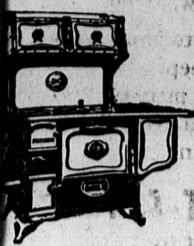


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Scientific Miscellany

Sprouting Logs for holding River Banks—Weeds as Disease Carriers—The Home of Leprosy—The Deepest Mine and Its Product—Palm Alcohol—Hardened Lead—The Biggest Snakes—Crystalline Structure and Magnetism—Rose Flavor in Edibles and Beverages.

Sprouting poles of white willow constitute the binder for protecting the shores of lakes and streams in the method patented by O. S. Scheffele, an engineer of Waterloo County, Ontario. The long green poles are laid in shallow trenches, spaced about five feet apart along the banks and it is found that each pole will quickly send up shoots at intervals of about two feet, the growth in a couple of months or so forming a dense protective shield against wave and wind action. The poles may be two to six inches through and from 20 to 25 feet long. Roots shoot into the soil in every direction, and in a surprisingly short time they transform the crumbling shifting water edge into a dense matting that no flood can wash away. Where immediate checking of erosion is necessary, a temporary board fence may be built along the lower ends of the poles. Little willow cuttings have been long planted for holding threatened banks in place, but the new plan gives a stronger, broader and more substantial holding. The use of 80,000 (lineal) feet of willow poles is said to have ended a railway's struggle of years against a stream's encroachment.

Wild plants in increasing number act as carriers of disease to cultivated trees and plants. W. A. McCubbin, of the Pennsylvania Department of Agriculture, notes that the red cedar is responsible for the yearly rust of apples, pears and quinces, while currants and gooseberries spread the white-blighter rust, and the round-leaved mallow is blamed for the rust attacking hollyhocks. The mosaic disease of cultivated cucumbers is supposed to survive the winter on the wild cucumber.

Leprosy is believed by Rogers and Muir to have originated in the northern belt of Central Africa. Equatorial Africa now has a higher leprosy ratio than any other part of the world—130 per thousand population in the Ebolawa district, 60.7 on the French Ivory Coast, and 20 in the Cameroons and Abyssinia. Every country having as high as 5 to 60 lepers per thousand is within the tropics and practically all have a high rainfall.

The St. John del Rey mine, in the State of Minas Geraes, Brazil, is of extraordinary interest, both on account of the time—nearly a century—it has been worked, and as the deepest ore mine in the world. It was purchased in 1834 for \$55,437, states The Mining Journal (London). Its location is about 2,700 feet above sea-level, and the lode lies in a calcareous schist, possibly of pre-Cambrian age, the ore consisting chiefly of massive pyrrhotite, with mispickel and iron pyrites. From a vertical cross section, the lode appears to be a vein 650 feet or more long and 45 feet wide dipping at an angle of 45°. The mine was at first a steep open-cut, supported by props and timbers. After interruptions in working in 1867 and 1886, two new shafts were completed, each to a depth of 2,292 feet, in 1892, and since that time the mine has been developed by a series of internal shafts, each 1,200 feet deep, in step-like succession, 1,420 feet apart. The total vertical depth is now 6,800 feet, the lowest portion of the mine being reached by two inclined shafts, the lode having flattened to 19 degrees. Increase of temperature—1 degree for every 125 feet—has been one of the serious difficulties of the mining. At 6,500 feet the rock has a temperature of 118 degrees F., and that of the air is 110 degrees F. Cooling is effected by a Sirocco fan delivering 80,000 cubic feet of air per minute, to which is added 5,000 feet from the winding engines, the surface air being cooled to 45 degrees at the 6,500 foot level. About 4,000 horsepower in electric stations. About 70 per cent used the power being transmitted electrically from eight small hydroelectric plants. About 70 per cent of the free gold is recovered by crushing and washing and 25 per cent by subsequent cyaniding. The mine has produced 130 tons of bullion, representing \$15,000,000. The 200,000 acres of Nipa palm in North Borneo, occurring in nearly solid stands of 5,000 acres or more, furnish sap about six months in a year, and it is estimated that the yield in this period may be 900,000,000 gallons capable of supplying nearly 60,000,000 gallons of alcohol. A year's experimental distilling justifies the expectation of a profitable industry. The cost of the 100 gallons of alcohol distilled per day was high but would be satisfactorily reduced in large-scale production. The "tempered" lead of R. S. Dean and W. E. Hudson, of the Western Electric Co., is given its special character by including a small proportion of alloy. The product is practically lead of three times the ordinary hardness of that metal.

The common popular belief that every big snake is a boa constrictor is far from the truth, according to W. Henry Sheak, in Natural History. The typical boas are confined to tropical America, and fall far short of the Old World pythons in both length and weight. The boa constrictor rarely exceeds 20 feet in length, one 12 to 15 feet long being large. The largest of the true boas is the anaconda, (Eunectes murinus) an arboreal and aquatic species, well adapted to life along the rivers of South America. The largest preserved being also prepared.

Conference On Child Welfare

OTTAWA, Ont., Aug. 29.—What promises to be the most successful conference on child welfare that has yet been convened in Canada is the Fifth Canadian Conference on Child Welfare, to be held here for four days, commencing Sept. 28. Detailed attention will be given to many of the most practical problems facing the average Canadian community today, and every subject is being handled by an expert in the field. Noted child welfare workers and experts from Halifax to Victoria are on the programme.

What is the small community to do with its dependent and neglected children? Judge Ethel MacLachlan of Regina, who has worked out the problem in a practical manner in the rural districts of Saskatchewan will discuss the subject. Is it a neglected child that needs care? No one can discuss the problem more comprehensively than E. H. Crois of Halifax. Or is the problem created by a juvenile immigrant alien in a Canadian community? A. P. Page, chief of Manitoba's Child Welfare Administration, will have constructive suggestions to make in this field.

The problem of handling dependent children in the highly-organized city community with its social agencies and institutions will be taken up by R. E. Mills of the Children's Aid of Toronto and Miss Violet Lafleur of the Children's Bureau, Montreal, who will describe how two large cities are meeting this need.

Family Desertion Pressing Problem

One of the most vexing of present social problems is that of family desertion. Joseph Woolf of the Toronto Federation of Jewish Philanthropies will discuss the lines of the problems of domestic relations reaching this stage. W. L. Scott of Ottawa will speak of the legislation existing in Canada, dealing with this and related problems. G. B. Clarke of the Montreal Social Agencies will treat of the possibilities of rehabilitating the family group when disaster has overtaken it.

An increasingly important question in country districts today is the provision of medical and nursing services of these rural sections. Dr. W. J. Bell, deputy minister of health for Ontario, will open discussion on this subject. Miss Smellie, the executive head of the Victorian Order for Canada, and Dr. F. Routley of the Red Cross will also describe constructive plans for this problem. Miss J. Woods of the Toronto health department will present the contribution of the clinic to the treatment of the situation.

Other subjects to be treated in a practical manner include: "Essentials of Normal Childhood—Physiology," by Dr. A. S. Lamb of McGill University; Montreal; "Child Guidance Clinic," by Dr. W. T. B. Mitchell of Montreal and "Protecting and Improving the Health of School Children," by Miss R. M. Simpson, director of school hygiene at Regina.

specimen known is a skin 29 feet long in the British Museum, but 30-foot specimens have been recorded. The average length is probably nearer 20 feet. The showman knows that monstrous size is expected in a boa, and traveling menageries represent the gigantic python of Asia and Africa as "boa constrictors." The largest serpent known to science is the reticulated python (P. reticulatus), sometimes known as the royal or great python on account of its regal size, sometimes as the rain-walkers, riggers, lofts, smiths' for-bow python from the tints seen on the scales in certain lights. It sometimes attains more than 30 feet, and specimens measuring 25 feet to 29 feet are not uncommon. Marvellous stories are told of the swallowing capacities of these great serpents. There seems to be no doubt that a 25 or 30-foot python could crush and kill an animal the size of a horse or ox, and no reason appears why one of these monsters could not swallow an ordinary man. They rarely attack man or large mammals, however, their usual prey being such as can be conveniently swallowed—birds and mammals of 25 to 40 pounds or considerably less.

Recent researches indicate that thin films of nickel are non-magnetic until rendered crystalline by heating. In the experiments of L. R. Ingerson and S. de Vinney of the University of Wisconsin, a film was spattered on a microscope slide cover-glass from a nickel disc in a hydrogen bath. Though bright, metallic and hard, the deposit was originally amorphous and non-magnetic, but after heating to 700 degrees C. the film was distinctly magnetic and crystalline. Thick films were magnetic at the start. Ingerson concludes that ferromagnetism is not an atomic property but is connected with crystalline structure, though removal of hydrogen might explain the appearance of the magnetism. While roses are employed generally in China for scenting tea leaves and beverages, they are said to be used generously by bakers in Nanking for giving aroma to cakes and pastry, large quantities of the petals being preserved during the flowering season. A rose-scented liquor is made by brewers. A candy from sugar and rose leaves being also prepared.

St. Lawrence Canal Defended In Review Of Small Carriers

WASHINGTON, Aug. 25.—Although conceding that the Great Lakes and the St. Lawrence Canal are the shipping world, credit for carrying the bulk of the world's ocean commerce is given to the cargo liners and tramps in a review made public by the Great Lakes St. Lawrence Tidewater Association.

The association made its statement as a defense of the proposed St. Lawrence ship channel project, declaring it was idle to suppose the Leviathan and Majestic type of ships would steam directly into the ports of Duluth and Chicago.

Cargo vessels devoted to freight service are rarely large, a majority drawing less than 25 feet of water, the statement said, adding that they must be small enough to enter several ports at both ends of their journey to obtain full cargo. Counting the numerous trips of express liners to New York, the statement said, the record of vessels engaged in foreign trade for 1922 shows that out of 8,526 inward and outward trips 70.7 per cent were in vessels of less than 25 foot draft and 93.8 percent with drafts under 30 feet.

"The large export vessels plying in and out of New York and calling at Boston are not necessary to the success of the St. Lawrence ship channel," the association continued. "New Orleans and Galveston have ranked great commercial commodities though they can accommodate only light draft vessels. It is an error to assume that a 30-foot channel can be navigated only by vessels drawing less than 25 feet. Such conditions are applicable only at entrance channels of exposed ports. Vessels drawing 25 to 30 feet navigate the 30-foot channel to Houston, in the protected waters of the Gulf of Mexico, and the St. Lawrence and Welland Canals, vessels load to utilize every available inch. Small ocean ships navigate the present 14-foot St. Lawrence Canal drawing 13 to 15 feet and more."

"At the ocean entrance of the

David Copperfield

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David thought he had never seen any place quite so interesting and exciting in all his life as Yarmouth and then looked in all directions, he passed boat yards, gas works, rope great size, sometimes as the rain-walkers, riggers, lofts, smiths' for-bow python from the tints seen on the scales in certain lights. It David longed to explore Peggotty's nephew, Ham, was waiting for him toward the sea.

"Yon's our house, Master Davy," said, pointing. David looked where he pointed, and then looked in all directions, but could see no house. All he could see was a large black barge on the water's edge.

(Here is friendly Ham. Color his hair and suit both brown. Make his shirt a light blue.)

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