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Contents.

(Illustrated articles are marked with an asterisk.)

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Table listing contents of the supplement, categorized by I. ELECTRICITY AND MAGNETISM, II. TECHNOLOGY, III. MEDICINE AND HYGIENE, IV. NATURAL HISTORY, V. ASTRONOMY, VI. MISCELLANEOUS.

THE NATIONAL EXPOSITION OF RAILWAY APPLIANCES AT CHICAGO.

The managers of the Railway Exposition have succeeded in making an exhibition interesting to the general public, in a field which at first glance would seem to attract only specialists. The most attractive popular features are the old locomotives and the electric railway, yet the exposition as a whole is striking, surprisingly so, even to the mere sight-seer, while attracting the deeper interest of railroad men.

The old locomotives, which naturally are the center of attraction, have been so frequently described, I need not dwell on them. As the visitor steps from the shed containing these pioneers, across to the array of modern locomotives, an epoch is bridged from experimental years to the present times which have brought forth these triumphs of the present century.

The exhibition of locomotives embraces all varieties of steam motors from the first class passenger to the drilling engine. The principal works of the country are well represented by their masterpieces. The Baltimore and Ohio Railroad sends from its own shops a magnificent specimen as a contrast to its pioneer locomotive, also on exhibition.

The railway companies centering in Chicago have contributed to the exhibition both cars and locomotives, and some have sent products of the country through which they pass. The Illinois Central from its southern lines has sent fine trees and palms, while the Pennsylvania roads furnish native ores, typical of the diversified interests of the whole country, held together by bands of railroad iron.

Taken as a whole, the exposition is worthy of its appellation "National," as it fairly exhibits the state of the art in railroading in the United States, and I doubt whether perfection has been so closely sought and nearly attained in any other country.

RAINFALL ON THE ISTHMUS OF PANAMA.

According to the observations of Mr. John Siven, director of a gas company in Panama, the quantities of rain that have fallen at the Isthmus of Panama during the last four years have been as follows: 2-152 meters in 1879; 1-683 meters in 1880; 1-792 meters in 1881; and 1-158 meters in 1882.

During the latter the ascending strata of air are all to the south of the isthmus. To the north of these strata is the trade wind of the northern hemisphere, which generally blows from the northeast over the isthmus.

It is understood that while the rising air strata are over the isthmus, then the rainy season occurs, since the trade winds, that are low winds scouring the surface of the ocean, gather up in these strata great quantities of aqueous vapors which on rising enter the lofty and colder regions of the atmosphere, are condensed, and produce that vault of perpetual cloud which arches over the earth, forming an obscure circle which the French sailors call Pot-au-Noir.

Another interesting fact is that the excess of rain on one slope over that on the other is most marked in the second period of the rainy season. This is attributed to the fact that during the first part of the rainy season—May and June—the prevailing winds are southerly, while during the second period of the same they are northerly and are more freighted with moisture.

Ancient Lake in California.

At a recent meeting of the Engineers' Club of Philadelphia, Mr. T. M. Cleemann showed a map and profile of the Southern Pacific Railroad in California, showing where it crosses the dried up bed of a lake, being below the surface of the Pacific Ocean for 58 miles, and attaining a depth below said surface of 266 feet.

Long Steel Plates.

Some long steel plates have been rolled by the Otis Iron and Steel Company, of Cleveland, Ohio. The plates were 50 feet 6 inches in length when sheared, 51 inches wide in the center, and three-eighths of an inch thick.