

FORESTRY

Sweden Surveys Forests; Finds Regrowth Rapid

THE NATION-WIDE government inventory, or census, of Sweden's forest supply has now been completed after eight years of incessant work and at a total cost of 1,400,000 kronor (about \$280,000 at present exchange rates). The almost gigantic proportions of this undertaking are illustrated by the report of the National Forest Inventory Commission.

The census was made by means of examining all trees within many parallel forest belts ten meters (30 feet) wide and drawn at certain fixed intervals. The combined length of the lines thus covered by the tree checkers is about 52,000 kilometers (31,200 miles) or more than one and a quarter times around the world, and the number of tree trunks marked and examined amount to more than 12,000,000.

The result of the inventory as a whole was most gratifying, in so far as it showed not only the forest wealth of the country but also indicated that the regrowth was considerably greater than what had generally been anticipated. Sweden's total forest area is about 23,181,000 hectares (approximately 58,000,000 acres) and the total amount of wood is 1,417,000,000 cubic meters (cubic yards). With the low lumber prices prevailing today, the present value of the wood contained in the Swedish forests is estimated to be at least 1,200,000,000 kronor (about \$240,000,000).

The investigators found that the regrowth is improving considerably. Another remarkable fact is the high age of the trees. In Lapland 32 per cent. of the trees were found to be over 160 years and 45 per cent. over 120 years old.

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STATISTICS

Half of Future's Babies Expected to Live 75 Years

HALF OF ALL the babies in the future will live to be at least 75 years old Dr. Louis I. Dublin, vice-president and statistician of the Metropolitan Life Insurance Company, predicted in the second of the annual Cutter Lectures which he gave at Harvard Medical School.

This means adding ten full years to the present life expectation. Part of

this will be accomplished by further reduction of infant mortality.

"But more important is the real possibility of reducing the unnecessarily high mortality of persons in the middle ranges of life," Dr. Dublin said.

"The present mortality of persons between 50 and 65 years of age can be reduced by at least 30 per cent. through the application of known principles to personal hygiene. There is every reason to believe that this will be accomplished in the course of the next generation during which time emphasis will be placed more and more on what the individual can do for himself in leading a hygienic life.

"This achievement will have an extraordinary effect on the composition of the population in the next generation. If we, as a nation, succeed in enjoying an expectation of 70 years, the entire complexion of our common life will be changed.

"These changes should greatly increase human happiness. Much color and sweetness should be added to our civilization if the older generation could stay on to their natural life span properly cared for. The increase of longevity will, moreover, make unnecessary the maintenance of high birth rates in order to balance our numbers. This will mean a real economy of the vital resources of the family and of the nation."

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ZOOLOGY

Beaver's House Afire; Ranger Puts it Out

FIREMAN to His Furry Excellency, the Beaver, was the role played during a forest fire by Ranger Curtis Skinner of the National Park Service. While Mr. Skinner was getting a portable pumping outfit into position to battle the flames in the woods of Yellowstone Park, he noticed that the dry sticks of a beaver house were in flames, and saw three of the occupants desert it in terror. He quickly coupled up a nozzle and turned a stream of water on the flaming house, soaking it down thoroughly.

Then he turned to the more serious business of fighting the forest fire, but as he did so, he saw one of the evicted tenants of the beaver house returning to his recently threatened home. A slap of the animal's broad tail on the water Mr. Skinner interprets as a "Thank you."

Science News Letter, March 25, 1933

IN SCIEN

EDUCATION

Microphone Used in Teaching Surgery

RADIO has found its way to the operating room. A Los Angeles surgeon, Dr. Rafe C. Chaffin, now wears a microphone under his face mask while operating, so that he may describe the operation step by step to his students in the amphitheater. His application of microphone, amplifier and loudspeaker to the teaching of surgery is reported in the current issue of the *American Journal of Surgery*.

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ARCHAEOLOGY

Skeletons of Aborigines Discovered in Missouri

FOLLOWING the clue furnished by a groundhog, two hunters have discovered the fireside and skeletons of an ancient American family, in a secluded canyon near Hartsville, Mo.

The hunters, John Sullins and George Hadley, reported that while in the little canyon known as Jug Hollow they noticed bits of broken pottery brought to the surface by groundhogs. The hunters sought picks and shovels and excavated, finding an ancient hearth stone. Dead at their fireside were the remains of an Indian family consisting of two adults and a young child.

The skeletons were disintegrated into a brittle condition, and were buried under about three feet of debris. Another evidence of the age of the household is the lack of metals, pointing to a prehistoric Indian culture.

The skeletons were accompanied by the family's stock of stone knives, arrows, and spear heads. There were four large mortars and pestles, and as this would be more equipment than one small family required, it is thought that a larger group of people must have sheltered themselves under the cliff in this little valley. Bones of bear and other animals were also found.

The skeletons have been removed to the local school for preservation.

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CE FIELDS

PHYSICS

More Data Uphold Idea Of Cosmic Rays as Electrons

A REITERATION that cosmic rays are probably electrons or other electric particles coming to earth from outer space and being deflected by the earth's magnetic field in such a way that the intensity is greater for high latitudes than near the equator is contained in a detailed report by Dr. Arthur H. Compton of the University of Chicago, appearing in the *Physical Review*.

Summarizing the researches of more than sixty physicists in a geographical study of cosmic rays throughout the world Dr. Compton finds that at sea level the cosmic ray intensity at high latitudes is 14 per cent. greater than at the equator, at 2000 meters (a little over a mile) it is 22 per cent. greater, and at 4360 meters (over two miles high) it is 33 per cent. greater.

"Consideration of the conditions necessary for deflection of high-speed electrified particles by the earth's magnetic field indicates that if the cosmic rays are electrons, they must originate not less than several hundred kilometers above the earth," Dr. Compton writes.

He finds that his data can be quantitatively explained on the basis of the Lemaitre-Vallarta theory of electrons approaching the earth from remote space.

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TEXTILES

X-Ray Study Points Way To Better Synthetic Silk

THE FIBER of natural silk is composed of several layers, the innermost consisting of highly oriented molecules and therefore having great tensile strength, while the outer layer is nearly free from orientation, X-ray experiments by Prof. Hermann Mark, director of the Physico-Chemical Institute of the University of Vienna and Dr. G. von Susich of Ludwigshafen, Germany, have shown.

Molecular orientation, these investigators found, increases tensile strength but

also leads to creasing. The structure of natural silk fibers is such as to give strength and yet prevent creasing.

Our present rayon or artificial silk fails in the latter respect because all highly drawn fibers have highly oriented surfaces and unoriented cores. The result is that although their strength is two or three times that of a normal fiber yet they are considered inferior in quality to the natural product because of their tendency to creasing.

Now that the cause of this is known it is hoped that a synthetic silk as good or better than the natural product will be produced.

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ARCHAEOLOGY

Blond Siberians With Painted Masks Unearthed

See Front Cover

GRAVES of mysterious blond and chestnut-haired people, who had a strange custom of making painted plaster masks for the dead, have been found by Russian scientists in Siberia, in the Minusinsk region. Word of the discovery was brought to the University of Pennsylvania Museum by Eugene Golomshatok.

Burial pits of the first centuries of the Christian era contained mummified remains of a chestnut-haired people, lying on wooden platforms and surrounded by rather poor possessions of pottery, iron and bronze, and wood. On their faces were plaster masks, painted with red cheeks and lips and nostrils, and with designs on the forehead. The inside of the masks were even more interesting, for they preserved the complete facial outline of the dead, even to wrinkles of face and neck. The impressions of these masks show that the people were beak-nosed, narrow-faced folk with long heads, and blond and brown hair.

Who the masked people were, is not yet known. Chinese historians, says Mr. Golomshatok, describe a tribe of "Gian-Gun" in western Siberia as having red hair, rosy cheeks and blue eyes. Another possible clue is that a great migratory movement began in Asia about the second century before Christ. The Huns who dominated Mongolia may have played a role in this region.

The hawk-nosed people of the masks succeeded a much richer type of culture in this part of Siberia. They in turn were succeeded about the fourth century A.D. by a people who had flat, round faces.

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CHEMISTRY

Synthetic Vitamin Manufacture Predicted

SYNTHETIC vitamins manufactured by organic chemists from cheap and plentiful raw materials were predicted by Dr. George Oliver Curme, Jr., in the annual Chandler lecture which he delivered upon the occasion of his receiving the 1933 Chandler medal for researches in chemistry. Dr. Curme directs the research of the Carbide and Carbon Chemicals Corporation.

Vitamins A, B, and C have been found to be closely related to substances of complex molecular structure, so that synthesis "seems entirely possible," he explained. In the case of other vitamins less is known although it would be surprising from the information now available if they were beyond the range of synthetic chemistry. He predicted that adequate supplies of vitamins will soon be available from relatively cheap and abundant sources and that under the guidance of physiological chemists and dietary experts synthetic chemistry will be able to add another triumph to its many past successes.

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SOCIOLOGY

Garbage Supports Depression Greenhouses in Germany

SEVERAL of the larger German cities are solving part of their depression problems by a hook-up of garbage-burning plants and greenhouses. Unemployed men are given jobs building the greenhouses and running the incinerators. Ashes from the burned garbage are used as fertilizer, and heat from the incinerators keeps the greenhouses warm. Plants that thrive on high-potash fertilizers, like tomatoes, cucumbers and cut flowers, are grown in the greenhouses.

H. A. Kirsch, a Berlin engineer who describes the projects in *Die Umschau*, states that employment in building will be given to about 25,000 men, and that for running the finished establishment two or three thousand families can be crossed off the rolls of those receiving public aid. The projects are expected to be self-liquidating, in that they will supply large quantities of high-grade fresh vegetables that have hitherto had to be imported.

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