is one of what they represent that they are no longer dead, but come into new life through a resurrection made real by the interpretation of science. The so-called fossils are no longer the deadest things in the world, but take on life and meaning. In the truest sense their value may be much greater than that of an intelligent living human being whose life is so self-centered that it serves only to absorb and not to give.

"These elements of the world from past time illustrate the interlocking of events so that all appear as one story. They also interpret in an extraordinary way the modes of operation in nature, which we call laws operating in a similar manner throughout time and space.

"It is this continuity of operation that I wish to emphasize, as indicating that the past, if once conceived as reality, becomes to us the basis upon which the present and the future must be built.

"Some years ago a man whose conduct had been investigated, because he did not agree with others as to how public affairs ought to be conducted, was reported to say that, considering his recent experiences, he would be happy if he could be 'as sure of his past as he was of what he would do in the future.' In this instance, the future was improved by study of the past. So with reference to the story of life as a whole. It is the longer reach of acquaintance with history that gives us the best guide for the future. We may not change the past, but we may build upon it. Neither may we wholly determine the future, but we may mold it according to what we learn from the past. It is all one connected series of events through space and time. Those are wisest who build upon the longest experience extended into the farthest reaches of the future."

Science News-Letter, June 7, 1930