

Scientific Wonders Exhibited

Living hearts in embryo chicks, pumping blood through the unhatched birds' circulatory systems, delicate needles than can pierce and carve a microscopic plant or animal cell under the lens, fossil remains of the biggest animals and the biggest plants that the world ever knew, were among the scientific wonders inspected by a brilliant gathering of scientists at the annual reception of the Carnegie Institution of Washington, which preceded its yearly public exhibit of its work. According to its custom, the Carnegie Institution kept open house recently and invited the general public to visit its headquarters and view the exhibits under the guidance of its staff members.

One of the exhibits that attracted much attention was an embryo of a living chick, into whose blood stream a small amount of India ink had been injected. The black fluid made it easy to trace the course of the circulation. A companion exhibit had had its arteries and veins rendered transparent by means of wintergreen oil, so that the whole delicate web-work of blood vessels could be seen.

In the section for plant physiology, an artificial cell was shown, constructed on the pattern of the living units of plant and animal bodies. Made out of lifeless materials, it nevertheless closely parallels the activities of the living cells in many respects. Here was shown also a method for measuring the water-delivering capacity of the soil by means of a sort of artificial root model made of porcelain, which sucks up water greedily, and by its increase in weight shows how much the soil can deliver to a given surface in an hour.

Results of the studies on extinct fossil whales, showing evidences of the seaward evolution of these once land-dwelling giant mammals, were shown, together with fossils of ancient trees like the "big trees" of California, which once occupied a large part of the American continent. As companions to these monuments of animal and vegetable antiquity, there were shown photographs of this year's great finds in the human antiquities of Central America, where the Carnegie Institution's expeditions have unearthed further splendors in the great Maya cities of Chichen Itza and Coba.

Diatoms, "the grass of the sea," were shown under a battery of microscopes. These plants, though minute in size, are of fascinating shapes and

patterns, and because of their abundance are the principal basic food of all fishes and other forms of marine animal life. The "micromanipulator" also attracted much attention. It is an instrument which enables an observer to perform delicate surgical operations on living cells while he watches his work through a microscope.

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BOTANY—AGRICULTURE

Kingly Plant Importation

King George III, the royal bogeyman of early American history, may not have "known his oats" in the matter of Colonial politics, but he was no fool when it came to knowing other plants and securing the best scientific and economic results from them, according to the testimony of Dr. A. W. Hill, director of the Royal Botanic Gardens at Kew, England. The Kew establishment, now the largest botanic gardens in the world, was initiated by the mother of George III, who set aside two adjoining palace gardens for this purpose; but it was George himself who through his friendship for the early English botanist, Sir Joseph Banks, really gave shape and purpose to the donation and started the immensely profitable practice of making Kew the headquarters for the transplantation of new and valuable tropical species from one British colony to another.

Since that day, Dr. Hill states, practically every important transplantation of plant industry in the British Empire has passed through Kew. Among these have been the establishment of the Para rubber industry in Malaya and the transfer of the cinchona quinine tree from South America to India and the East Indies.

But King George and the botanists of Kew must not be given credit for starting the business of plant introduction, though they were the first to make a science of it, Dr. Hill says. In early post-Columbian days the Spanish galleons plying between Mexico and the Philippines frequently carried valuable plant species from the New World to the Old, and vice versa. But before the Spaniards there must have been other unrecorded voyagers among the brown-skinned peoples of the Pacific, for there are many plants, notably the coconut and banana, whose wide distribution cannot be explained on any basis other than human carriage.

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NATURE RAMBLINGS

By FRANK THONE



55

A Splendid Crown

Of all the horned animals of the world, none bears so proud and splendid a crown as the American elk. The antlers of the various species of deer are very well in their way, but they are all of them relatively small; those of the moose, though more massive, lack the grace and symmetry of the elk's. For a combination of masculine strength and a beauty that though wild is not savage, the head of the elk remains supreme.

The astonishing thing about all antlered animals is that they grow this great spread of horn every year. In the early spring the antlers begin to sprout, and they grow apace through the summer, covered by a coat of short-haired skin known to woodsmen as the "velvet," which shelters the numerous blood vessels and nerves that take care of the nourishment of the growing horn. When the horns are mature this "velvet" dies and peels off in long strips. To get rid of it the bucks rub their heads through branches and bushes; this is known as "horing the brush."

With the maturing of the horns the annual urge to seek mates arises strongly, and desperate fights, or rather head-on wrestling matches ensue between the males, for the possession of the herd of cows; for elk are highly polygamous. After the rutting season is over the horns are of no further use, and during the winter they come loose and drop off.

While the number of points on an elk's antlers increases each year up to seven or eight, they do not furnish an accurate means of determining the age of the animal. Sometimes two points will be added the same year, sometimes the new antlers have the same number as the old ones just shed.

It is to be hoped that the fashion of wearing elk teeth as lodge emblems will soon pass. Each male elk has but two teeth that will serve for this purpose, and in too many instances conscienceless hunters, poaching on Federal or State preserves, kill these beautiful animals for no other purpose than to secure two bits of ivory.

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