Spangled Banner," and the Chicago's guns and the guns at Governor's Island boomed forth a roaring salute.

One of our illustrations shows the appearance of part of the fleet of boats at the moment of opening their whistles, on the raising of the flag at the stern of the great steamer.

As part of the change of registry, the present ships drop the words "City of," and will hereafter be known as New York and Paris. The New York left New York on Saturday, February 25, on her initial trip to Southampton, and there again a big demonstration awaits her, as the whole town of Southampton is very much exercised over the prospect of having that port made the terminal of a modern transatlantic passenger steamship service. Heretofore these ships have plied between New York and Liverpool. But hereafter Southampton will claim them.

The abandonment of Liverpool for Southampton is calculated to save time and promote convenience, for vessels can go in and out at that port at any tide, and the ride from Southampton to London is only one and three-fourths hours. Special trains will run from all boats. Boats will leave Southampton weekly—at noon every Saturday—for the season.

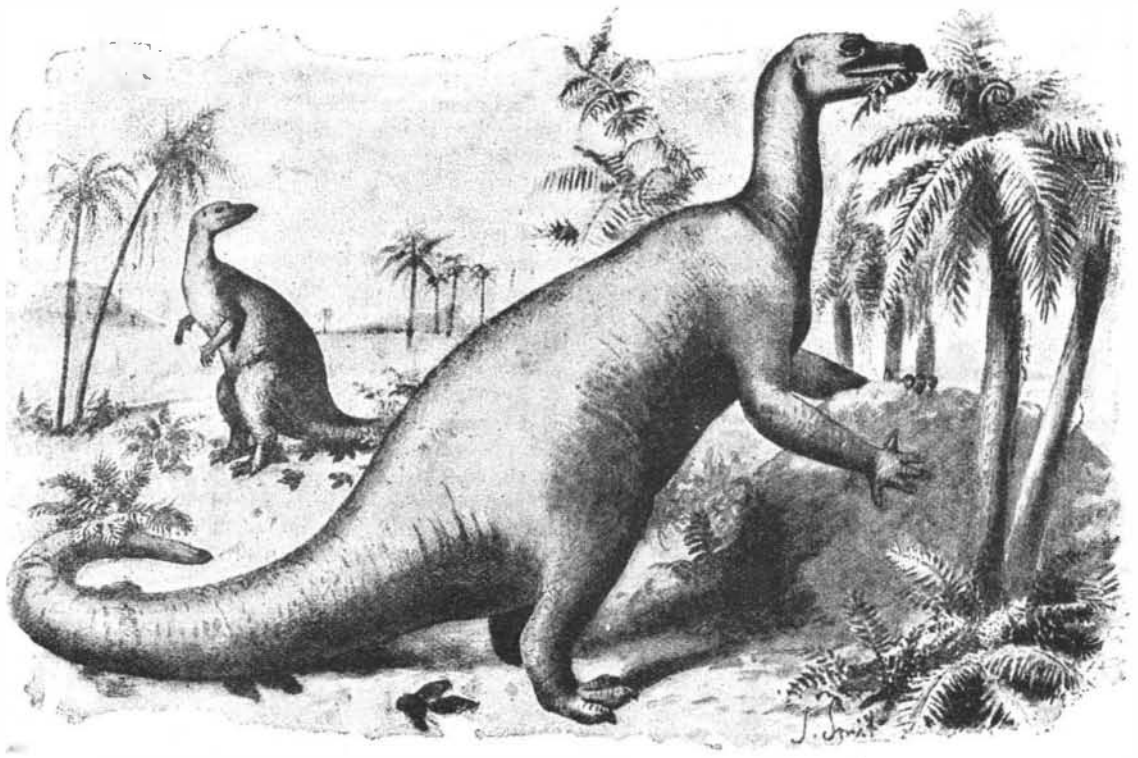
The New York will make her first trip to Southampton under an American captain, John C. Jamison.

Under the new law granting subsidies or bounties the new vessels must be built with a view to employment in naval service in the event of war. The New York and Paris have been so built.

The Navy Department has just designed a powerful battery for the New York. The battery will consist of twelve 6-inch breech-loading rifles, placed, one on each bow and quarter, and four on each broadside. In addition, there will be a secondary battery consisting of twenty six-pounder rapid fire guns placed on the main and hurricane decks, and eight one-pounder rapid fire guns mounted in tops. Each of the two masts of the ship will be given double tops. Each top will contain two one-pounder guns.

The New York is 527 feet long and 63 feet beam. The horse power of her engines is 18,400 and her tonnage is about 10,500. Her trial speed was 20·13 knots. She has two sets of cylinders and a stroke of 60 inches, and her working pressure is 180 pounds.

Under the old names the New York and Paris made great records as ocean fliers. The New York holds the record for the fastest eastern trip, 5 days, 19 hours, and 57 minutes, while the Paris lowered the colors of competitors on a western trip in 5 days, 14 hours, and 24 minutes. Both ships were the first to adopt the twin screw for ocean travel. The ship has a regular crew of 59 men and boys in the sailing department, and 198 men in charge of the engineer, Mr. John Wall.



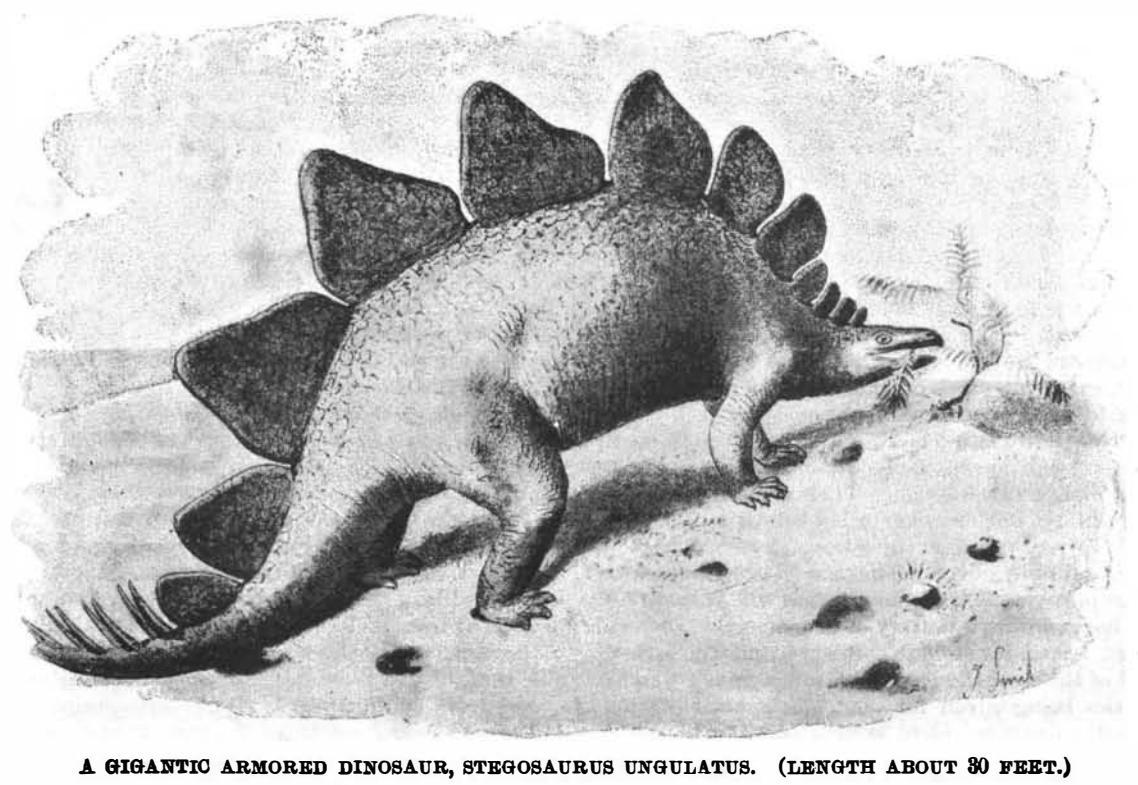
A GIGANTIC DINOSAUR, IGUANODON BERNISSARTENSIS. (LENGTH ABOUT 30 FEET.)

## EXTINCT MONSTERS.

Cuvier it was whose fine imaginative reasons invented the great science of comparative anatomy and palæontology. His vast and splendid knowledge of existing beasts and birds enabled him to reconstruct from a fossil skull or a vertebra, sometimes from nothing but a single tooth, the long-extinct creature in its true semblance as it had lived—to clothe it with flesh and skin, and show it in imagination, in the haunts in which it lived and moved. This, which Baron Cuvier did in graphic description of great scientific and literary beauty, Mr. Hutchinson, in his work on Extinct Monsters, published by Messrs. Chapman & Hall, has now done popularly. Baron Cuvier showed how our planet was once inhabited by reptiles of enormous size and hideous aspect—the Dinosaurs.

The crocodiles and alligators are the degenerate descendants of these terrible primeval lizards—that in size and in their ungainly shapes were more like the dragons of our tales and legends than any beast that at present roams the earth.

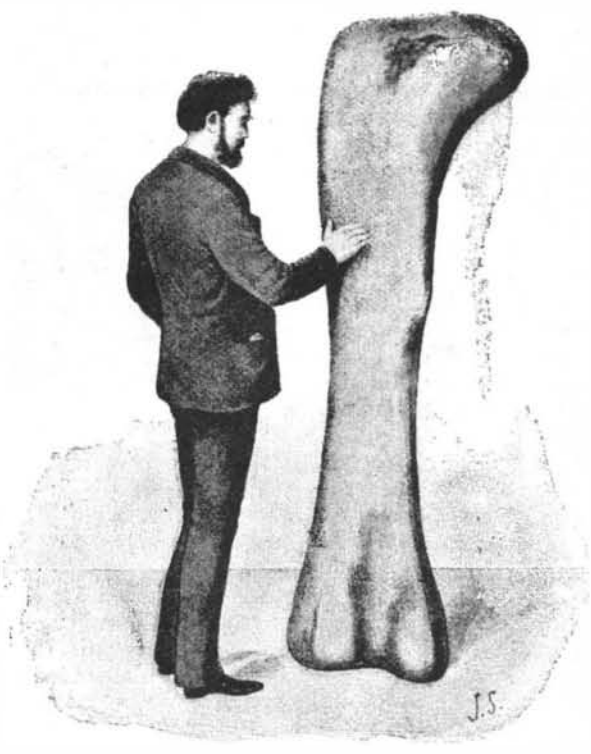
It is now established by science that, during the Mesozoic period of the world's history, evolution had proceeded so far as the development of life into the form of these strange reptiles. This was the "Age of Reptiles," but of such reptiles as the earth has not since held upon its surface. As yet mammalian quadrupeds did not exist. The horse, the ox, the elephant, the lion, the deer, and the thousand genera of four-footed mammalian beasts which tenant the earth to-day had not been created or evolved. The seas, the estuaries, the marsh, the forest, and the plain were lorded over by the Dinosaurs—reptiles indeed in a scientific point of view, but that mimicked in their structure and habits the nature of the mammalian quadrupeds of to-day. Of some of the Dinosaurs the bodies and limbs were as massive as those of our elephants and rhinoceroses. They were four-footed, but many of them walked the earth erect on their hind feet. Some were horned creatures of terrible aspect, feeding on vegetable food, while others were carnivorous animals with formidable teeth and claws. Most of the flesh-eating and many of the graminivorous Dinosaurs were kangaroo-moving creatures, with powerful hind quarters and the faculty of leaping as a kangaroo or jerboa leaps. In the case of the vegetable-feeding Dinosaurs it is conjectured that the creature was enabled to stand upon its hinder legs and feed on the branches of trees—as is here shown in the case of the gigantic Dinosaur known as *Iguanodon Bernissartensis*. The most terrible looking of these ancient monsters are by no means the carnivorous ones, as, for instance, the awful horned Dinosaur represented here, with helmeted head and skin studded with spiked armor bosses. These formidable means of offense and defense belong to a purely vegetable feeder, and the strength of the osseous skeleton, betokening a strong and active body, is a measure of the stress and struggle for existence during the reptile age. *Triceratops Prorsus*, though larger than the largest rhinoceros, was evidently armed and equipped against the attacks of the still larger, ferocious carnivorous Dinosaurian reptiles, of Atlantosaurus, for instance, of whom we know little but that his thigh bone measures 6 feet 2 inches in height, that his length could not have been less than 80 feet, and that if he traveled on his hind legs, as he probably did, he must have been tall enough to look in at the third story windows of a London house.—*Black and White.*



A GIGANTIC ARMORED DINOSAUR, STEGOSAURUS UNGULATUS. (LENGTH ABOUT 30 FEET.)

### Sodium Peroxide.

This compound has been brought into commerce for use as a bleaching agent. It has the appearance of a yellowish, pulverulent, or partially aggregated mass, very readily soluble in water and hygroscopic. In contact with water, heat is evolved and oxygen disengaged, which excites coughing. Dilute acids give rise to the formation of hydrogen peroxide, but its decomposition must be prevented by cooling the liquid. Sodium peroxide may be handled without danger, but some caution is necessary in bringing it into contact with organic substances. It may be heated with dry aniline or benzine without risk; but when water is added to the mixture with benzine, it takes fire, with a kind of explosion. As compared with 1·5 per cent hydrogen peroxide (= 12 per cent by volume), sodium peroxide contains 20 per cent of active oxygen, and it has the advantage, as a solid material, of being more convenient for transport. It is also more capable of being kept, without alteration, than hydrogen peroxide. For convenience in use it is mixed with magnesium salts, and a material of this nature is made under the name of "oxygen powder." In using it or sodium peroxide care must always be taken to mix it with water in very small portions at a time and to prevent rise of temperature.—*Pharm. Centralb.*



THIGH BONE OF THE LARGEST OF THE DINOSAURS, ATLANTOSAURUS, FROM A CAST IN THE NATURAL HISTORY MUSEUM. (LENGTH, 6 FEET 2 INCHES.)

### The Proper Piping of Dwellings.

There have been no greater advances in any department of building construction, and the conveniences attending all modern-built houses, than is shown in the matter of plumbing.

Our contemporary the *Mechanical News* has an article on the placement of water and waste pipes, and, while it may not convey anything new to our city plumbers, we are sure the information will be found useful to a great number of our readers, and especially to those residing in remote places and who are about to build.

The leakage of water pipes behind decorated walls and in fine ceilings is a sufficient argument against casing or covering service pipes. The repairs are generally costly in themselves, and they entail the additional services of the carpenter and decorator, as well as those of the plumber. Pipes in casings, or set in walls or partitions as they pass from floor to floor, provide especially inviting runways for mice, rats, and vermin of all kinds. Nests are built in these places; scraps of paper, rags, and food are carried into them, and they become filthy. It is only necessary to remove a covering board from almost any casing to prove this point in a most convincing manner. Even those in comparatively new buildings will be found surprisingly foul.

These casings or wall pockets, as the case may be, serve another and usually unexpected purpose. They act as ventilators and distribute odors from the kitchen and cellar to all parts of the building. In the performance of this duty they are faithful and impartial. The hollow walls and floors, which are nearly universal in the American system of construction, greatly assist in this work. Many of the fine French flats which were first erected in the city of New York are now rented with difficulty, owing to the odors which pervade them. When they are shut up for a short time they are almost unbearable. Rents have of necessity been reduced to one-third the original figure from this reason alone. The fault is usually found in the careless and ignorant arrangement of pipes and their cases. The odors from the kitchens are carried everywhere. Stale odors from closets and from food from kitchens and garbage boxes are mingled and distributed with perfect fairness to all the occupants. The large air shafts, usually held responsible for this state of things, have very little to do with it. The casings, open at the ceilings of each kitchen, communicate with all the floors and wall spaces and usually take their supply of odors from a point very near the range. All of them are directly connected with the cellar, and usually start in some way from the janitor's kitchen.

Numberless complaints, coming from new flats, of sewer gas are finally traced to the odors of cabbage, turnips, ham, onions, etc., which have come from the janitor's kitchen. In many buildings this kitchen is directly under the parlor of the first floor apartment and is separated from it by one thickness of boards and an inch of plastering. That there should be foul smells on the first floor is not to be wondered at. Tests of the plumbing in these cases are made and its protection proved.

There is nothing to be said upon the otherside of the question.

There are no good reasons for putting pipes out of sight. When people say, in the face of these facts, that they cannot bear the suggestiveness of having the pipes where they are visible, they make an acknowledgment that they prefer hidden filth, danger to life, health and property to a right construction. Life and health cannot induce them to accept and frankly tolerate their plumbing work.

Pipes carried openly through a building are not dangerous, because their condition can be constantly observed. If accidents occur, the point at which the break takes place can be reached at once and repairs easily made. The quality of the work gains materially, because the plumber takes pride in putting up the work which is to be exposed.

Exposed pipes may be made to pass through floors without leaving an opening. The floors around the pipe can be made perfectly tight, and the passage of odors cut off completely—at least as perfectly as the nature of the plaster will permit. This is an enormous gain, while the runways for rats and mice, roaches and waterbugs are entirely done away with. These vermin can then be exterminated. This is practically an impossibility in houses where casings protect them and afford perfect breeding places. Cut off from free passage to all parts of the house, they prefer more congenial quarters, where rapid transit and fields for colonization are provided.

As decorative features of the rooms, cast pipes at least are often treated in a beautiful way. The body of the pipe is colored a very dark bluish-gray, scarcely removed from black. The bands are silver or nickel bronzed, or have silver or nickel leaf applied to them. Occasionally the whole pipe is finished with two or three shades of bronze. Lead and wrought iron pipe receive somewhat similar treatment. The lead is often polished and varnished. There is, however, no difficulty in making the decoration of the pipes strikingly effective.

It is satisfactory to know that architects and builders are beginning to break away from the old custom and expose their pipes wherever the prejudices of the owner can be overcome. Some of the best men in the profession are treating the plumbing work in a manner to show constructively its importance and value. The result is a great gain to owner and occupant.

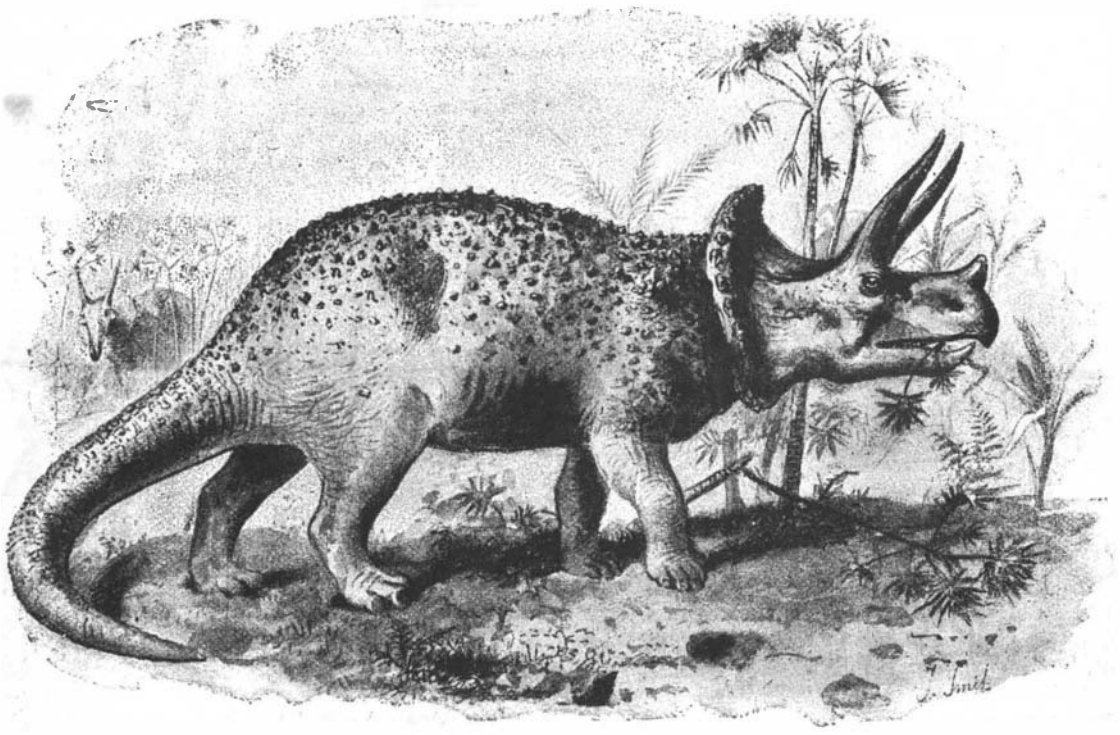
### Progress of Lake Steam Navigation.

There is now a fleet of several handsome, high-speed side-wheel passenger steamers in the regular trade on Lakes Erie and Huron, says the *Marine Record*, and two others now under construction by the Detroit Dry Dock Company are expected to eclipse any of this type heretofore built.

The whaleback steamer designed for the transportation of passengers at the World's Fair, during the season of 1893, and recently launched from the yards of the American Steel Barge Company, West Superior, Wis., stands without a peer in the world; though her complete efficiency for passenger service remains to be tested, yet private passengers who have sailed on the whaleback type now afloat commend their easy motion and sea-going qualities, and in addition to these excellent features, the Christopher Columbus, as the new whaleback has been named, is to be fitted up in the most sumptuous manner ever devised; several unique departures in the outfit of high-class passenger boats will enter into her equipment, solely for the delectation of excursionists traveling on a or the "whaleback" model.

The handsome twin screw steel steamer Virginia, bult for the Lake Michigan passenger service of the Goodrich Line, is the largest and most efficient twin screw passenger boat now on the lakes. Her dimensions are 277 feet in length, 38 feet beam and 25 feet depth of hold; capacity 2,500 tons, and given 5,000 horse power to average 20 miles an hour speed.

The most modern type of exclusively passenger steamers for the lake trade are those now under construction at the yards of the Globe Iron Works Company, to the order of J. J. Hill, president of the Great Northern Railway. The contract price for these two steamers, which are to be ready for service for the season of 1894, is $550,000 each. Their general hull dimensions will be 380 feet over all (a length never yet attained by any vessel on the lakes), 360 feet keel, 44 feet beam, and 34 feet deep. They are to be equipped with quadruple expansion engines, which will develop fully 7,000 horse power, a battery of twenty-eight Belleville boilers, tested for a high pressure, and the average speed of the steamers is to be 20 miles an hour, special facilities being given for controlling their draught through a most complete system of water ballasting. It is a matter of congratulation that the entire construction and equipment of these splendid steamers will be of distinctively American manufacture throughout.



A GIGANTIC HORNED DINOSAUR, TRICERATOPS PRORSUS. (LENGTH ABOUT 25 FEET.)

### THE GREAT EXPOSITION—DOORWAYS TO THE TRANSPORTATION BUILDING AND THE WOMAN'S BUILDING.

In general, the entrances to the more important buildings at the World's Columbian Exposition form part of a harmonious whole. They appear ample, and do not belittle, neither do they seem to be too pretentious.

The only exception to this general rule is the magnificent main entrance to the Transportation Building, which is a rare conception in detail and in effect. Probably no staff work at the exposition has attracted the attention that this entrance has.

This entrance, usually called the "Golden Doorway," is 100 feet wide and 70 feet high. It consists of a series of seven concentric arches. The first arch has a radius of nine feet, while the largest has a radius of thirty-eight feet, with a total height of fifty-two feet. In the semicircle space of the inmost arch, but not shown distinctly in the illustration, the words "Transportation Building" stand out in bold letters. Above is a semicircular allegorical relief representing the Genius of Transportation. Various figures typify the earth, the air, the water, sunlight, electricity, and animal power controlled and directed by human intelligence. On the spandrels of the arched doorway will be mural paintings, one showing a full-rigged vessel with all sail set and plunging through the sea, and the other a train of cars and locomotive running at full speed.

At the base on each side is a large relief twenty-three feet long by six feet deep. These typify scenes beginning with the stone age and ending with the time of the Pharaohs. Within the recess of the arch are two smaller panels, one on each side, and each fourteen by six feet. On these also in bold relief are represented the earliest types of carts drawn by oxen, and also modern transportation facilities, the interior of a sumptuous palace-car, and the gang plank of an ocean steamship. The faces of the arches themselves not covered with these reliefs are ornamented with medallions, arabesques, and foliated designs.

Above the arched entrances, with an overhang of ten feet, is a terrace, the surfaces of which are also elaborately ornamented. This balcony breaks the rigid effect of the entrances. Elevators within the building will carry passengers to the top of this balcony, where there will be a restaurant capable of seating between four hundred and five hundred people. The view from this is very commanding, taking in the whole of the lagoon, all the buildings from the Art Gallery on the north to the Agricultural Building and Palace of Mechanic Arts on the south, while there is a full sweep of Lake Michigan over the vast expanse of roof of the Manufactures and Liberal Arts Building. Startling effects in color will be produced on the Transportation Building, and it will be the only instance of polychrome decorating at the fair. The Golden Doorway will be covered with leaf aluminum, and this in turn will be varnished with transparent varnish, of a strong golden hue, producing a very close imitation of gold leaf effect. The whole building and particularly this entrance has been harshly criticised because of the present strong red color. The fact is, this is only a priming color. When the coloring is completed the building will be very light in effect, while strong effect will be given much of the relief work of the entrance by working color into the interstices.

The main entrance to the Woman's Building is modest, but in good keeping with the general style of the building, which is Italian renaissance. In coloring the effect will approximate ivory white. There is little or no attempt at ornamentation, except in the one relief which typifies woman in history.

The entrance of the Manufactures and Liberal Arts Building illustrated is the west entrance, and is very prominent from its location opposite the main lagoon at the south end of the wooded island. This entrance, like that of the Woman's Building, will be approximately ivory white in effect. It has an imposing effect, and breaks the monotony of the vast expanse of building and roof that extend north and south from it The