



Science News Letter, August 10, 1940

ENGINEERING

Leadless Storage Battery Sought by Nazi Germany

WITH importation of lead and nickel eliminated by British blockade, intensive efforts are now being made in Germany to develop an electric storage battery dispensing with their use, the U. S. Bureau of Mines has been advised by Consul Sydney B. Redecker, at Frankfurt-on-Main.

In order to stimulate the quest, the High Command of the German Army has offered a prize of 10,000 Reichsmarks (about \$4,000) to any person or organization "that succeeds in developing a new chemo-electric storage system that will meet all the mechanical and other requirements of storage batteries now in use." January 1, 1941, is the time limit for inventors to submit their proposals. The German Army will have the right to use, without cost, any proposals that meet with its approval.

The following comment is made by Mr. Redecker:

"The development of a suitable leadless storage battery would be an achievement of far-reaching consequences for Germany's entire wartime economy. It would not only enable Germany to produce storage batteries upon a scale adequate for meeting existing automotive requirements but would enable greater use of electrically-operated vehicles instead of those operated by liquid fuel,

gasoline, Diesel oil, etc., of which there is a great shortage in Germany.

"Efforts in the past contemplating the use of electrically-operated vehicles have resulted in failure owing to the fact that the requisite batteries would entail much greater consumption of lead and other imported metals."

A storage battery does not really store electricity. Its operation is essentially the same as any battery, even the common dry cell, where a chemical reaction is accompanied by the production of electricity. With the storage battery, unlike the dry cell, the reaction is reversible. When current is fed to the battery, it is restored to its "charged" state.

When a storage battery is charged, one set of the lead plates is covered with

peroxide of lead. These are immersed in sulphuric acid solution. As the battery discharges, both plates become coated with lead sulphate. When the battery is charged again, the negative plate is changed back to lead, and the positive to lead peroxide.

Thomas A. Edison invented a type of storage cell that does not use lead, and this is widely used in this country. Instead of acid, a solution of caustic potash is employed as the liquid. Nickel peroxide takes the place of the lead peroxide, while the plates are of iron. About half the weight of the lead cell, it has a number of advantages. It is not as well adapted for automobile starting, but can be used for electrical operation of vehicles. Presumably because of the shortage of nickel in Germany, this does not solve their problem.

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PSYCHOLOGY

Shy, Unfriendly Dogs Are Just Born That Way

"NICE DOGGIE. Here, Pooch! Come get the bone."

But not every Pooch responds to such overtures of friendliness. Instead of coming forward with wagging tail, he may approach "with mincing steps, tail motionless and dragging, and with frequent retreats to safer ground."

Shyness and unfriendliness in dogs is a fear response and is an hereditary trait, Dr. Frederick C. Thorne, of the Vermont College of Medicine, Brandon, Vt., has discovered (*Jour. Genetic Psychology*, June).

Using three simple tests for measuring the friendliness of untamed dogs to an unknown person, Dr. Thorne found that most dogs became friendly rapidly. About one-fourth, however, showed varying degrees of unfriendliness that was not modified by training.

Even when the dog's confidence had been won by Dr. Thorne, the animal was

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