

SCIENTIFIC AMERICAN

A WEEKLY JOURNAL OF PRACTICAL INFORMATION, ART, SCIENCE, MECHANICS, CHEMISTRY, AND MANUFACTURES.

Vol. XXXII.—No. 26.
(NEW SERIES.)

NEW YORK, JUNE 26, 1875.

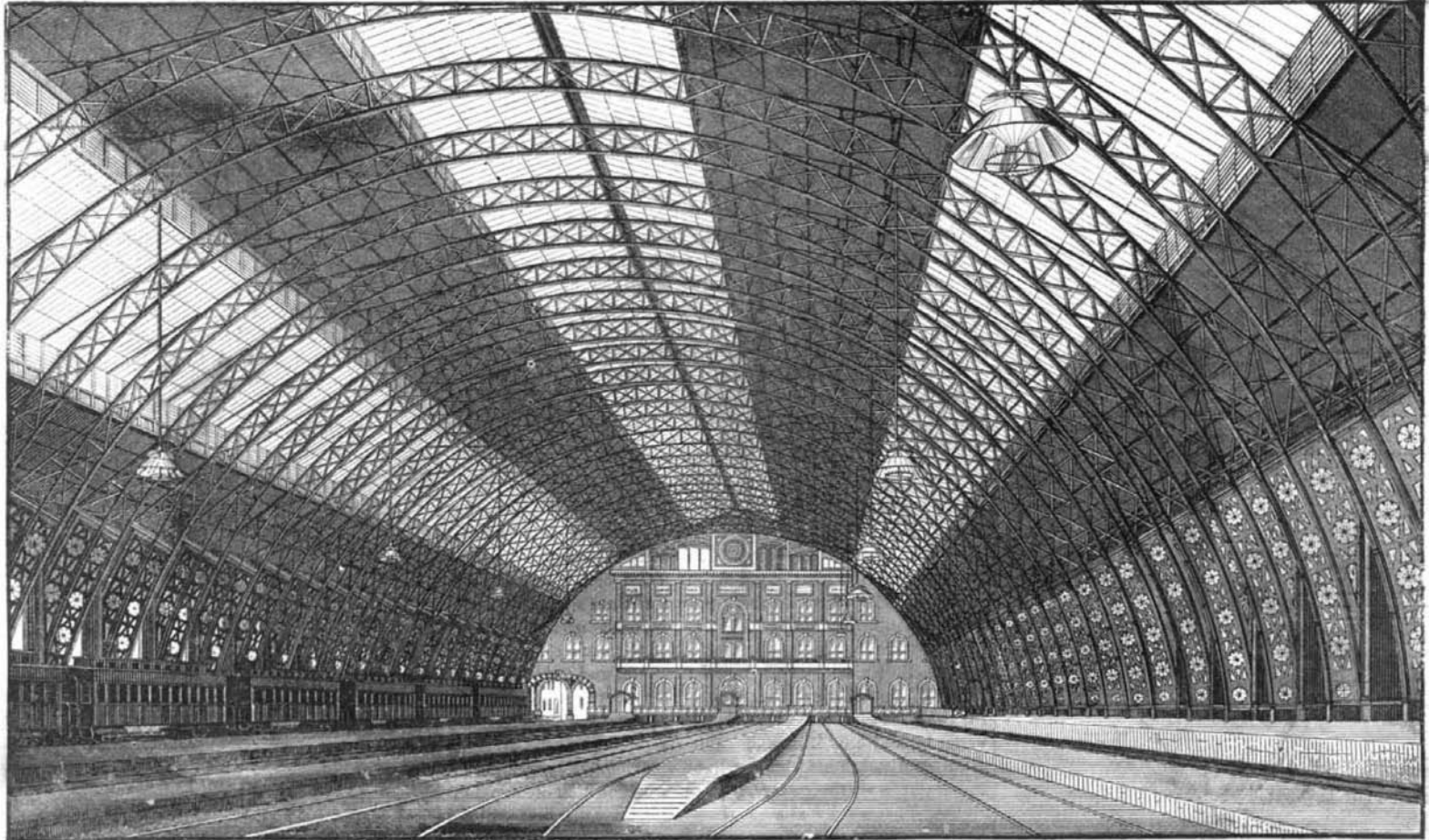
\$3.20 per Annum
Postage prepaid.

THE GRAND CENTRAL RAILWAY DEPOT.

We publish herewith an accurate engraving of the interior of the depot at 42d street, New York city, built for the ac-

ashes. The farmers have fled out of the ash-covered country sides with their cattle, in quest of pastures not yet destroyed by the scoria; but with what chance of saving their live-

planted in a richly manured soil and in warm, sheltered positions. In habit, the plant is more robust than of its congeners, if we except *s. augusta*, which frequently attains a



THE GRAND CENTRAL DEPOT, NEW YORK CITY.

commodation of the New York Central and Hudson River, New York and Harlem, and New York and New Haven Railways. As we have already fully described this remarkable structure, there is no need to do more than recapitulate its proportions, which are 652 feet in length and 199 feet 2 inches in width. The roof is supported on 32 semicircular trusses, which are spaced 20 feet 4 inches between centers, extending from a point 2 feet below the rails to an elevation of 94 feet from the springing line to the extrados of the arch. Each truss has at its foot two tie rods 2½ inches in diameter, with a turn buckle at the mid-length. The pitch of the roof is formed by rafters secured to the top chord of the arch.

The trusses weigh about forty tons each, and were raised in sections by means of a movable staging 80 feet high, 160 feet long, and 30 feet wide, moving on ways, and shifted along step by step as the work of raising the trusses progressed. About 8,000,000 lbs. of iron were used in the structure, 10,000,000 bricks, and 20,000 barrels of cement.

The car house is lighted through three skylights extending over the entire length of the roof—one on the center, double pitched, and a single one on each side of the center, and having altogether 80,000 square feet of glass—nearly two acres. The north end is closed by an iron front, the south end by the building containing the principal offices of the companies.

The roof covers nearly three acres, the station itself about four acres. The station has separate tracks for the trains of each company, besides those for the Fourth Avenue horse cars, which run into and to and from this station, which was opened for traffic October 7, 1871. The gas burners of the building are lighted at night by electricity, 25,000 feet of electric wire being used, and 20,000 feet of gas pipe. The 144 steam radiators are heated by 15 miles of steam pipe.

The roof is ventilated by six lines of ventilating slats, 6 feet high and 8 inches wide, with Z-shaped intervals between the slats.

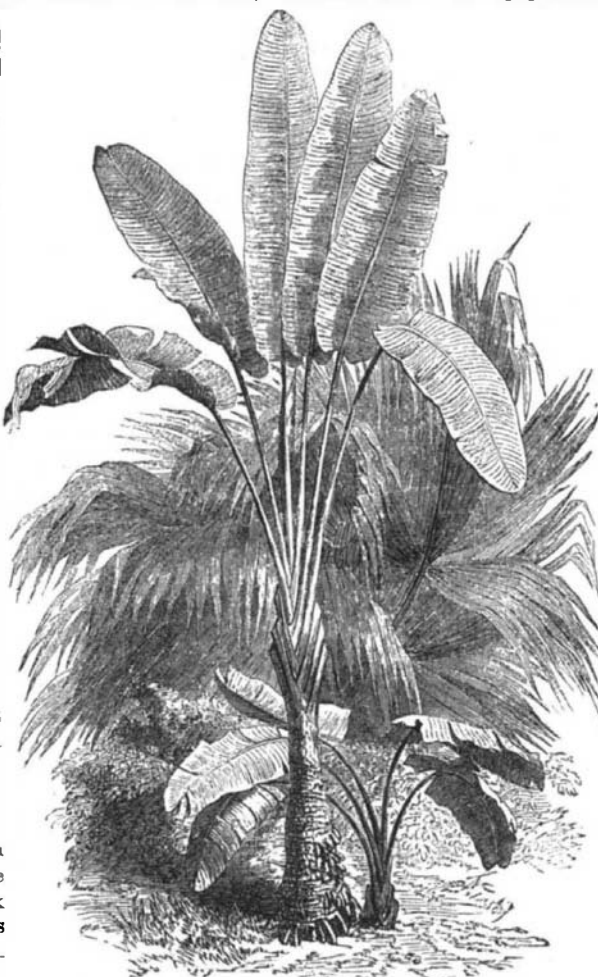
Great Volcanic Eruption in Iceland.

Mr. Magnusson, of Cambridge, England, says:—"On March 29th, the fall of the ashes was so excessive that it covered the eastern country sides, Jökuldal especially, with a coat six inches at its thickest; and all that day, although it was bright and sunny, the people spent in absolute pitch darkness. Fountains and rivulets were dammed by the ashes, and every mountain stream, always of a crystalline purity in Eastern Iceland, where there are neither glaciers nor moraine, ran dark and muddy between banks covered with drifts of

stock does not appear. To all appearance, the present eruption seems likely to become a calamitous event for Iceland."

A BEAUTIFUL PALM TREE.

The plant shown in our engraving is one of the most graceful members of the class, and deserves to become popular in



height of from 30 to 40 feet, treated as a warm conservatory plant. Both the last named plants are chiefly remarkable for their fine foliage; but some of the smaller growing kinds, as *s. ovata* and the even more beautiful *s. reginae*, are well known flowering plants, generally grown in a warm conservatory or in a humid plant stove. These species will, however, both grow and flower well in warm, sheltered positions out-of-doors, and form striking objects massed along with musas, palms, and the larger arads. Our illustration gives an excellent idea of the noble port assumed by a well grown specimen of *strelitzia Nicolai*, which is common as a half-hardy foliage plant in many continental gardens.

Railway Speed on Horseback.

A fifty mile riding match lately came off at San Francisco, Cal. between two noted riders, Mowrey and Smith. The *Alta* says: It was a contest, as advertised, for \$1,000 a side, with the conditions that each man should have ten horses, and be compelled to change horses, or mount and dismount, in each mile.

Both men were of a tallish, slender build, well adapted to long hours on horseback. Of the two, Mowrey exhibited greater strength and activity, and as an expert in the mode of mounting and dismounting is by far Smith's superior. An evidence of this was clearly perceptible in the fact that he gained on an average not less than two seconds at every change. His style was that of throwing himself from the saddle by a spring from his seat, and in mounting to spring from the ground, assisted by the horn of the saddle and catch his seat while the horse was frequently under full headway. Added to this, he was greatly assisted by having a helper on horseback, who invariably accompanied him on the start and outcome by checking and starting his horse, while Mowrey had only to jump on and off. On the other hand, Smith had little or no assistance, except the equipage of his saddle, which was brought into requisition in a manner that showed conclusively his appreciation of its desirable assistance.

Mowrey came in a quarter of a mile ahead in 2 hours, 2 minutes, 36½ seconds, Smith being 16 seconds behind. The quickest mile was made in 2.04 minutes, the slowest in 3.015 minutes.

A GOOD welding composition is made of borax fused with one sixteenth its weight of sal ammoniac, cooled, pulverized, and combined with an equal weight of quick lime. The compound is sprinkled on the red hot iron, and the latter re-placed in the fire.

our gardens and conservatories as a striking and decorative foliage plant. It is sufficiently hardy to withstand our climate during the summer months, and grows freely when