

## THE COLUMBIAN TOWER.

After much uncertainty and discussion, it has been definitely decided, so says *Engineering*, that a high tower shall form one of the conspicuous attractions of the exhibition at Chicago in 1893. We do not understand that this work is any portion of the official plan; but that, on the contrary, it is made the subject of a concession to the capitalists who provide the necessary funds and expect to gain a large return. We think it a matter of regret that an exhibition so original in all its general features should be marred by the adaptation of an idea—though absolutely novel and successful at Paris in 1889

—from another exhibition. But this is a matter of opinion, and it is eminently satisfactory to note that the Columbian tower has been designed by so eminent an engineer as Mr. George S. Morison, of New York and Chicago. It is stated that the capital will be furnished by Mr. Carnegie. We are without details at present of this interesting work, but we publish a perspective view of the general design. The tower will be higher than that of Eiffel by more than 150 feet, and, as will be seen from the illustration, Mr. Morison has been no slavish imitator of Eiffel's beautiful structure. There is not much time to complete the work, and no doubt many difficulties will be met with both as regards foundations and the rigorous winter seasons, but we may feel confident that American skill and energy will carry through the work to a successful conclusion by the spring of 1893. Indeed, we are informed that Mr. Carnegie asserts the work will be completed in six months after it is commenced. The weight of steel is 6,000 tons.

## Vanilla.

Mr. Horace G. Knowles, United States consul at Bordeaux, reports that Paris, London, and New York are the markets of the world for vanilla; after these Bordeaux occupies an important place. Great quantities

of the bean are used in France. It is employed for making confectionery, pastry, ices, liqueurs, and cordials, and enters into the manufacture of perfumery.

Vanilla is of Mexican origin, though found in almost every tropical country. It is a vigorous vine of the orchid species, about 20 to 30 feet in height, with heavy oblongated, sea green foliage. It thrives in dense forests, where its branches entwine and interlace themselves with neighboring trees. The stem is four-cornered, or quadrangular, the flowers large, fragrant and spike-like. It yields to cultivation.

The greater portion imported into France comes from her colonies—Gaudeloupe, Madagascar (Sainte Marie), Mayotte, the island of Reunion, and Tahiti.

Reunion furnishes 500,000 pounds yearly—the others about 50,000 pounds.

The vanilla tree begins to yield in its third year and yields from thence to its thirtieth. The season commences in the month of April and lasts until the middle of June. The beans are gathered in their green state.

There are two existing methods of curing vanilla. In the first of these the beans are laid in quantities on great cloths spread upon the ground and exposed to the sun for a period of two months or until they have attained a dark brown color. They are then bunched

in is a soft black pulp. Certain Spanish words are used to distinguish the qualities, as *primeira*, first, 10 inches in length; *chica-prima*, second; *sacate*, third; and *basura*, fourth. The quality of the bean is afterward further enhanced by the exudation of a certain needle-like crystal or efflorescence which covers the surface of the fruit, and called in French *vanille givrée* (frosted vanilla). The crystals are found to be almost pure benzoic acid.

## Progress of Iron and Steel and Tin in California.

The steel works plant at Roseville, a suburb of San Diego, will be in operation soon. Iron will be shipped by water to the works from the Tepustete mine, at San Ysidro, Lower California, fifty miles south of Ensenada. The vein averages 125 feet in width, and has been traced on the surface for a distance of over 2,000 feet. Dr. Eames says at least 85,000 tons of metallic iron ore is in sight, which averages 68 per cent of iron.

The Los Angeles *Times* claims that within 175 miles of Los Angeles there exists the finest body of Bessemer iron ore, both in extent and quality, in the United States. This ore body is tributary to Los Angeles, lying as it does near the line of the Atlantic and Pacific Railroad, in the vicinity of Newberry, the first station east of Daggett.

It is the property of the California Iron, Steel and Tinplate Company, who have now a corps of engineers on the ground making surveys of their holdings, and also a line for a narrow gauge railroad from the mines to Newberry, and also have a number of men employed developing the mines.

The ore body is a solid mass of Bessemer, without a rock or break, 400 feet in width, of more than 3,000 feet in length, and of apparent great depth—300 feet of which is already exposed.

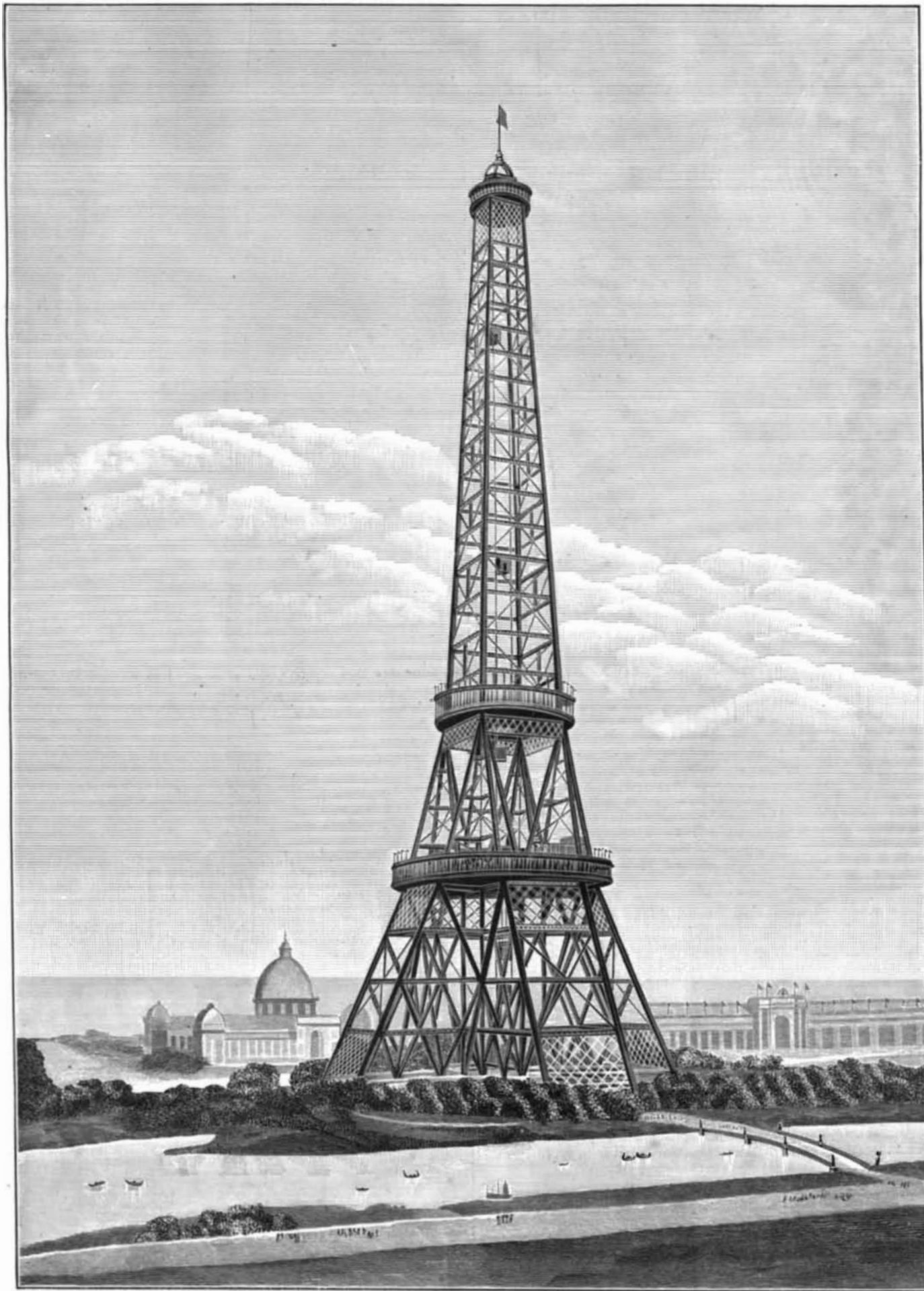
Two new veins of rich ore have been pierced in the mining operations

of the Temescal tin mines, near South Riverside. The new concentrators and ore breakers are in full working order.

The Temescal Company is now putting out from three to four tons of block or pig tin per day.

## A Drug Explosion.

A student of pharmacy in Hesse was called upon to put up a prescription containing a 20 per cent solution of chromic acid, salicylic acid, and water. He put the crystals of chromic acid directly into the alcohol, whereupon an explosion took place, and the unfortunate student was severely burned in the eyes.



THE PROPOSED COLUMBIAN TOWER, CHICAGO.

in bundles of fifty and packed in tin boxes for exportation. The second method consists of attaching together by their inferior extremities a number of the beans and immersing them in a vessel of boiling water until they become white. They are then exposed for a few hours only to the sun, after which they are covered with a native fixed oil, usually that of the cashew nut.

There are four qualities of vanilla, and these are determined by the length and size of the bean, it being found that the flavor and perfume are in direct ratio to the weight and measurement. In appearance the beans are slender and cylindrical, averaging about 5 or 6 inches in length and half an inch in thickness. With-