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SCIENCE NEWS BULLETIN

THE NEXT GREAT STEP AHEAD

5. In Forestry

An interview with Dr. Raphael Zon, Forest Economist, U. S. Forest Service

(By Science Service)

To provide the world with the soft or coniferous wood that is now used so universally for building and other structural purposes as well as for making the paper that is used for printing, wrapping, and even building, is the problem that confronts forestry, according to Dr. Raphael Zon, Forest Economist of the U. S. Forest Service.

Contrary to popular belief, this world of ours has much more hardwood than softwood, and while we are facing a serious timber shortage, it is the pine, fir, and spruce wood that can be easily sawed up into lumber or beaten into paper pulp that will be lacking for future generations unless steps are taken to reforest with conifers the millions of acres of idle land that are available in this country.

"There are about 2.8 billion acres of forest in temperate regions and 3 billion acres in the tropics, "explains Dr. Zon. "Of the temperate forests probably only about 1.4 billion acres are occupied by coniferous softwood timber. The tropical forests are almost exclusively broadleaf species or hardwoods. The area of hardwood forests, therefore, is over three times that of conifers. Yet the world is using annually coniferous softwoods for construction at the rate of some 23 billion cubic feet, tropical hardwoods only at the rate of about 2 billion cubic feet, and of tropical and temperate hardwoods together at the rate of about $13\frac{1}{2}$ billion cubic feet."

"There are still vast undeveloped and unexplored areas of hardwood timber in the tropics and sub-tropics. There are only a few areas of coniferous timber that are not already called upon, in many cases far beyond their capacity, to meet the needs of the world for this kind of timber. The softwood regions are in the northeastern European and Asiatic Russia, Scandinavia, Canada, and the United States. Countries which possess enornous areas of hardwoods, such as Australia, Indo-Chim, British India and the entire Malay Archipelage, are importing coniferous softwood timber from the United States, Canda, and the Baltic States for construction purposes."

"Many of the tropical and sub-tropical countries which have large areas of hardwoods are now planting on a large scale coniferous species not indigenous to their own country. Some of the States of the Australian Commonwealth, for instance, plant thousands of acres of the Monterey pine from California and other conifers."

"The dipterocarps, a family of tropical timber trees, although not conifers, include many light and soft woods. These tropical species, when they come sufficiently into use and their forests are developed, may diminish the import of northern conifers into these countries. They can never be expected, however, to become a source of supply of softwood timber to take the place of the northern pines, spruces, larch, and other conifers. The problem, then, is to increase the production of coniferous softwood timber which so far, because of its lightness, strength, and the ease with which it can be worked, has proved itself to be far superior to hardwood timber for construction purposes. The pines, spruces, and firs inhabit chiefly the temperate and northern countries, the center of the most highly devoloped civilizations. In some of them, such as France, Belgium, Gernany, Switzerland, and Italy, the density of population and the need for cultivable land does not leave much room for extending the area of coniferous timber. In these countries more intensive forest management for the purpose of increasing the productivity of the forest land is the only means left. In other countries, however, and strange as it may seen, even in such a highly industrialized country as England, and particularly in Canada and the United States, there are millions of acres of idle land which could be used for growing of coniferous timber. In my opinion this is the big problem in forestry today from the world's standpoint."

"Distinction must be made between temperate and tropical hardwoods. While tropical hardwoods may take the place of many of our temperate hardwoods, such as cak, hickory, walnut, and others, the importance of having supplies of such hardwoods close at hand must not be lost sight of. Economic readjustments in the use of raw materials is a slow and, at times, painful process. Shortages of such temperate hardwoods are already keenly felt in the United States although the supplies of hardwood in the world are enormous. Horeover, the hardwoods in temperate regions, as a rule, occupy the better soils and as settlement increases, the hardwood forests, as was the case in Ohio Valley and is now taking place in the Mississippi Valley, must give way to cultivated fields. Still the fact remains that it is the future supply of softwood coniferous timber that is the most troublescme problem."

AMERICA MAY MISS COMET'S LETEOR SHOWER

(By Science Service)

Washington, June .- Americans and Europeans may not even see the meteors that astronomers predict will be caused by Comet Pons-Winnecke when the earth and the path of the comet come close together on Saturday, June 25.

Professor A.C.D. Cronmelin of the Greenwich Royal Observatory, London, declares that there is an excellent prospect of a meteor shower on that date but, if the position of the comet as computed is exact, it is due to occur at about 11:30 a.m. Eastern Standard Time, At that time both Europe and the United States will be having daylight and observors of India and other parts of Asia will probably be the only ones to see the meteoric showers if it occurs.

Even if the motoors accompanying Pons-Winnocke come into range during the night the ordinary observer may miss them. Some do not believe that the predicted meteor will be brighter than the annual showers that occur during August and November.

However, those who will climb upoon roofs to watch for sky-wanderers will probably not be disappointed because any fine clear night from five to six meteors can be seen each hour, and this number has a tendency to increase as the night grows older.

All chance of seeing Pens-Winnecke with the naked eye has passed, according to E. C. Bower, assistant, observing comets at Naval Observatory here. The comet was nearest the earth on June 7, when it was only 12 1/3 million miles away. From June 10 to 14 it was brightest, but was barely visible even then.

Pons-Winnocke interests astronomors because it has made a close approach to the earth. It is not a large comet. After its discovery by Pons in 1819 all of its returns which occurred at intervals of about six years were missed until 1858 when Winnecke located it again.

Two new comets that have created more stir in astronomical circles than Pons-Winnecke have been located during the past few months. While both of these are much too faint to be seen by the eye, astronomers are making observations on them to that their future behavoir can be predicted. One of these comets named

Roid after its discoverer in Cape Town, South Africa, was located in March. The other one, first seen on April 29, is called Dublage after its Russian discoverer. Astronomors know that comets and noteons semetimes travel together and that

Astronomors know that comets and meteors sometimes travel together and that the meteors often move along in the path of a comet. But just what are the relations of these two kinds of astronomical bodies, they have yet to discover.

SCIENTISTS ORGANIZE TO PROTECT NATURAL RESOURCES

(By Science Service)

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Release, Tuesday, June 21.

Washington, June 20.- Roused to action by the appalling waste of national resources and the impending exhaustion of some of the most essential, three leading scientific bodies of the United States have joined in an organization to make a systematic survey of the natural wealth of the United States and to devise methods for its economical utilization. The three organizations that have united in this work are the National Academy of Sciences, the National Research Council, and the American Association for the Advancement of Science.

John C. Merriam, president of the Carnegie Institution of Washington and reprecentative of all three scientific sponsoring organizations, is chairman of the new organization. John M. Clarke, director of the New York State Museum, and representative of the National Academy of Sciences and the National Research Council is vice-chairman, while Albert L. Barrows of the National Research Council and Willard G. Van Name, of the American Museum of Natural History, are secretary and assistant secretary, respectively. Other representatives of the sponsoring organizations on the executive committee are: From the National Academy of Science, J. McKeen Cattell, editor of Science; from the National Research Council, Vernon Kellegg, secretary of the Council, C. E. McClung, director, Zoological Laboratory of the University of Pennsylvania, and Dr. Cattell; from the American Association for the Advandement of Science, Henry S. Graves, former chief, U. S. Forest Service; Isaiah Bowman, director of the American Geographical Society, Barrington Moore, president of the Ecological Society; V. E. Shelford, professor of zoology at the University of Illinois.

Headquarters will be opened in Washington and an active educational campaign will be started immediately through the press and schools to awaken the people to the need of safeguarding their natural endowment from spoilation and exhaustion. One of the aims of the Executive Committee on Natural Resources will be to provide legislative bodies with accurate and timely data as a guide to state and federal action.

But it is realized that something more is required than merely furnishing information to officials and the public. It is a moral as much as a mental problem and nothing less radical than a fundamental regeneration of national character will suffice. This can only be accomplished by beginning with the children and training up a new generation that will protect their own interests better than their fathers have.

The first announcement of the Executive Committee on Natural Resources contains the following significant paragraph:

"No part of the world is more richly endowed by nature with all that is necessary for the building up of a great nation than the United States of North America, and in no part of the world have these natural resources been used in a more wasteful and prodigal manner. An immense nation has been built up, but at the expense of a much larger consumption and loss of its resources than was necessary, and we are now actually confronted with the question as to how long that which remains will avail to maintain us. There is much thoughtless optimism in regard to this question. Our civilization is as dependent on power, light, heat, metals, lumber and other material supplies, as it is on the air we breathe, and if it is to endure we must quickly recognize that the utilization of these necessities must be based on the greatest economy compatible with effectiveness."

"Reared in the midst of national abundance the idea has become a matter of common expression that when our present resources are gone 'something else will be found to take their place', or that because we have not as yet suffered for the want of any of them, the time will never come when the nation will suffer in consequence of our past and present prodigality. There is no greater folly. For this very cause the nation may be vitally wounded. The natural wealth that we have inherited from the past is far from inexhaustible, and for this generation to pass way leaving a depleted heritage for these to some, with which to maintain and adance the civilization that we have here developed, would be a folly and a grievcus iniquity."

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"Luch that is called development is really destructive exploitation; much that we call production is really consumption; much that we call utilization is merely the sacrifice for small immediate profits of things that will be badly needed in the future. Nature has been so lavish with us that we have not felt the necessity of looking at these facts in their true light; but if our nation and our civilization are to have a future as well as a past, we can not postpone doing so."

"These great economic problems are so involved with industrial, financial, and political questions that little direct influence can be exerted by scientific bodies without a long educational campaign. This will in time bear fruit. Exact scientific knowledge alone can guide in this large field, but even science can not take cure of industrial waste. Such correction can be made only by an enlightened "The men and women of today are so saturated with, and habituated to the wasteful ideas of the past, and so involved in the extravagant methods of our present economic life, that it is only through the education of the coming generation that the best result can be hoped for. Farseeing ideas must be given to them while they are still in the susceptible stage of mental development; they must be led to think more than we do of the future of the nation and to understand the danger of sacrificing that future for immediate profits."

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(Editors: This is another batch of short daily features)

BEAT EDISON TO IT!

Do you know that-

The earth weighs 5,000,000,000,000,000,000,000 tons or twelve septillions of pounds.

Scientific observations have not confirmed the popular idea that certain kinds of plant keep away mosquitoes. Plants to which this virtue has been ascribed include several species of eucalyptus, the castor-oil plant and the chinaberry.

There are 70 recorded cases of human beings possessing more or less conspicuous tails, according to Professor Arthur Keith, the British anthropologist. One American child showed emotion with its tail, as most tailed animals do. Normally, a human being possesses the vestige of a tail, inherited from the apes, but it is not visible externally.

The salt, calcium chlorido, when used in small quantities in the mixing water of concrete makes the concrete set quicker and become strongfaster.

BEAT EDISON TO IT!

Do you know that-A cubic foot of aluminum weighs from ten to fifteen pounds more than a cubic foot of ordinary concrete.

Indigo, which is obtainable from plants of several species, is probably the oldost dye known to mankind. At the present time the bulk of the world's supply of indigo is obtained chemically from aniline. The importance of natural indigo is rapidly diminishing. About the only regions where indigo farming still prevails on a commercial scale are Bengal, in India, and Salvador, in Central America.

After one has looked at a color for a few moments the eye becomes adapted to that color and is no longer able to distinguish small differences. When matching dress goods you should not look at the materials longer than a minute at a time if you want a close match.

About 40 per cent of all children over six months old are naturally immune from diphtheria, as shown by the Schick test. The remaining 60 per cent can be made immune by means of antitoxin vaccine, and thus medical science now provides a means of practically banishing this dread disease from the world.

BEAT EDISON TO IT!

Do you know that-

A manila rope, one-quarter of an inch in diameter will easily support five av-

There is one nurses' training school in the United States which makes a specialof training nurses to care for those in mental ill health. Nurses who have taken is special training course of three years are known as psychopathic or psychiatric uses.

The wood of a tree found in Panama, Cavanillesia platanifolia, is even lighter than the celebrated balsa wood. The tree grows to an immense size. The branches a and leaves are at the very top and the trunk is like a huge column. The strength of the trunk is principally in the thick fibrous bark, while the wood is so fragile that it crushes when the tree falls. The clog almanac, once in common use in parts of England, is a square stick, on the four edges of which are cut notches to represent the days of the week and various symbols to indicate different festivals and holidays. More ancient than clog almanacs are the Scandinavian runic calendars, made of wood, or sometimes of horn or bone, and inscribed with runic letters.

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BEAT EDISON TO IT!

Do you know that-

Only a fraction of one per cent of the available coal in the United States has been mined. According to the Geological Survey, the amount still underground and within 3,000 feet of the surface is more than 3,538,000,000,000 tons.

Dr. W. R. Brooks, director of Smith Observatory, Geneva, N. Y., who died recently, was the discoverer of 27 comets; a record surpassed only by the French astronomer Pons, who discovered 28.

Paul Bourget, the French author, attended for four months the clinic of a prominent Paris specialist in order that he might accurately describe the symptoms of a certain disease in one of his stories, On another occasion he postponed writing a chapter of a novel in which he wished to mention the after-effects of tropical malarial fever until a certain physician returned from Central America, where he had gone to make a study of this malady, and published his notes on the subject.

Sand and slaked lime when mixed, pressed and cured in steam, bond together and form a building brick, that is manufactured in about 80 widely scattered plants in this country.

BEAT EDISON TO IT!

Do you know that-

Since the beginning of the Christian Era a spot on the equator of the earth has travelled 17,500,000,000 miles or a distance equal to 188 times as far as it is to the Sun.

The human eyo can distinguish between six and seven hundred blacks, whites, and greys.

In March, 1918, a shower of dust discolored falling snow at various places in the United States over an area of at least 100,000 square miles, extending from Dubuque, Iowa, to Chelsea, Vermont. The dust is supposed to have been blown up from the arid regions of the far Southwest and to have been carried a thousand miles or more before being deposited.

Twenty-five out of every hundred people who have mental disease recover sufficiently to resume their place in society when given proper care. Many more could be restored if they were brought under the care of specialists early in the development of their mental ill-health.

BEAT EDISON TO IT!

Do you know that-

Rubber of good quality can be obtained from several species of plant growing wild in the United States. One of these, commonly called rabbit-bush, is a large shrub growing abundantly over the semi-desert areas of Colorado, Nevada and Utah. The present stand of this plant would yield about 300,000,000 pounds of good rubber.

The study of meteorites is a science without a name -- at least in English. A proposed name for this science is "meteoritics."

The classification of clouds now generally used by meteopologists was introdud, in its principal features, by Luke Howard, an English Quaker, in the year 1803. German poem about Howard's achievement was written by Goethe, who also wrote a separate poem about each type of cloud included in the classification.

That the world's biggest rain-gauge has recently been installed on the summit of Lt. Vaialcale, in the Hawaiian Islands? The tainfall at this place is greater than at any other spot on the Elobe, so far as known; moreover, the mountain is so difficult of access that the water collected by the gauge is measured only once a year. Hence its exceptional dimensions.

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DECLARES PROGRESS AN IL. ION; URGES EUGENICS AS RELIGION

(By Science Service)

Release Saturday, June 25.

Cold Spring Harbor, Long Island, N. Y. June 24.- Huch of what we call progress is an illusion and really we are slipping backwards while we seems to be moving forward, said Prof. Irving Fisher of Yale University in his presidential address before the Eugenics Research Association here today. This conclusion seem to be indicated by a review of the relations of eugenics to the great problems of the world, such as war, hygiene, birth-control and immigration, he declared. "Human ambitions under the opportunities afforded by civilization seem to sac-

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"Human ambitions under the opportunities afforded by civilization seem to sacrifice the race to the individual", he said. "We congregate in great cities and pile up great wealth but are conquered by our very luxury. We seek imperial power and not only damage but destroy our germ plasm in war. We seek social status and education but limit motherhood. Like moths attracted by a candle, we fly toward it and destroy ourselves in the act."

"Eugenics must be a religion," he declared in telling what ideals and remedies can better these conditions. "It will prove a wonderful touch stone by which to distinguish between what is racially and radically right and what is racially and radically wrong. It will bring home to parents the thought that much, if not all, of their conduct may be fraught with future significance for their children and children's children. It will throw its search light into every nook and cranny in the life of the individual and of society.

"Therefore it will help mould all human instituti ons. Especially will it help mould that fundamental institution, human marriage. While marriage is most intensely individual and private matter it has been regarded, from time immemorial, as of vital concern to society. Around this great institution of human marriage have always clustered many sorts of Folkways. In civilized times the Law has made legitimate marriage a binding contract and Religion has given it its divine blessing. It now remains for Science also, science which in so many other ways is remodeling the whole modern world, to affix its seal of approval."

"And just as the Law and Religion discriminate and refuse their seal of approval to alliances which are found to be improper from their respective viewpoints, so must science discriminate. Disgenic marriages must be discountenanced just as bigamous or incestuous marriages are discountenanced. "

"In thus withholding or giving a coveted approval Eugenic Science will elevate marriage in its way as greatly as have Law and Religion in theirs. It will shed the light of reason on the primeval instinct of reproduction. It will exalt what is already a "legal contract" and "holy matrimony" into a dedication of all we are to what we want posterity to be."

MEASURES STRESS IN THIN PAINT FILM Release Wednesday, June 22.

(By Science Service)

Asbury Park, N. J., June 21.- A thin film of paint, four-thousandth of an inch thick can be tested in much the same way as the bar of steel or stick of wood to which the paint is applied. At the meeting of the American Society for Testing Laterials here today, in reporting his work on the effect of oxidation on paint, Harley A. Nelson of the research laboratories of the New Jersey Zinc Co., told how the thin paint films can be put under tension and how the elongation caused by the stress can be measured.

STEEL WILL NOT REPLACE CAST IRON CAR WHEELS

(By Science Service)

Release Saturday, June 25.

Asbury Park, N.J. June 24.- More modorn and expensive metals will not replace chilled-iron as material for car wheels for use on railways, if the present wheels are made heavier with thicker flanges, H. J. Force, chemist and engineer of tests of the Delaware, Lackawanna and Western Railroad Co. said at the meeting of the American Society for Testing Materials here today.

the American Society for Testing Materials here today. "The cast-iron wheel has a marvelous history," he said. "The general public knows little of the wonderful progress of the chilled-iron industry; nevertheless, it has grown steadily with the railroads and today the commerce of the nation depends upon it. Approximately 26,000,000 chilled-iron wheels are now in use in the United States and Canada, serving under freight cars, passenger coaches, refrigerator cars, engine tenders, city street cars, interurban cars and electric locomotives. Eighty to ninety per cent of all the equipment in the United States and Canada is equipped with cast-iron wheels.