

ENGINEERING

New Storage Battery Starts at 60 Below 0

► A LIGHTWEIGHT storage battery that will start an automobile at 65 degrees below zero has been developed by use of a new method of grid construction that lead plates materials ordinarily corroded by the battery's sulfuric acid.

Urgently needed for military use in the far north, this improvement in the conventional lead-acid battery is also expected to have commercial application because it won't go dead when the car has been idle for a time.

Large amounts of lead used in standard batteries are replaced with aluminum, brass, iron and copper, making the battery lighter yet more powerful.

The new battery that has withstood operational tests at temperatures from 165 degrees above to 65 below zero Fahrenheit was developed by the University of Michigan Engineering Research Institute as an Army Ordnance project.

The new method of pure lead plating on a lighter metal base instead of the lead antimony alloy now used results in a low self-discharge rate. This gives a battery that will still start the engine after it has been in a car that has stood idle all winter. The new battery is expected to be used for standby duty in hospitals, power stations and telephone switchboards.

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PHYSIOLOGY

Swimming Good Exercise In Hot Summer Weather

► SWIMMING IS more than good fun on a hot day. It is about the safest if not the best hot weather exercise. As one group of medical authorities have pointed out, the danger of overheating is completely eliminated in swimming. The air and sunshine as well as the exercise have wholesome effects on the body. And swimming allows the display of any amount of energy. Swimming great distances at fair speed develops the entire muscle system. At the other extreme, a person convalescing may float around on the water exerting very little energy, not even having to support his body weight as he would in walking.

There is danger of overdoing in swimming, as in other forms of exercise. Many drownings attributed to cramps have really resulted from the failure of overtaxed hearts. Don't swim until you are completely tired out. Exert yourself only to the point where your breathing is slightly quicker than usual, medical authorities warn. They also advise waiting an hour and a half after eating so the meal will be thoroughly digested before going into the water. If the water is cold, do not stay in until the body is chilled. Persons suffering from eye, ear or intestinal infections should not fre-

quent pools or beaches. They are a health hazard to others and at the same time run the risk of aggravating their own conditions.

The main source of ear infections from swimming comes from water getting from the back of the nose into the middle ear. If you are taught to swim properly, you will learn to breathe in a way to reduce the chances of this.

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PSYCHOLOGY

Brain Work Possible During Intense Noise

► IT IS possible to do mental work while being bombarded with bursts of intense noise.

This was demonstrated in an experiment at Pennsylvania State College in State College, Pa., conducted by Dr. Kendon R. Smith.

In fact, you may even turn out more work than you would in a quiet place. The quality of your work may suffer slightly, but the loss of accuracy is so small as to be practically negligible.

The 35 students tested by Dr. Smith worked for 30 minutes in an auditorium, not a boiler factory, and the noise came from a loud speaker. It was intermittent rather than continuous because intermittent sound might be expected to be more disturbing and because it is more often encountered in practice. The students were working for cash prizes.

If loud noise has the bad effects that have been claimed, Dr. Smith concludes, they may show up in sustained performance or in other functions, not output.

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METALLURGY

Center Core Improves Vessels' Armor Plate

► HEAVY ARMOR plate for vessels and war tanks is made by a process which brought patent 2,562,467 to James W. Kinnear, Jr., Pittsburgh, Pa. The United States Steel Company has acquired the patent rights. There is a center layer of a slightly different steel in this armor plate that permits hardening all through.

Armor plate of ordinary thicknesses is satisfactorily hardened by quenching. When the heavy plate now demanded in modern warfare is quenched the depth of hardening does not always reach the center. The new process uses in the center of the ingot, which is forged or rolled to form plate, a core of steel alloy of slightly different composition than the rest of the ingot. After working, the core forms a center layer between two outside layers. When the plate is quenched it hardens throughout.

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IN SCIENCE

PUBLIC HEALTH

Closed Kingdom of Nepal Anti-communist Outpost

► ONLY ABOUT 300 foreigners have ever visited Nepal, the little kingdom that lies between India and Tibet, yet it is an anti-Communist outpost today. Dr. Carl Taylor, medical missionary connected with the Presbyterian Board of Foreign Missions, has predicted that foreigners will be more welcome in the future in this least known country in the world.

Dr. Taylor was interviewed by Watson Davis, director of SCIENCE SERVICE, in a program over the Columbia Broadcasting System.

With the Red Communist Chinese invasion of Tibet, this small country has taken on new interest. Within a 100 by 500 mile rectangle there are five of the six highest mountains in the world. It is estimated that altogether approximately 300 foreigners have visited Nepal. But Dr. Taylor went into an area which it is believed no foreigners have ever been before.

While in Nepal Dr. Taylor conducted a medical survey at the request of the government and aided in the collection of over 200 species of birds, including many new species of considerable scientific interest. In studying the health of the country, he treated the people and performed major operations on platforms dedicated to the worship of Hindu and Buddhist gods.

Dr. Taylor predicted that modern medicine will aid in preventing some of the diseases which are now prevalent in that country, since the inhabitants are a naturally healthy and stalwart people.

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SURGERY

100 to Get "Blue Baby" Operation Each Year

► EACH YEAR 100 babies will have the "blue baby" or other needed heart operation through a plan sponsored and financed by the U. S. Children's Bureau.

The plan is to provide surgical and hospital care for these children in regional heart centers throughout the country. First such center is now in operation at New Haven to serve Connecticut and Rhode Island.

The Children's Bureau plans to spend \$100,000 yearly to foster the program through allocations to State official crippled children's agencies. Cost of a "blue baby" or similar operation including hospital and other expenses is estimated at \$1,000 per baby.

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E FIELDS

ZOOLOGY

Giant Gorilla, Bamboo, Marks 25th Birthday

► **BAMBOO**, THE Philadelphia zoo's giant gorilla, longest-lived of his kind in captivity, marked his 25th birthday on Sunday, Aug. 5, without a cake or other celebration.

Fed a carefully balanced diet, regulated so that his daily food intake does not make him fat, the great beast weighs about 435 pounds and stands six feet tall. He arrived at the Philadelphia zoo 24 years ago weighing only 11 pounds, inside a suitcase belonging to an animal dealer.

One of the gorilla's favorite pastimes is tossing any handy object at his keepers and visitors. A fine-mesh fence has been erected around his outdoor cage to protect visitors.

Bamboo is one of the so-called Lowland Gorillas that live in the hilly and mountainous country bordering the Gulf of Guinea. The Mountain Gorilla comes from the highlands of the Belgian Congo. There are about 35 of these strictly African animals now in this country.

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NUTRITION

Guard Food Against Spoilage in Hot Weather

► **HOT SUMMER** weather, as experienced housewives know, calls for double precautions to keep food fresh and wholesome. And with the present price of most foods, no housewife wants to be forced to throw any away.

Give the coldest space in the refrigerator to the most perishable foods, is the advice of home-economics experts. The coldest space is usually nearest the freezing cabinet. The foods which need coldest storage because they spoil most easily are: fresh and cooked meat, poultry and fish; meat broth, gelatin dishes; milk; milk-and-egg dishes like custard; and cottage or other soft cheeses.

In general, these very perishable foods keep best if covered. Uncooked meat should be loosely covered, or simply taken out of its wrappings and placed in the meat compartment of the refrigerator which provides it with enough ventilation for good keeping.

When putting foods in the refrigerator take care not to crowd them so closely together that the circulation of cold air around them is cut off. Let cooked food cool to room temperature before putting it in the refrigerator in order not to heat up the atmosphere inside and overwork the motor. However, as soon as the food has cooled, get it into the refrigerator promptly.

In hot damp weather, the refrigerator may sweat around the opening. This may mean the gasket of the door is worn and needs replacing for a tight seal.

Sweating around the opening of a home freezer usually is more a nuisance than a sign of anything wrong. But sweating around the top and sides of the freezer may mean improper insulation which should be corrected.

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HORTICULTURE

Tomatoes in Alaska Can Now Be Home Grown

► **HOW TO** grow such warm or hot season crops as tomatoes, squash, watermelon or egg plant during the short Alaskan summer is explained by Dr. Basil M. Bensen of the University of Alaska Extension Service in College.

Vegetables that require a good deal of heat and light for maturity are usually either flown into Alaska or are just not obtainable. By growing such vegetables out-of-doors, using carefully planned methods and special devices, sun reflectors, for instance, Alaskan housewives can assure an adequate supply for their families.

To get the most good out of the limited sunshine, garden beds should be planted in an east-west direction, Dr. Bensen points out. Dusting the soil with coal dust or any black substance aids considerably in warming up the ground as well as the air immediately above the surface of the plants, thus speeding up growth.

Metal, wood or plastic, even cloth or paper coated with aluminum paint can be used to make a reflector to increase the heat and light on the plants. Half-barrel and barrel tubs with reflectors or radiators behind them can also be used successfully to grow squash and cucumbers, for instance.

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BIOCHEMISTRY

Calcium Involved in Artery Hardening

► **CALCIUM AS** well as fat is involved in arteriosclerosis, or, as the layman calls it, hardening of the arteries. Chemical studies showing this have been made by Dr. A. I. Lansing at Washington University in St. Louis.

Dr. Lansing's work, according to the American Cancer Society which supported it in part, shows that arteriosclerosis is a composite disease. It consists of damage to the blood vessels whereby their inner lining is loaded with a fatty material called cholesterol while the elastic tissue in the wall becomes encrusted with calcium salts.

The aging process leads to the breakdown of the elastic tissue and cholesterol then accumulates in the lining over the damaged areas.

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HORTICULTURE

Better Red Pepper from Cross with Mexican Plant

► **WILD PLANTS** from foreign soils often furnish the characters needed to develop resistance to diseases in cultivated plants or to eliminate from them certain undesirable characteristics.

A cross has been made between a tiny-fruited chili pepper, Chili Piquin, found in Mexico and some of the large varieties of peppers now on the market. Paul G. Smith of the truck crops division of the University of California at Davis, predicts this can raise the quality and intensify the color of American manufactured red pepper, paprika, and chili powder.

In varieties now cultivated in the United States woody tissue of the stems and calyx remains firmly attached to the picked fruit. Because of high labor costs, the tissue is processed with the fruit in the ground powder, lowering both quality and color of the product.

The wild pepper, Chili Piquin, located after a wide search through many Mexican varieties, has fruit that separates readily from the calyx and stem. By crossing, back-crossing, and outcrossing, the heritability of this character was tested by the Davis geneticist and is being incorporated into varieties suitable for commercial use.

As experimentally developed, the stem remains on the plant when the ripe fruit of the new variety is picked.

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AERONAUTICS

Written Exam Now Required For Private Pilot Ratings

► **WOULD-BE** pilots of private airplanes have to take written examinations to get ratings since Aug. 1, according to amended regulations recently adopted by the Civil Aeronautics Board. These examinations will test knowledge of civil air regulations, navigation pilotage, weather recognition, and safe aircraft operating procedures.

Also an increased amount of cross-country flight instruction and solo practice are required. Fifteen hours of dual instruction and 25 hours of solo practice are the amounts set for a private pilot certificate. All flights logged as cross-country must include a landing at least 25 miles from the point of departure.

Private pilot certificates are issued by the Civil Aeronautics Administration and it is the CAA, not the CAB, that will give the examinations. The questions for the written examination will be taken from a recent publication of the CAA entitled Questions and Answers for Private Pilots. Copies of this booklet are available from the Government Printing Office, Washington, D. C., for 15 cents each.

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