

resemblance. The pelicans undoubtedly use the Anacapa rookery as a nesting place, spreading from here up and down the coast to visit the various feeding grounds.

The great arch at Anacapa is of itself a notable object and well worthy a visit, being of large size and presenting a grand and picturesque appearance from either side. It well illustrates the method of disintegration which is going on in these islands, which are all honeycombed in a most remarkable manner, presenting a series of marine caves which for size and interest have no counterpart in this country.

The east point of Anacapa, or the pelican rookery, originally had four arches where there is now one. These gradually were won away until the top fell in, divorcing the section from the island, but preserving the mesa line or angle exact.

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**THE ASTORIA HOTEL,  
NEW YORK CITY.**

With the completion of the new Astoria hotel, which adjoins and will be incorporated with the famous Waldorf hotel, this city can boast of possessing the largest and most

sumptuous structure of its kind in either hemisphere. The Waldorf-Astoria, as the combined establishments will be called, covers a block of ground bounded by Thirty-third and Thirty-fourth Streets and Fifth Avenue, the present entrance of the Waldorf being on the former street, and the future main entrance of the combined hotel being in the center of the grand façade on Thirty-fourth Street.

In its architectural features and general scheme of decoration the Astoria follows the lines of the Waldorf; but in its magnitude and in the engineering problems involved in its construction it far surpasses the older structure. The external treatment follows the school of the German Renaissance, which style also characterizes much of the interior, though most of the larger and more elaborate rooms are designed in the style of the Italian and French Renaissance.

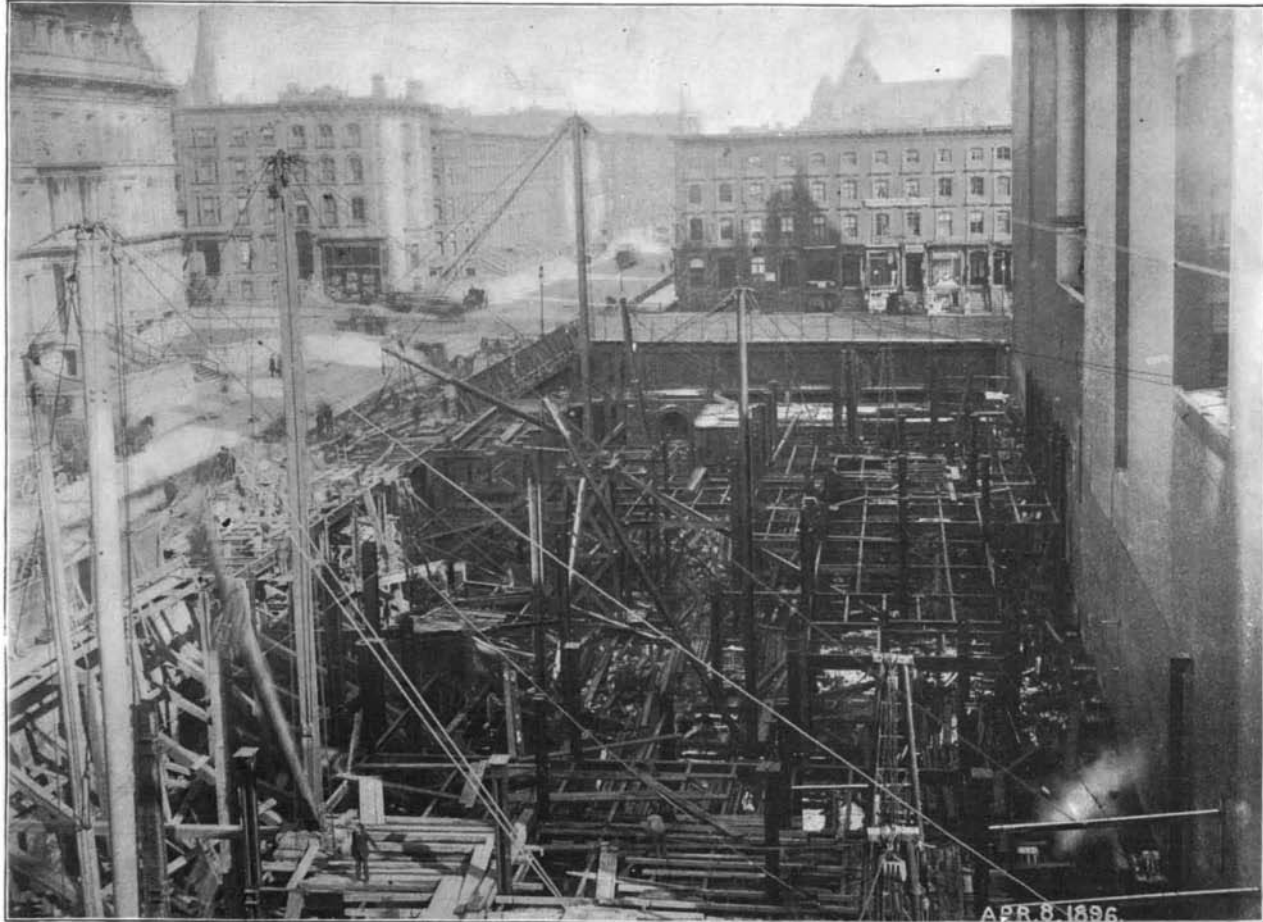
The exterior view of the combined building, with its vast frontage of red sandstone extending for 200 feet on Fifth Avenue and 335 feet on Thirty-fourth Street, would be imposing for the frontage alone; but when the eye follows through its sixteen stories to the roof line 250 feet above the curb the effect is truly majestic. No such façade was ever planned, certainly none such was ever built, either in ancient, medieval, or modern times.

The foundations were in every case carried down to solid rock, the surface of which was found at depths varying from 3 feet to 65 feet below the street level. As none of the foundations were less than 35 feet below the street level, a vast amount of rock excavation was necessary, and where the rock was found below the 35-foot line, the surface was leveled and concrete piers

were carried up. Upon the rock or the concrete piers brick piers were built up and capped with granite, and upon these were placed the footings for the columns. It is not necessary to enter into the general structural features of the buildings, as they are of the standard type common to tall buildings of composite steel and masonry construction. There are some novel engineer-

weight of the transverse walls above the ceiling three heavy steel trusses were thrown across from wall to wall. Each truss is 26 feet 8 inches deep and 51 feet 7 inches long, and it is built into the wall which it carries.

Another and even more remarkable structural feat was carried out above the great ballroom, which is situated at the western end of the building. The room measures 85 feet by 96 feet and extends in height through three stories. The two great trusses, of which we give illustrations, had to be made heavy enough to carry the concentrated load of the walls overhead, and as these walls extended through twelve stories, the loads to be provided for were unusually heavy. Each truss measures 84 feet 9 inches between the end piers of the bottom chord and is 51 feet 3 inches deep, the top chord being at the level of, and built into, the fourth floor above the ballroom ceiling. The lower chord consists of four rows of massive eyebars  $2\frac{1}{8}$  inches thick by 12 inches deep, with 10 inch pins, the pins at the end posts being 12 inches diameter. The lower half of the end posts is extremely heavy, being made



WORK IN SUB-BASEMENT OF THE ASTORIA HOTEL.

ing features, however, which were necessitated by the great size and unobstructed view demanded for certain of the rooms, that call for special mention. The problem was to provide such rooms on the lower floors of the building and yet make provision for carrying the walls of the dozen or fourteen stories above them. The plan adopted was to erect massive steel trusses above the ceiling and incorporate them in the walls which they carried. There are two notable cases in which this has been done. The first occurs above the dining room, which is located on the ground floor on the Fifth Avenue front, and connects with the dining room of the Waldorf. The two rooms will be practi-

cally thrown into one, making a vast hall 50 feet wide by 200 feet long. There is a row of columns down each side of the room, the columns standing 6 feet out from the walls. The remaining 38 feet of width is entirely unobstructed by columns, and to carry the great

up of  $10\frac{3}{4}$  by  $20\frac{1}{2}$  inch webplates, two  $\frac{1}{2}$  inch by 36 inch cover plates and 12 angles  $\frac{1}{2}$  inch by 4 inches by 6 inches. The two trusses are placed 14 feet 9 inches apart and they are connected by diagonal sway bracing. When it is borne in mind that the whole of this trusswork had to be so placed that it would lie within the plane of the walls, and its various members so disposed that they would not interfere with the various corridors and halls of the upper rooms, the work reflects great credit upon the architect, Mr. H. J. Hardenberg, and the engineers, Messrs. Purdy and Henderson. Before leaving the structural features we draw attention to the photograph showing the massive girder, 7 feet deep, which carries the western end of the big trusses above mentioned. The line of the columns changes at the fourth floor, those above this level not coinciding with the columns beneath. In order to transfer the column loads a line of massive girders was introduced which varies in depth from  $4\frac{1}{2}$  feet to 7 feet. The ends of the two big trusses rest upon this girder, which receives one-half of their load. The massive column seen below the girder takes the greater part of this transferred load and is the heaviest in the whole building. The lower section of it carries a load of 5,400,000 pounds, and its weight for 30 feet of its length is 46,980 pounds. There are over 1,600 tons of plate girders in the building, and the total amount of steel work is over 10,000



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"MUSIC"—BALLROOM CEILING BY E. H. BLASHFIELD.

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tons. We are informed that this represents only one-tenth of the cost of the building,—a remarkably low figure when we bear in mind the unusual problems involved in the construction.

It has been the aim of the designers of the Astoria to

make it something more than the conventional hotel. The manager, Mr. George C. Boldt, who has contributed so largely to the success of the Waldorf, has embodied his ideas in the arrangements, many of them entirely novel, of the new building. He believes that when a guest once enters the hotel he should be able to find within its walls every pleasure and convenience of metropolitan life. Hence the Astoria contains a grand ballroom, a theater, a banqueting hall, a full suite of rooms for wedding celebrations, lecture rooms, clubrooms, and even a hall furnished specially for meetings of secret societies; and upon the roof is a literal German spa where all the best known mineral waters of the world can be obtained, and where the guests can look down upon the city from a promenade which is 90 feet wide, over 200 feet in length, and 250 feet above the street level.

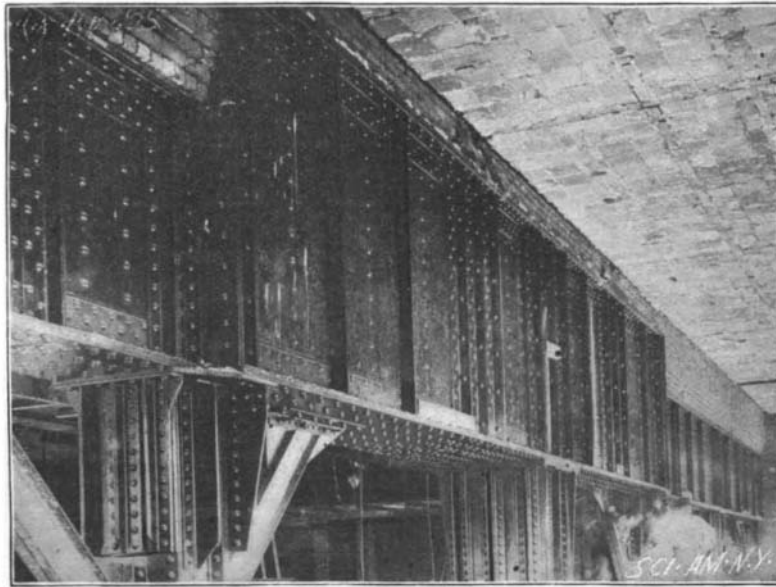
The main entrance to the Astoria is by a semicircular driveway on the Thirty-fourth Street side. The entrance porch is carried on a series of handsome red sandstone columns, the floor is of asphalt and the panels of the ceiling overhead are filled in with green tiling. To the east of the driveway is the ladies' reception room, which measures 50 by 50 feet, and is finished in Sienna marble, with Pompeian red as the principal color in the decorations. To the east of this is the main dining room, already referred to. This splendid hall is 50 feet wide by 22 feet high and extends for 92 feet along the Fifth Avenue end of the building. The decoration is in the style of the Italian Renaissance, and the row of columns of the marble "of the midnight sun" on each side of the room, together with the richly carved pilasters, produce a very imposing and dignified effect.

The walls are paneled in rose Pompadour silk and are enriched with paintings by C. Y. Turner, who painted the well known "Triumph of Manhattan." Two of the figures are shown on our front page engraving. It is the intention, ultimately, to remove the partition between this room and the dining room of the Waldorf, which adjoins it, and when this is done the guests will have an unobstructed view throughout the whole length of 200 feet from Thirty-third Street to Thirty-fourth Street. Passing from the dining room by the main corridor, one enters the "Garden Court of Palms." This is similar to the well known palm garden in the Waldorf, but has considerably more height, as it rises through three stories of the building. The garden measures 38 by 57 feet and it is crowned by a dome-shaped roof of softly tinted glass. The walls are finished in gray terra cotta and Pavenazzo marble and the general style of the decoration is Italian. Three sides of the court have galleries, with carved marble balustrades, and it is connected with the palm garden at the Waldorf by three handsome archways. This room will also be used as a dining hall.

The main office of the building is located directly opposite the driveway, and passing through this to the west, we find the men's reception room, the public billiard room and a bar and café. The café is a handsome room, measuring 40 by 95 feet; the style is that of the German Renaissance, and it is finished in English oak with Flemish decoration. The floor above, at the western end of the building, is occupied by the great ballroom, which is certainly the most spectacular feature of this vast building. Its dimensions, if we include the promenade, are 82 by 95 feet. It is three stories high, and the clear distance from floor to ceiling is 40 feet. The style is Louis Quatorze. At the end it has a stage with a full proscenium, and a seating capacity for an orchestra of 100. The stage is removable, and can be taken away at brief notice. There are two tiers of boxes, capable of seating 250 people, and the floor has seating capacity for 1,100 people. The state boxes face the stage and form the center of the tiers. The appearance of this room will be extremely gorgeous; ivory and rose, rich gilding and hangings of crimson plush are the prevailing fashion of the decorations. The choicest artistic feature of the ballroom is the beautiful ceiling, which has been painted by the distinguished artist Mr. E. H. Blashfield. Two large groups of figures, grouped with the happy effect which characterizes his work, represent respectively Music and the Dance. There are over forty figures in the composition, all of which are above life size, and the central figure in each group is about eight feet from head to toe. On the same floor and at the eastern end of the Thirty-fourth Street side is a banquet hall, known as the Astor Gallery. This is an exceedingly beautiful room, measuring 37 feet by 102 feet, and two stories, or 26 feet, in

height. The decorations are carried out in the style of the Hotel Soubise, built in Paris between the periods of Louis Quinze and Louis Seize.

The general color scheme consists of a pleasing harmony of blue, gray, and gold. At one end is a musician's gallery, and down the northern side are seven handsome French windows reaching from floor to ceiling. Here we are introduced to another notable American artist, Edward Simmons, who has enriched the pendentive panels at the base of the curved ceiling and the four panels at either end of the room with character-



DISTRIBUTING GIRDER UNDER BALLROOM TRUSSES.

istic paintings representing the twelve months of the year and the four seasons. This room with its many mural paintings is as striking in its way as the great ballroom itself, and it rivals in chaste beauty the famous rooms in the palaces of France and Italy.

A door in the east end of the Astor Gallery leads to the "Myrtle room," designed in the Louis Seize style, and furnished in delicate green and white. This, as its name indicates, is intended for wedding celebrations. East of this is the east foyer, 25 by 55 feet, finished in Caen stone, and beyond this is the east parlor, 32 by 36 feet, rococo in style, with panels of yellow brocade. Returning to the west, one finds opposite the Astor Gallery the Colonial dining room, 40 by 45 feet, finished in crimson and white. To the west again is the ballroom foyer, 38 feet square, standing at the head of the handsome ballroom staircase, with its steps and rails of Sienna marble.

From the third to the thirteenth floor are the bedrooms and suites of apartments. Nearly all of the former have a private bathroom, and the suites with their private entrance halls and many appointments of convenience and luxury are among the finest in existence. On the fourteenth floor is the club foyer snugly upholstered in leather, with a billiard room containing one English and five American tables. On the Fifth Avenue side of this floor is a lecture room with a stage, on which is a range and stove for use in lectures on cooking. The western end of the fifteenth floor is

possible emergencies. The generators alone can carry a load equivalent to from 20,000 to 25,000 sixteen candle power lights and the storage battery increases the capacity about 50 per cent. The plant includes four Corliss engines, each direct connected to a 250 kilowatt generator, and two engines driving two 100 kilowatt generators. One-third of the current generated is used to drive the electric motors, which operate the elevators, ventilators, laundry machinery, and other plant in various parts of the building.

The equipment of electric signals, annunciator bells, telephones, etc., is one of the most, if not the most, elaborate in the world. The circuits have been designed with the idea of subdividing each floor into "districts," each of which has its local station. These stations are "interconnected" by trunk lines, and they are also connected with the main central or operating station, which is located on the mezzanine floor. Here the trunk lines converge from all directions. At each floor the lines also converge to a local or floor office. At each local office there are several hundred lines, and the number of lines that converge at the main central office aggregates some four thousand. The connections are such that a call from any room is recorded at both the local floor office and the main central station on the mezzanine floor.

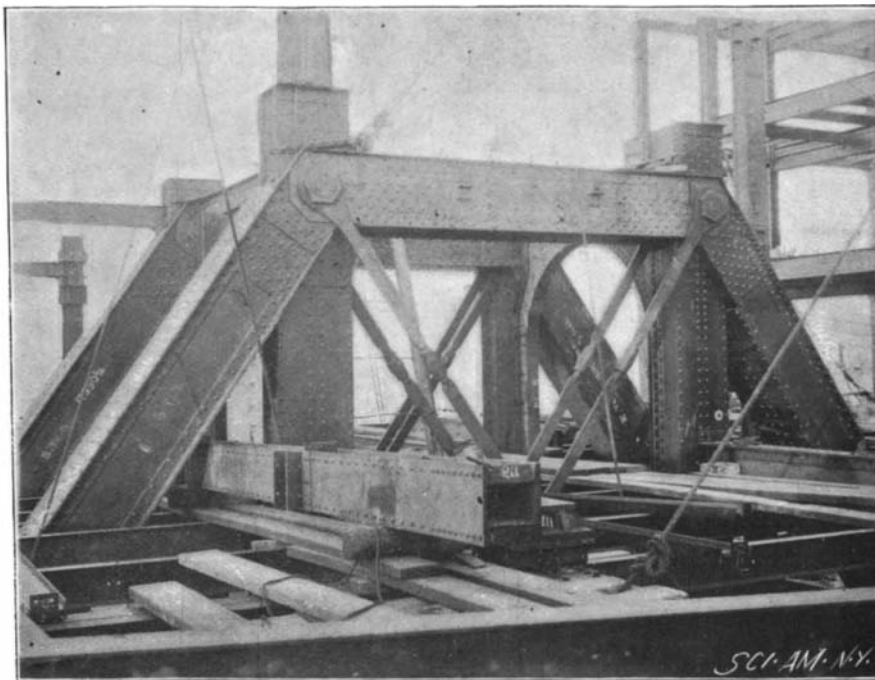
With this notice of the electric and telephone arrangements we must close our description of this sumptuous hostelry. Enough has been said to give some impression of the vast internal construction and economy of a building which can entertain and amuse the occupants of the thirteen hundred rooms of the greatest hotel in existence.

For the information upon which the article is based we are indebted to the courtesy of the architect, Mr. H. J. Hardenberg, of New York.

Unusual Surgical Operation.

A remarkable surgical operation has been performed upon Adrian Deheroghe, a machinist, of San Francisco. Fifteen yards of silver wire, as large around as an ordinary hypodermic needle, have been introduced into and coiled within his aorta—the arterial channel leading directly from the heart. These forty-five feet of wire have been in there for three months and, surgeons say, have saved his life. They were inserted at a time when death seemed certain—complications resulting from a severely injured aorta, the patient's trouble being an aneurism or sacculated tumor of the arterial wall. Its development to a rupture of the aorta was only a question of time, with instant

death as the result, says The Mining and Scientific Press. The wire was introduced into the distended or abnormal sac formed in the aorta, in order partly to fill it and form there a clot that would in time contract and be there absorbed, thereby restoring the channel to its normal formation.



UPPER HALF OF BALLROOM TRUSSES.

taken up by the great "Sun Parlor," a large hall with an arched and glass-covered roof, furnished with Wakefield rattan furniture and shaded by palms and hanging curtains.

The roof garden, already referred to, has received artistic treatment in the embellishing of the various

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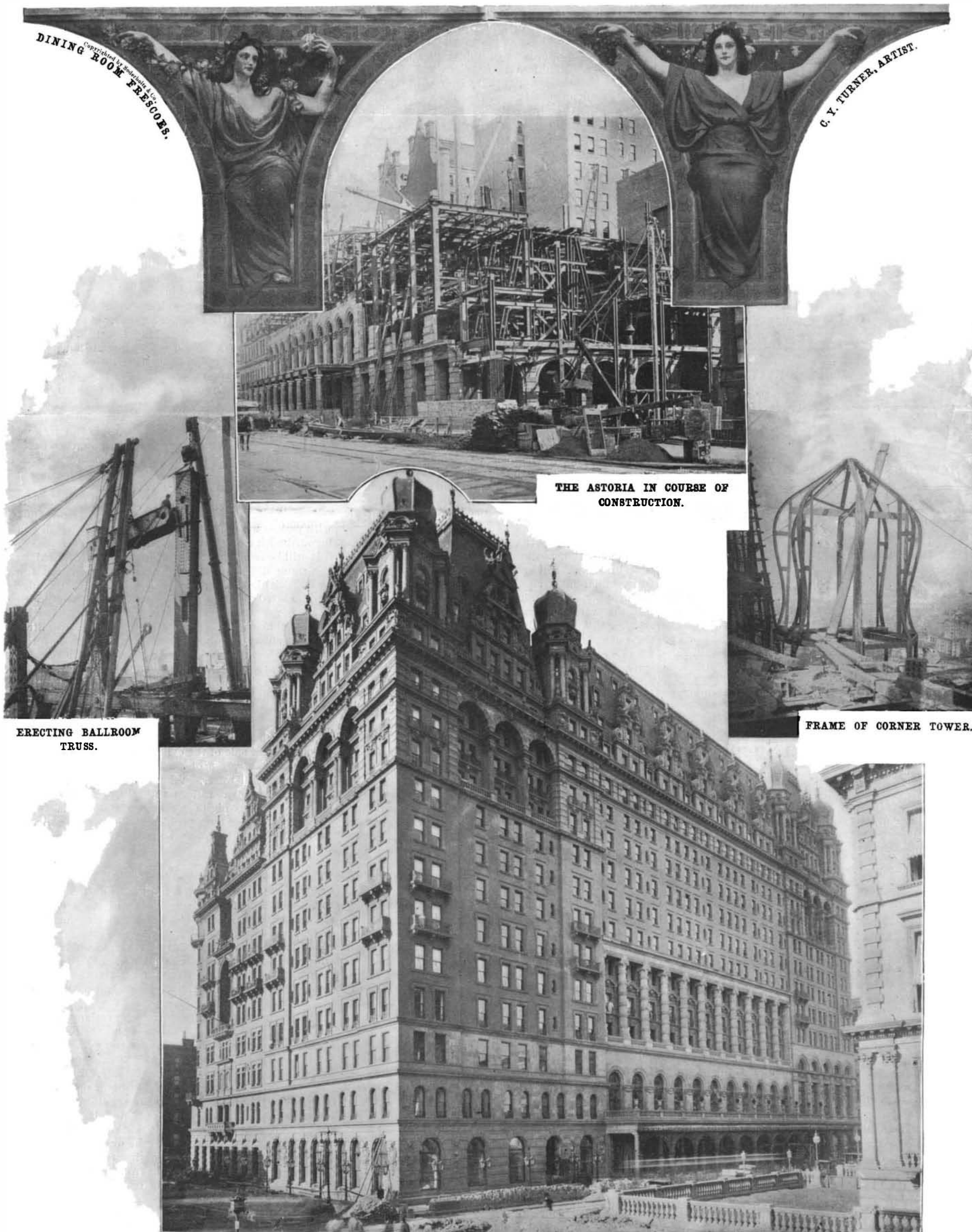
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DINING ROOM FREScoes.

C. Y. TURNER, ARTIST.

THE ASTORIA IN COURSE OF CONSTRUCTION.

ERECTING BALLROOM TRUSS.

FRAME OF CORNER TOWER.

THE NEW ASTORIA HOTEL, NEW YORK CITY.—[See page 281.]