METEOROLOGY—PUBLIC HEALTH

Incalculable Numbers of Germs Rode Dust Storm

SECRETARY Cordell Hull's trade treaties had nothing whatever to do with one of the largest import shipments ever received in Canada from the United States. The consignment traveled by air, at that.

A spring snowstorm that covered a considerable part of Ontario province came down exceedingly dirty. It carried with it a vast quantity of air-borne dust that had started in the western United States as a dust storm.

Dr. A. G. Lochhead of the Canadian Department of Agriculture collected some of the dusty snow and made bacterial analysis of it. (*Science,* May 27) He found that there were on the average 4,370,000 germs per gram of dust. Since a gram is about a thirtieth of an ounce avoirdupois, this figures out roughly as about 125,000,000 germs per ounce—and in an ordinary dust storm many thousands of tons of soil can be transported. How many individual microbes were transferred from American soil to Canadian in that one shipment is simply beyond telling in figures that would mean anything.

It should be added, however, that all of the organisms found by Dr. Lochhead in his samples were harmless soil-dwelling species.

Science News Letter, June 11, 1938

GEOLOGY

"Layer-Cake" Geology Indicates New Oil Sources

NEW oil fields, in places where the present prospecting methods give no oil indications, will extend the life of the oil industry in the United States far beyond the commonly fixed fifteen-year limit, Dr. A. I. Levorsen, Tulsa, Okla., consulting geologist and former president of the American Association of Petroleum Geologists, predicted.

Comparing the earth's surface to a giant layer cake, Dr. Levorsen suggested to the Geological Society of Washington that our present methods are effective only in the top layer, while possible oil sources exist in the lower layers, which may contain structures not apparent to surface observers. The lower layers of rock, thousands of feet under the comparatively level surface, may be arched up into domes, broken by faults, or squeezed to resemble a gigantic jelly-roll.

Cheaper drilling, lowering the cost of prospecting, and making commercial production possible from fields that will produce small quantities of oil, is now possible at the rate of a dollar a foot of hole down to 2,000 feet. Designers of drilling machinery, using hydraulic pressure to speed the cutting, hope soon to have drills that will penetrate 5,000 feet for $5,000.

Surveys of the rocks near an oil well are speeded by side-hole coring equipment and Schlumbirge (pronounced "slumberjay") surveys, which tell, after the hole is drilled, just what rocks have been penetrated. The Schlumbirge survey is a method of telling, by measurements of the electrical resistance of the rocks, just what their extent is.

These new methods, says Dr. Levorsen, will lead to the discovery of many new oil pools, giving oil geology "plenty of future."

Science News Letter, June 11, 1938

MEDICINE

Effective Horse Vaccine Made From Chick Embryos

A NEW vaccine to protect horses against the serious disease, equine encephalomyelitis, sometimes called "horse sleeping sickness," has been developed by scientists of Duke University School of Medicine and the Lederle Laboratories at Pearl River, N. Y.

The new vaccine proved more than ten times as effective in guinea pig trials and has been completely successful in preliminary horse protection studies, Drs. J. W. Beard, Harold Finkelstein and W. C. Sealy of Duke and Dr. R. W. G. Wyckoff of the Lederle Laboratories report. (*Science,* May 27)

Equine encephalomyelitis has been increasing in many parts of the United States during the past years. Although caused by a virus, as is the somewhat similar human disease, encephalitis, a vaccine for protection of animals had been prepared from brain tissue of animals dying of the disease. The new, much more effective vaccine reported is prepared from chick embryo tissue.

The greater effectiveness is attributed to the fact that the virus of the disease grows much more abundantly on chick embryo tissue than on horse brain tissue. Evidence of this is the fact that Dr. Wyckoff has been able to isolate from infected chick embryos, but from no other tissues, a substance which seems to be the infectious agent or germ of the disease.

Science News Letter, June 11, 1938

IN SCIENC

ENGINEERING

Germany Saves Copper In New Locomotives

RAILROAD locomotives are the latest devices which German ingenuity is redesigning in efforts to conserve materials that ordinarily are largely imported, and to substitute for them those materials which the Reich has within its boundaries.

Typical strategic mineral raw material for Germany is copper and its alloys, brass and bronze. In new German steam locomotives substitution of materials has made possible the saving of 15,432 pounds of copper for each one! Already 350 of them are in service with steel replacing copper in the boilers and in the boiler tubing.

Each new electric locomotive, also, under the new design, shows an additional saving of 8,818 pounds of copper. The armatures of motors, the bindings and similar parts are now made out of malleable cast iron and steel to which a thin surface of conducting aluminum has been applied.

While Germany is thus saving copper and copper alloys, engineers in America are wondering about the efficiency of the changed, copper-saving design. Copper is more than five and a half times as efficient in heat conduction as iron. That means more coal must be burnt in the new locomotives with their iron boilers to get comparable heating of water and steam generation.

In the same way copper is more than four and a half times as efficient in electrical conduction as aluminum. That is, for equal size aluminum and copper wire, the former has much greater electrical resistance. Such resistance shows up in a wire as heat. When heat is generated it means energy lost for creating magnetic fields and all the other reactions on which electrical power depends.

That Germany is willing to sacrifice efficiency for copper saving is a testimony of the drive for self-sufficiency which underlies the whole present program of the Reich.

Science News Letter, June 11, 1938

E FIELDS

PUBLIC HEALTH

Physicians Urge Retesting Of Immunized Children

RENEWED efforts to keep diphtheria under control are necessary if the nation's children are to be protected against this horrible and often deadly disease. Physicians are warned of the situation by a report from Drs. A. B. Schwartz and F. R. Janney of Marquette University School of Medicine, Milwaukee, to the American Medical Association.

It is wrong, these physicians point out, to assume that once a negative Schick test has been obtained, the child's immunity to diphtheria is permanent.

The baby who at nine months old has been protected against diphtheria may have lost his immunity to the disease by the time he enters school at the age of five or six. During the last year or two there has been an apparent increase in the incidence of diphtheria among supposedly immune children.

In order to maintain the present low incidence of diphtheria in the United States, the Milwaukee physicians recommend that one of two measures be taken:

All children entering school should be given either a routine Schick test or a routine dose of one cubic centimeter of toxoid.

Recently two Canadian physicians, Dr. D. T. Fraser and K. C. Halpern of the University of Toronto, found that, upon retesting, one-third of the children once made immune had lost their immunity within five years.

Science News Letter, June 11, 1938

ARCHAEOLOGY

Egypt's Furniture Line Was Highly Modern

EGYPTIANS made their furniture to last. And it certainly has.

Archaeologists take bedroom and dining room sets out of royal tombs in that dry land, and with judicious repairs the furniture stands good as new.

At least, it looks marvelously preserved. The wood foundation of a chair or other piece sometimes has to be replaced because it has rotted or shrunk within its golden sheath. But beautiful effects of gold, ebony, ivory, carved wood, and inlay work, tapestry and painted designs—all these have survived their civilization with amazing endurance.

Even when practical-minded Egyptians turned out cheap, made-to-order furniture for a tomb, this stage furniture, so to speak, has lasted. We shouldn't dare trust weight to one of these wood and plaster "prop" chairs that imitates rich inlay and tapestry. But then the tomb owner wasn't expected to sit in it, when it was brand new.

Value of these ancient pieces, of course, is not to teach any lesson as to how long furniture should last. It is significant rather in showing how modern and beautiful was Egypt's line of furniture. Or, to put it the other way around, how few basic inventions in furniture have been made since the days of the Pharaohs.

Beds generally resembled daybeds, but there was a variety of styles. Chairs included arm chairs, armless dining chairs, carrying chairs to be lifted by bearers, folding chairs. There were cushions and footstools, for added comfort. Individual dining tables were made, and occasional tables of many types. Chests and cases were designed to hold jewels, linens, and other personal possessions.

Writing desks they did not have, since scribes sat cross-legged on the floor. And dressing tables were small and portable, because slaves brought toilet paraphernalia to the master or mistress.

The rocking chair they somehow failed to invent, leaving that for Ben Franklin to think up for America.

Science News Letter, June 11, 1938

ENTOMOLOGY

Insect-Killing Disease Grown in Laboratory

ORGANISMS that cause a deadly disease to tent caterpillars are being cultured at the New York State College of Forestry, to be released in an effort to control the forest tent caterpillar, which has developed into a major pest this season. The disease has been known for a long time, but this is the first attempt that has been made to propagate it artificially and use it as a means of forest defense.

The orchard tent caterpillar, close relative of the forest tent caterpillar, was very bad in 1937, but seems to be on the decrease just now.

Science News Letter, June 11, 1938

AGRICULTURE

Wake Island's Soilless Farm Well Under Way

WAKE Island's famous soilless farm, built to provide fresh vegetables for maintenance men and Pacific Clipper passengers and crew members making a scheduled stop there on their flights across the Pacific, has already produced its fourth successful crop, Pan American Airways reports.

During the first ten days of May, 33 pounds of tomatoes, 20 pounds of lettuce, 20 pounds of string beans, 15 pounds of squash and 44 pounds of corn were harvested from the shallow water-filled trays in which the crops are grown.

Wake Island's "farm" is cultivated according to methods worked out by Dr. W. F. Gericke of the University of California. In hydroponic farming, as the method is called, water containing essential minerals takes the place of soil. High yields of vegetables can be grown in surprisingly small areas. Wake Island's small area and the expense of shipping or flying food supplies makes adoption of the system there imperative.

Science News Letter, June 11, 1938

GEOGRAPHY

Labrador Mountains Not Highest Eastern Peaks

MOUNT Mitchell in North Carolina and Mt. Washington, popular vacation spot in New Hampshire, retain their titles as the highest mountains in the highest ranges in North America east of the Rockies, it was learned at the American Geographical Society.

Reports of a chain of mountains in northern Labrador topping the two mile-high peaks are finally disproved with the publication by the Society of the first detailed map of the region. It shows that the highest peak in this supposedly sovereign range is less than 5,500 feet high.

The map accompanies "Northern Labrador Mapped from the Air," the record of three aerial survey expeditions to inaccessible northern Labrador. Aerial survey photographs covering 5,000 square miles of inaccessible territory were made by the three expeditions, under the direction of Dr. Alexander Forbes, professor of physiology at the Harvard Medical School. Old surveying methods would have required much more time and money, it was stated.

Science News Letter, June 11, 1938