

# SCIENTIFIC AMERICAN

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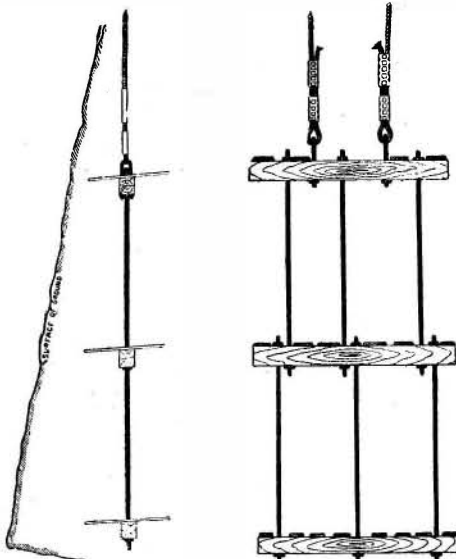
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## THE AERIAL CABLE RAILWAY.

A wire-rope tramway for passenger car service over the Tennessee River, at Knoxville, and which is suspended at a height of 350 feet above the water as it reaches the south side of the river, as shown in our illustration, has been in practical use for some time past, passengers being conveyed thereby to a pleasure resort back of the bluff on the other side of the river from the city of Knoxville. The starting point of this suspended railway is only about five minutes' ride by street cars from the center of the city, and here is a power house where are two twenty horse power engines which operate the hauling cable. The tramway cables are each  $1\frac{3}{8}$  inches in diameter, and the length of the span is 1,060 feet. These cables on the Knoxville side are anchored to  $12 \times 12$  inch oak timbers, 14 feet long, placed behind plank bulkheads. The connecting bars are 12 feet long and  $1\frac{1}{4}$  inches thick, and provision is made for taking up the slack by means of the long threaded screws, as shown in the plan and side view of the anchor. The anchor at the high end, on the opposite side of the river, consists of iron plates fixed in the rock. The supporting cables each have a breaking strain of 60 tons. The cable conveying the motive power is  $\frac{1}{2}$  inch in diameter and permanently fastened to the car. The car, empty, weighs 1,200 pounds. It has a 14 foot body and 3 foot platforms, and is 6 feet wide by  $6\frac{1}{2}$  feet high. The seating capacity is 16 passengers. The car is provided with automatic brakes, which stop the car in case the propelling cable breaks or slips on the drum. The up trip takes about three and a half minutes. The descent is made in a half minute by gravity.

An accident occurred on this aerial ferry on Sunday, February 18, by which one passenger was killed and two others slightly injured. The hauling cable broke just as the car reached the top of the incline, and struck the car with such force as to damage it somewhat, the car then starting rapidly down the grade until

it was stopped by the automatic brakes. When the car was brought to a standstill it was at a point about 200 feet above the water, and the eight passengers it



PLAN AND SIDE VIEW OF ANCHOR.

contained were rescued by being let down by ropes into a boat on the river.

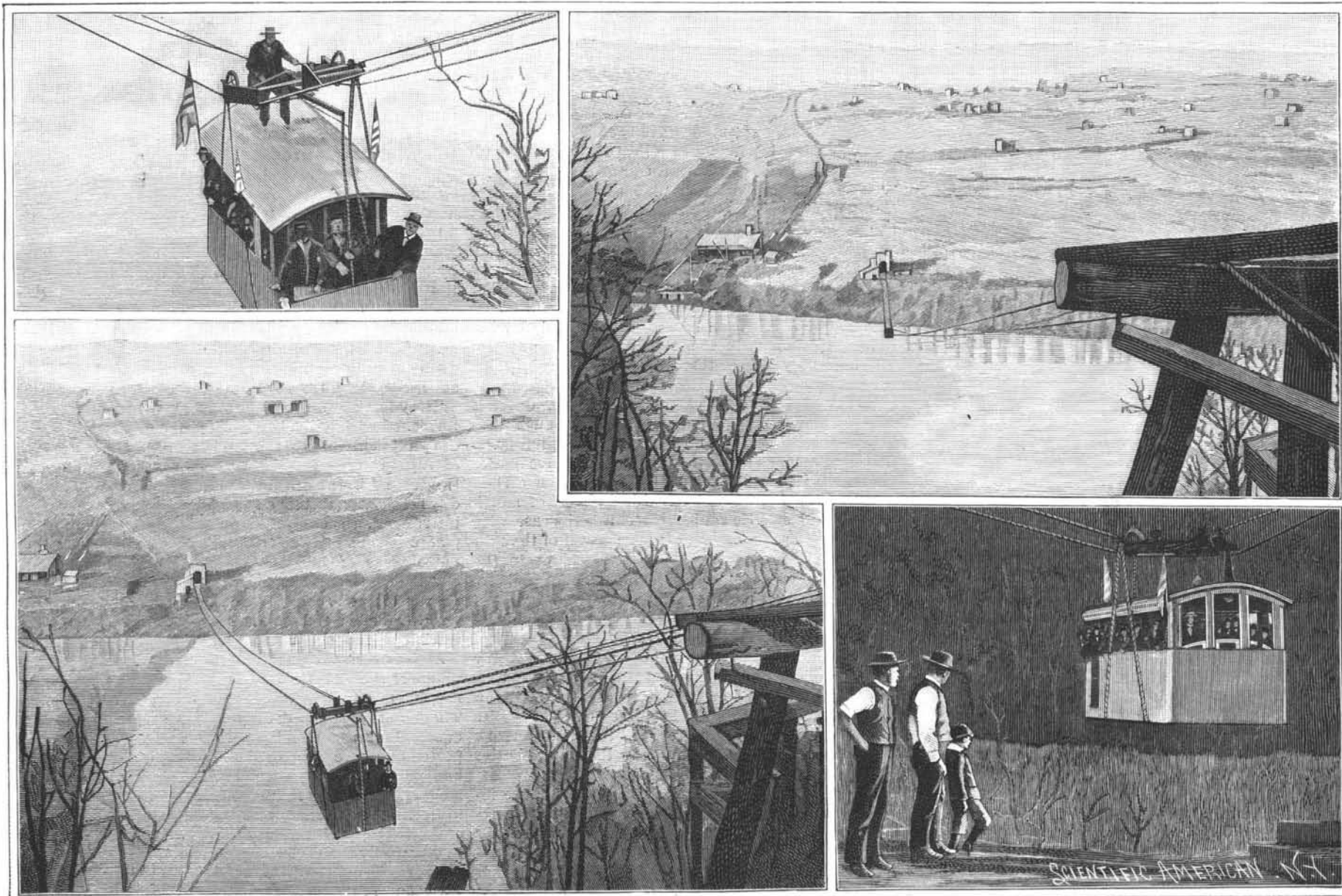
## Golden Relics in Mexico.

A discovery of great scientific interest has been made in excavations being carried on in the district of Tlaxiaco, State of Oaxaca. A number of small images, formed in metal, were uncovered by the workmen in one of the oldest ruins a few days ago. The images represent people of Oriental appearance and dress, as well as priests in their robes of sacrifice. They bear hiero-

glyphics of unknown characters and are elaborately wrought, with fine art lines shown in every curve. The images found thus far are of gold, either wholly or in part, and are coated with some unknown enamel, which has preserved them from all harm in the many years they have been buried in the soil. They will probably be shipped to the National Museum in the city of Mexico, where they will be placed at the disposal of the scientific world for further study and discussion. The find is the most important of the year in the domain of antiquities, and preparations are now being made to conduct a complete exploration of the Tlaxiaco ruins for further evidence of the ancient civilization which is known to have flourished in Southern Mexico. —N. Y. Times.

## Foreign Visitors at the World's Fair.

An examination of steamship statistics for 1893 shows that the Chicago Fair failed to attract to the United States any extraordinary number of foreign tourists. As a matter of fact, the number of cabin passengers landing at the port of New York last year was only 838 greater than the number who landed in 1892. It is known, however, that there was a falling off in the number of American tourists to Europe, and as fewer Americans went abroad, fewer returned, and the fact that there was an actual increase in the number of cabin passengers arriving from foreign ports is evidence that a larger number of foreigners landed than in former years. But this number was nothing like as much as was expected. The number of immigrants arriving in the United States in 1893 was 35,601 less than in 1892. There were more Italian immigrants than any other nationality. The Italians numbered 69,074, the Germans 55,981, and the Irish 30,236. Statistics as to the financial standing of the emigrants have been kept in detail only since July 1, 1893. Since then \$2,100,000 was brought into the country by the immigrants.



THE AERIAL CABLE RAILWAY, KNOXVILLE, TENN., 350 FEET HIGH.