

Hotel Pennsylvania, New York City

McKIM, MEAD & WHITE, ARCHITECTS

THE Hotel Pennsylvania, recently completed in New York City, is a valuable addition to that part of the city opened up for redevelopment at the time the Pennsylvania Railroad erected its great passenger station there, and the Federal Government the new main post office. The station occupies two entire blocks, bounded by Seventh avenue on the east, Eighth avenue on the west and 31st and 33d streets on the south and north respectively. The post office is on the westerly side of Eighth avenue, opposite the station, and the new hotel on the easterly side of Seventh avenue, also opposite the station. It occupies a plot two hundred by four hundred feet, the frontage on Seventh avenue, two hundred feet, being a full block. It is bounded on the north and south by 33d and 32d streets and extends eastward to the Gimbel store.

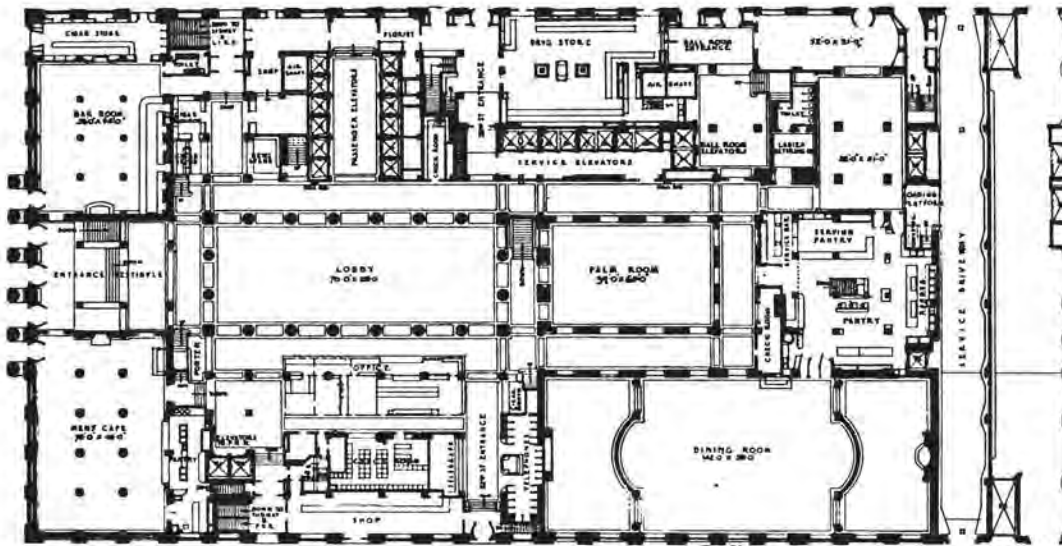
The building has twenty-two floors from street

level to roof and contains twenty-two hundred guest rooms and bath. The entire ground area is built up to a height of four stories, or approximately the same level as the roof of the Pennsylvania Station. Above these floors three large courts opening to the south are introduced, which give four guest room wings to the typical plan. These wings are each fifty-four feet wide and the courts forty feet wide. There are seventeen bedroom floors, with an average of one hundred and twenty-five rooms to a floor. The rooms in the Seventh avenue wing are larger than those in the others and some have outside bathrooms, but the typical floor arrangement shows rooms either side of a central corridor, the baths and closets arranged on the corridor side leaving a vestibule-like entrance to the rooms, which serves to minimize noises that may occur in the corridors.

The lower stories are faced with Indiana limestone



General View of Hotel Pennsylvania from Southwest



First Floor Plan

The ball-room floor provides a very complete and extensive entertaining area of great flexibility. It has a private elevator service from the ground floor and a separate entrance on 33d street together with arrangements for direct service from

and treated with an order of Roman Ionic pilasters with lightly rusticated walls between running through three stories, and a fourth story of plain ashlar. This treatment relates the building in design and scale with the station. In the center of the Seventh avenue facade is a portico of six Ionic columns marking the main entrance. The building line has been set back fifteen feet on Seventh avenue to assist in the scheme of producing a plaza in front of the station.

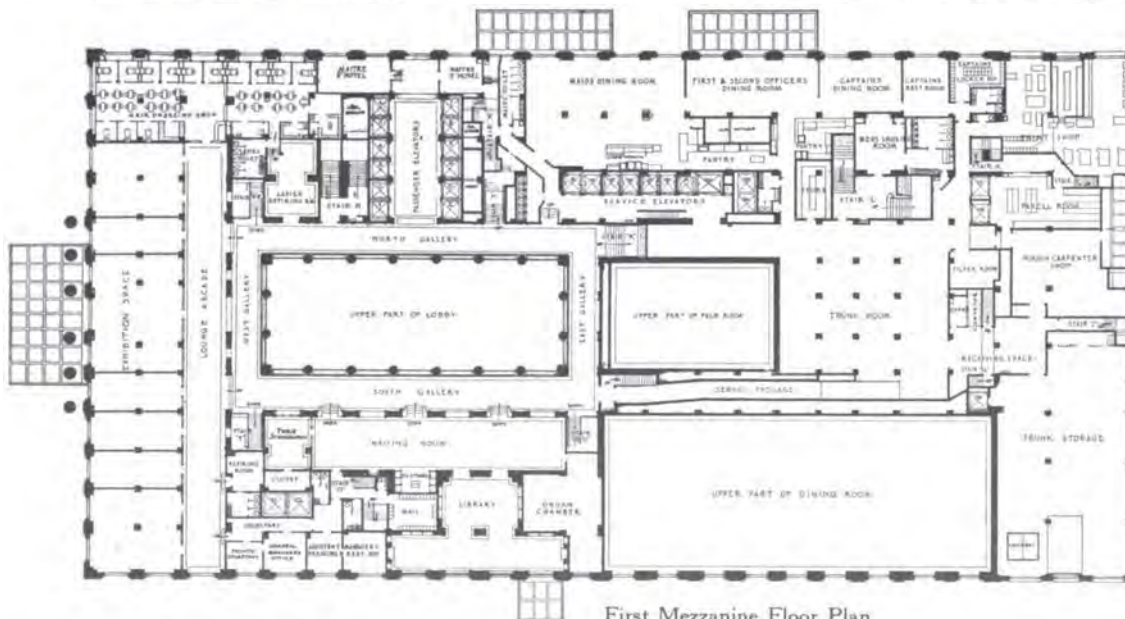
These lower floors contain most of the public rooms as indicated by the plans illustrated herewith. On a small mezzanine floor above the main office, space is provided for the hotel's clerical forces, and on the main mezzanine above, offices for the executives. The guests' baggage is handled on this floor and is conveyed to and from the driveway entrance at the rear of the lot by conveyors.

the large banquet kitchen. The next two floors, of which the second mezzanine is shown, are devoted to service bedrooms, storerooms, sewing and linen rooms, and the telephone exchange, which latter is the largest of its kind ever built.

At the easterly end of the third, or first bedroom floor, are two complete Turkish baths, one for men and one for women. The women's department is entered by a direct stair from the second bedroom floor, which is to be reserved for women guests. Each of the Turkish baths has a plunge and ample equipment of all other desirable features. All the water is sterilized by the violet ray system as well as by the regular filter system, and in addition is constantly renewed.

The easterly fifty feet of the first floor area under the easterly court is occupied by two parallel drive-

ways, a service drive for the hotel with its loading platforms, elevators to workshops above and storage rooms and kitchen below, and conveyor to baggage storage on the mezzanine over; and at the extreme east a service drive for the adjoining Gimbel



First Mezzanine Floor Plan

Brothers' store with elevators and loading platform to care for the store deliveries which are now crowding the 33d street pavements.

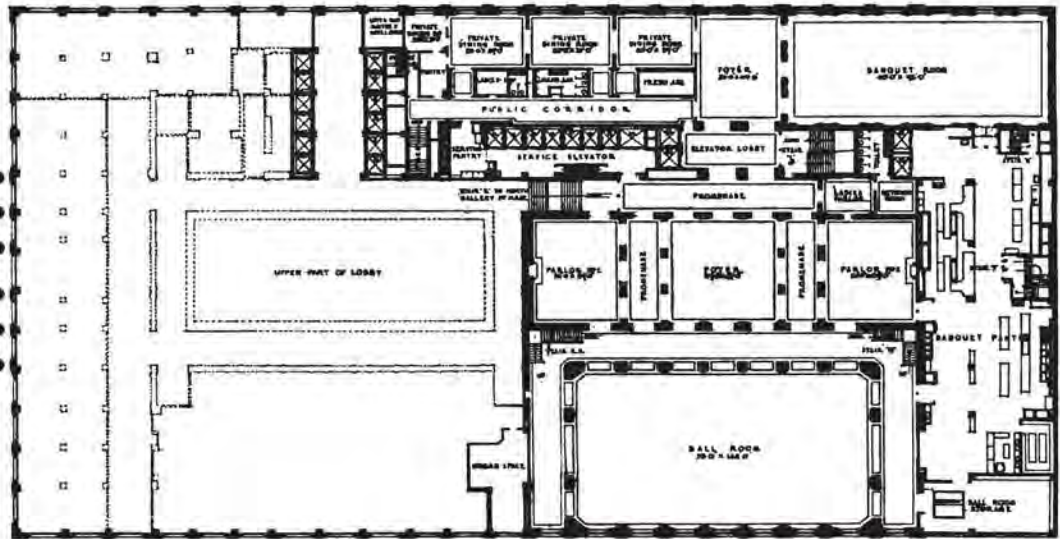
The basement floor has direct entrances from the platform of the 34th street express station

of the Seventh avenue subway. At the 33d street side of the hotel there is a wide passage under Seventh avenue connecting directly with the Long Island Railroad station and at the 32d street side a similar passage for Pennsylvania Railroad passengers.

The bedroom stories are contained in a shaft faced with buff colored brick, with a crowning feature consisting of a three-story order of pilasters with a main cornice of terra cotta. A structure on the Seventh avenue wing roof contains the roof garden

restaurant, on the floor above which is an extension of the elevator pent house. The second wing roof is left uncovered for use as an outdoor after-dinner lounging space accessible from the roof garden by a bridge across the first court.

The roofs of the two easterly wings are left open for future development and provision is made in the framing for connecting these roofs with bridges similar to that in the first court to provide for a complete scheme of circulation.



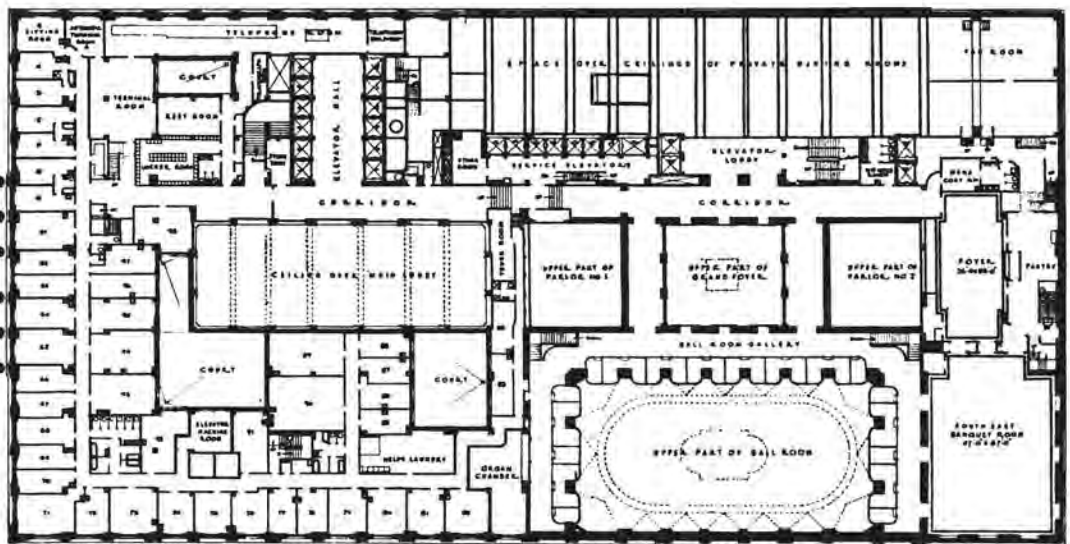
Ballroom Floor Plan

Mechanical and Kitchen Equipment of Hotel Pennsylvania

By FREDERICK G. COLTON

IN planning the mechanical equipment for a city hotel on a lot 400 feet by 200 feet, with twenty-two hundred guest bedrooms, twenty-two hundred bath-rooms, dining-rooms, ballrooms and other public spaces, it was at once evident that one basement floor of about 60,000 square feet would not be sufficient for the equipment and for 2000 employees' accommodations. And although

there are no power and no large electric generator plants in the building, still it was found that not one but two additional basements would be required to



Second Mezzanine Floor Plan



Detail of Main Entrance on Seventh Avenue

house this mechanical equipment and give storage space below the street level. This was the more evident also because about twenty per cent of these two additional areas or floors was lost to the hotel

a day and about two hundred employees are kept constantly busy.

There are ten washers for the hotel and four smaller washers for the guests' work; twelve over-

by the Pennsylvania Railroad tunnels in 33d and 32d Streets taking up space inside the building lines. Therefore, except for some spaces on the upper floors given over to this equipment, three floors, or approximately 160,000 square feet, are used in this way.

SUB-BASEMENT FLOOR. The lowest or "sub-basement floor" is thirty-nine feet below the street level. On this floor are the following plants together with pumps, machine shops, storerooms, locker rooms, toilet rooms, corridors, stairs, elevators, etc.

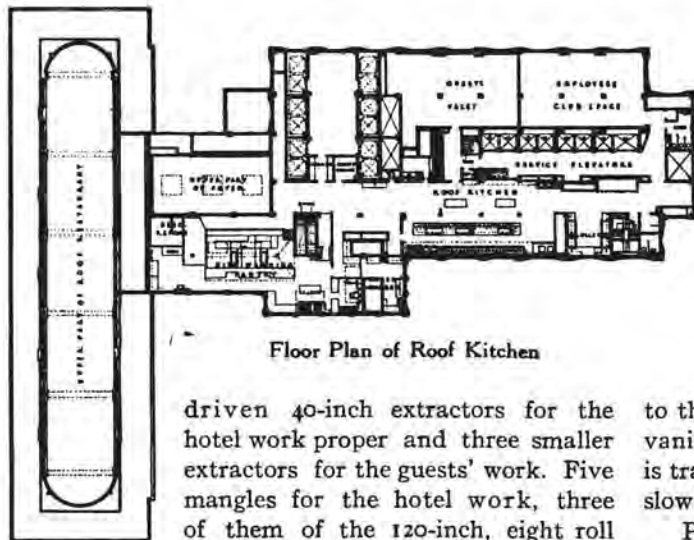
| | |
|-----------------------|----------------|
| Laundry Plant | 20,000 sq. ft. |
| Refrigeration Plant | 5,300 sq. ft. |
| Incinerator Plant | 1,000 sq. ft. |
| Electric Plant | 4,300 sq. ft. |
| Plumbers' Plant | 4,000 sq. ft. |
| Vacuum Cleaning Plant | |
| Compressor Plant | |
| Ventilation Fans | |

The laundry is 200 by 130 feet or about 20,000 square feet in area and is divided into three parts, the ironing room, the washroom and the guests' laundry. The ironing room and washroom are planned large enough to have in future, if necessary, additional washers, ironers and extractors. The laundry equipment is capable of turning out more than one hundred thousand pieces



Typical Floor Plan

Turkish Bath Section of Third Floor



Floor Plan of Roof Kitchen

driven 40-inch extractors for the hotel work proper and three smaller extractors for the guests' work. Five mangles for the hotel work, three of them of the 120-inch, eight roll type, and one "monitor" 120 by 30 inches, and one "annihilator" 120 by 48 inches — comprise further equipment. Near the above in the most convenient locations, are the hot and cold tumblers, soap tanks, tables, curtain dryer, etc. Every piece of machinery is placed so as to give ample room and perfect circulation for all working conditions. All exposed belts are protected.

The guests' laundry is so located that it can be entirely shut off from the main laundry, or be used with it, as occasion may require. This department is fully equipped with all the most modern machinery and a large number of ironing tables for hand work. Great care has been taken to ventilate all these laundry spaces and the air is changed every two or three minutes or about twenty-five times an hour. Hoods are placed over all mangles, washers, tumblers and dryers, from which large ducts carry the hot air to fans which exhaust the air into large flues.

THE REFRIGERATION PLANT is placed in the lower middle section of the sub-basement floor and is so arranged that the three vertical type ammonia compressors are near the steam supply entering the building. The Pennsylvania Railroad power station in 31st street between 7th and 8th avenues, supplies this steam and also the electricity. This refrigeration plant takes care of all the refrigerators in the hotel, which are altogether about 50,000 cubic feet in size; the cold water drinking system with outlets in every bathroom, in all public spaces and service departments; and the cake ice. The cake ice system with a capacity of 200 cans each of 300 pounds capacity, or about fifteen tons of ice a day, is in close connection to the cake ice storage refrigerator and ice cutting room where ice cubers, crushers, and shavers prepare

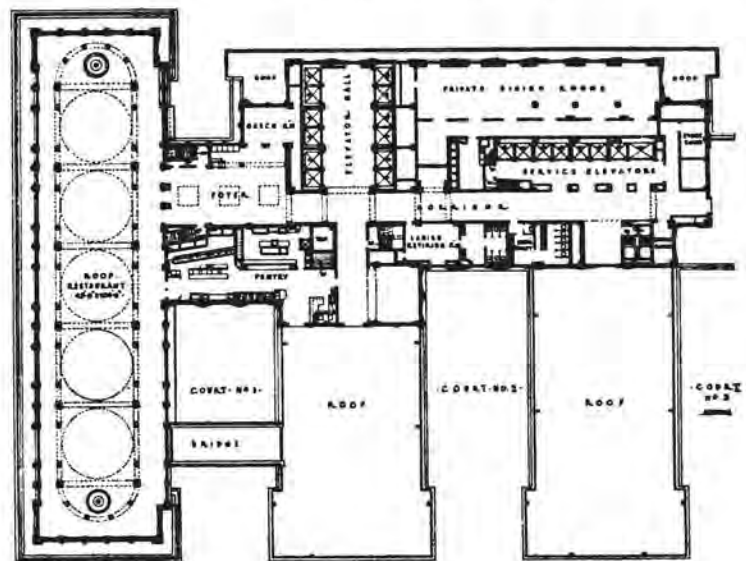
the ice for its different uses in the service.

THE INCINERATOR PLANT is placed back of the service elevators so as to be in the most convenient location for operation, and has a furnace 28 feet by 8 feet in size. All rubbish from the building is burned in this plant as well as the refuse from the kitchens which is poured into it from the floor above. This plant has a capacity of about twenty tons of garbage a day.

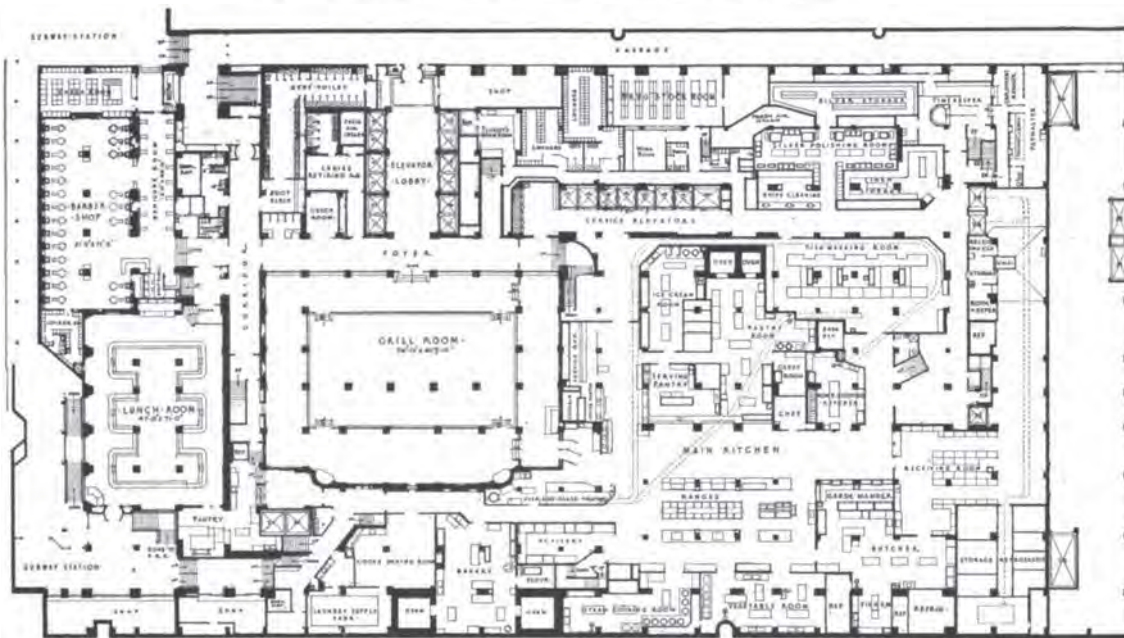
THE ENGINE ROOM is in the centre of the building with the fifty-foot switchboard directly under the electric cables, which run to the roof. The current is taken from the Pennsylvania Railroad power station on high voltage and is transformed in the transformer room. There is one slow speed engine for the 500 K. W. dynamo.

PLUMBERS' PLANT. This department adjoins the engine room and contains the plumbers' tanks, filters, pumps, etc. There are two suction tanks of about 50,000 gallons capacity, which with the 50,000 gallon tanks on the upper levels and roof, give a reserve of 100,000 gallons of water. Twelve filters, each rated at 250 gallons per minute, give a total capacity of 3,000 gallons of clear water a minute. Other filters provide for the Turkish baths. Eight hot water heaters have a total capacity of 92,000 gallons per hour. Six of 12,000 gallons each are for the upper floors, kitchen departments and laundry, two heaters being assigned to each group. The remaining two of 10,000 gallons each serve the laundry.

Five large pumps are installed on this floor, four house pumps, two of which are steam and two electric, each with a capacity of 800 gallons per minute and a steam fire pump with a capacity of 1000 gallons per minute. There are three 250 gallon sewage ejectors in the sump pit, operated by air pressure, and two



Main Roof Plan



Basement Floor Plan

electric pumps to take care of the ground water.

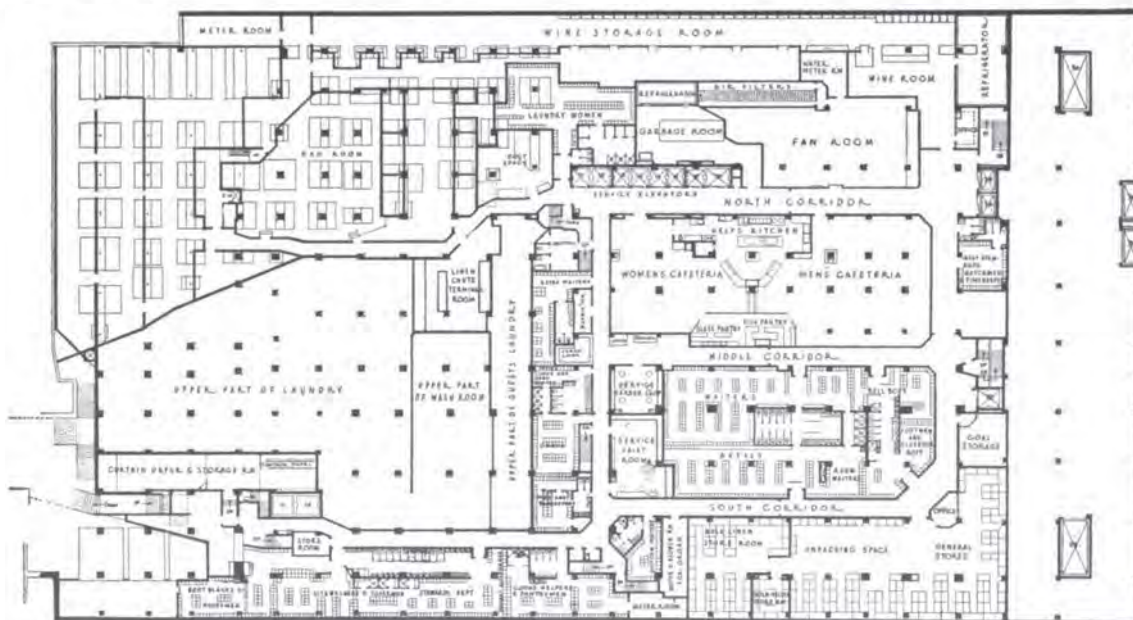
The remainder of the sub-basement floor is given up to supply rooms, storage rooms, machine shops, paper baling room, elevator machinery, toilet and locker rooms.

SUB-BASEMENT MEZZANINE FLOOR. The 50,000 square feet of space on this floor are used largely for employees. Here are large toilet and locker rooms for 1200 people, a cafeteria dining room for men and women, an employees' barber shop and an employees' valeting room, together with a ventilation system of ducts, fans, air washing machines, motors and air filters, a large general bulk storeroom and storage

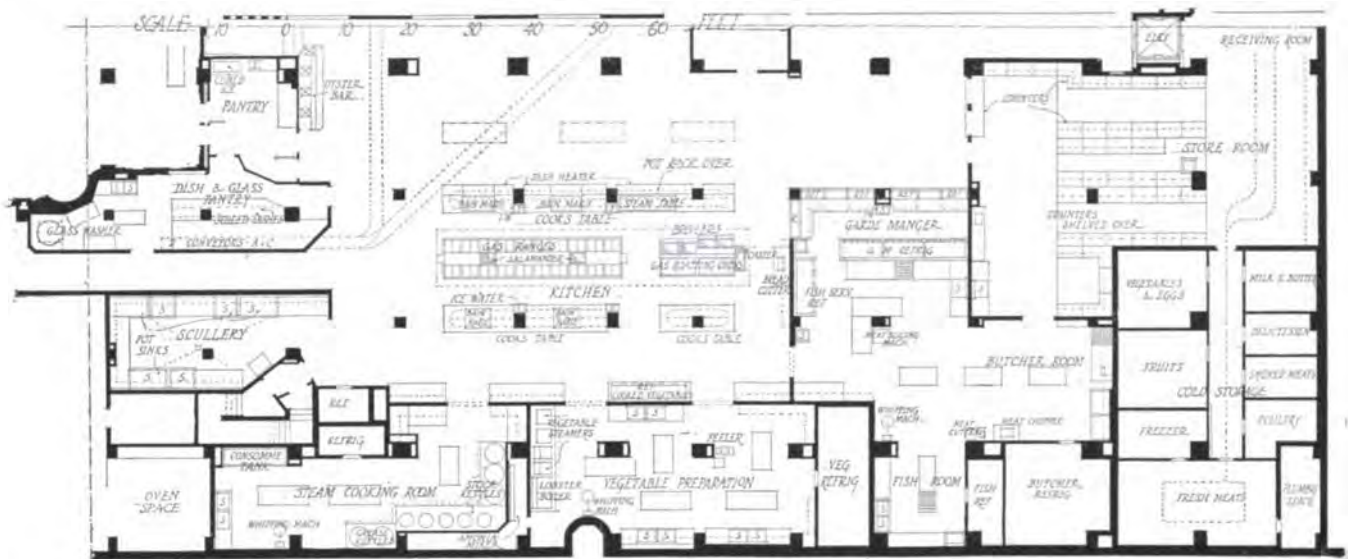
space, coal room, and a large wine storage room with a refrigerator and an extensive range of racks.

BASEMENT FLOOR. The basement floor has an area of about 60,000 square feet. Here are the main kitchen and its dependencies, the grill room, lunch room, guests' barber shop, toilet rooms for guests and for employees, locker rooms, receiving room for steward and his storerooms.

In the main kitchen the bulk of the food preparation and cooking is done for the entire building but in addition to this kitchen, there are throughout the house six pantries or kitchens where food is cooked and served. Also on each of the seventeen bedroom



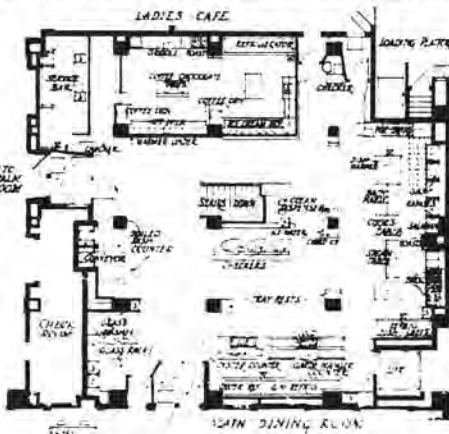
Sub-Basement Mezzanine Floor



Detailed Plan of Main Kitchen, Basement Floor

floors, there is a small waiter's pantry for room service. These pantries are equipped with a dish heater an egg boiler, a coffee urn and a refrigerator. A dumb, waiter service of six dumb waiters connects each floor pantry with the main kitchen. These pantries were found necessary for good service because of the large number of rooms, about one hundred and twenty-five, on a floor.

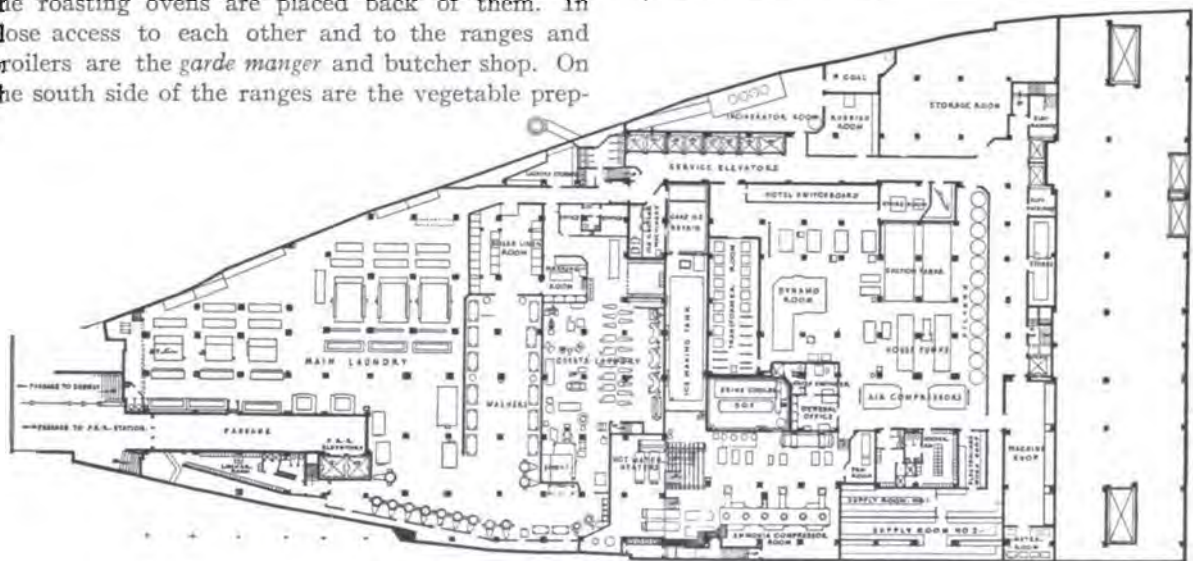
The main kitchen is planned for good, quick service without overcrowding. The ranges are gas heated and placed back to back, giving a frontage of sixty feet. The broilers extending twelve feet are in a separate group and the roasting ovens are placed back of them. In close access to each other and to the ranges and broilers are the *garde manger* and butcher shop. On the south side of the ranges are the vegetable prep-



Plan of Serving Pantry on First Floor

aration room and the steam cooking room with the stock boilers and steam kettles. The scullery is a large room quite near the ranges where all the pots and pans are washed in great tanks of hot water and steam. On the north side of the main corridor of the kitchen are the serving pantries for coffee, pastry, fruit, ice cream, and for breakfast service. Here too, is the chef's office, centrally located, so he may have proper supervision. The "Home Cooking Kitchen" is a special feature of the hotel. Here

are cooked many home dishes that hotel guests never get properly prepared in the usual hotel menu.



Sub-Basement Floor Plan

The dining spaces are as follows:

| | | Sq. Ft. | Seating |
|---------------------------------|----------|---------|-------------|
| Help's Cafeteria, | 120'x48' | 5800 | 600 people |
| Officers' and maids' Cafeteria, | 150'x25' | 3750 | 400 people |
| Grill room, | 76'x91' | 6900 | 450 people |
| Lunch room, | 47'x71' | 2300 | 110 people |
| Men's café, | 73'x48' | 3500 | 230 people |
| Dining room, | 142'x58' | 8200 | 650 people |
| Palm room, | 39'x60' | 2400 | 160 people |
| Private dining rooms, | 50'x20' | 1800 | 100 people |
| Banquet room, | 96'x41' | 4000 | 300 people |
| Ballroom, | 140'x60' | 8500 | 800 people |
| Roof restaurant, | 130'x45' | 8500 | 700 people |
| | | 55650 | 4500 people |

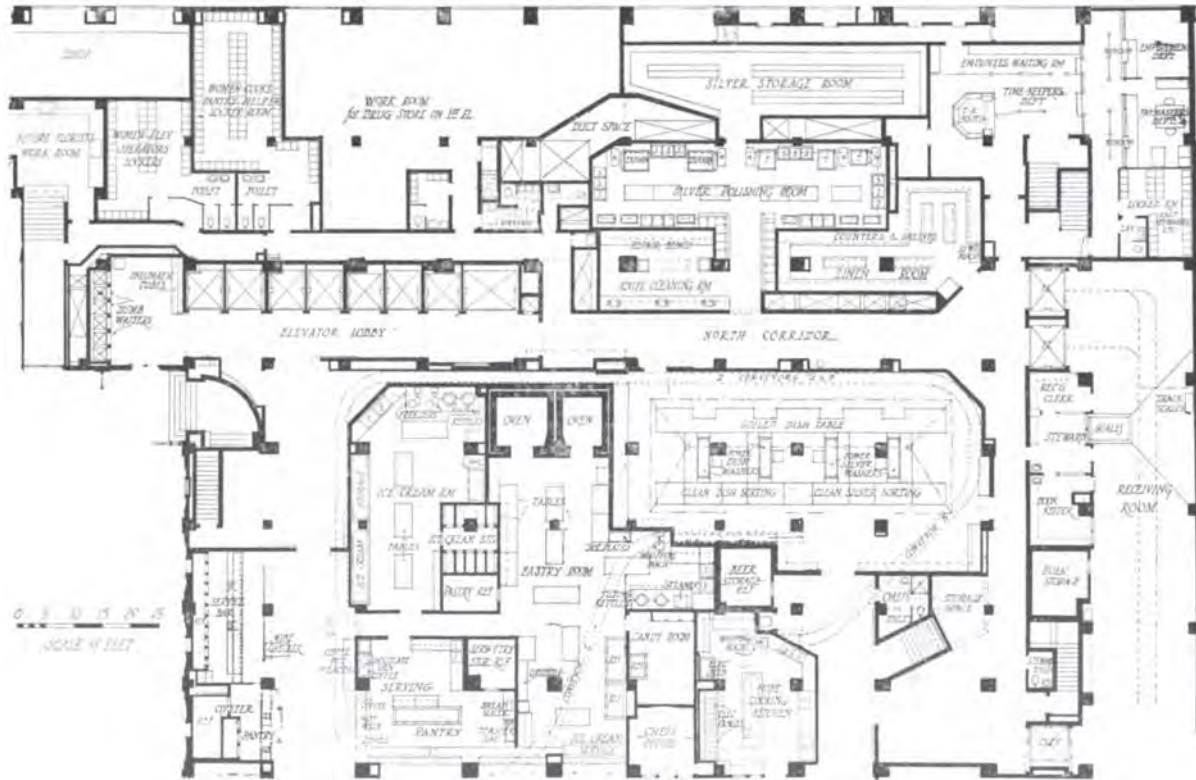
Areas of kitchens and pantries are as follows:

| | | |
|----------------------------|-------------|---------------|
| The main kitchen | } 130'x150' | 19500 sq. ft. |
| Bakeries, pantries, etc. | | 2500 sq. ft. |
| Cafeteria sub-basement, | 28'x50' | 1400 sq. ft. |
| Kitchen, 1st floor, | 60'x60' | 3500 sq. ft. |
| Men's café, | 16'x45' | 700 sq. ft. |
| Lunch room, | 50'x20' | 1000 sq. ft. |
| Banquet room pantry, | 130'x40' | 5700 sq. ft. |
| Roof pantries and kitchen, | | 6000 sq. ft. |
| | | 40300 sq. ft. |

It is interesting to note that all the hotel supplies are delivered by elevators from the street level to the large steward's department east of the main

kitchen, and also to the general bulk storage room on the sub-basement mezzanine floor. On this floor all meats, vegetables, fruit, milk, butter, eggs, etc., are delivered and placed in large storage refrigerators in the steward's department and distributed as required to the different kitchen departments. The chief steward's department is in very close touch with the kitchen and yet is entirely cut off from it by fireproof walls and fireproof doors. The work of receiving and checking supplies is carried on smoothly and quickly. Platform scales, track scales and overhead tracks, ample shelving, good organization make for the efficiency of this department. Congestion is eliminated and the service runs like clockwork. Great care was taken to make the kitchen in every department sanitary, comfortable and convenient. The ceiling is high, the walls and floor are tiled, the ventilation is very complete and the lighting good. The service for the waiters is simple and direct and the working spaces are ample for the large force of chefs and helpers.

Just outside the grill room service entrance, is the glass washing pantry, where the glassware is washed in a machine for the purpose. Here also the soiled dishes from the grill room are put in trays and carried on a belt conveyor to the dish washing room. In this room also are other machines for washing the silver and china. In a separate room, the silver is polished by machines of different sizes. There are eleven of these machines and beside them are large



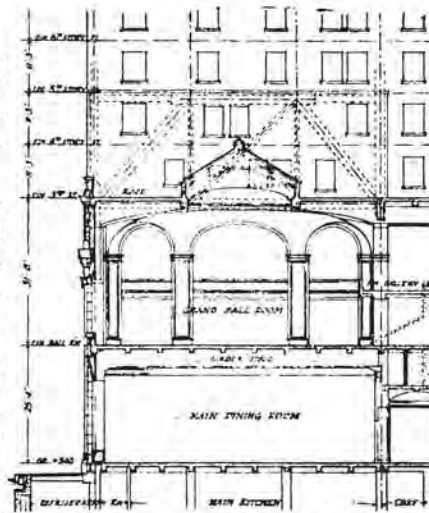
Detailed Plan of Pastry Kitchen and Accessories, Basement Floor

sinks for washing the silver after burnishing. Back of this room is a large silver storage room. The knife cleaning room adjoins the silver polishing room with an entrance from the main corridor.

When it is considered that this kitchen with its auxiliary kitchens and pantries provides for over five thousand people at a meal or perhaps thirteen thousand people in twenty-four hours, one can begin to realize that the space and equipment had to be very carefully studied and planned and replanned to meet all the requirements of feeding so many people according to modern conditions and high standards.

AUXILIARY KITCHENS. The lunch room has a small kitchen with ranges, refrigerators, steam tables, urns, etc. The men's café has an electric grill together with refrigerators, steam tables, oyster bar, etc. This service opens directly into the men's café and is quite popular; the idea of having this feature was to give quick and good service with variety of menu. The main dining room also has on the same floor with it a special kitchen. This has proved to be a great success and is strongly recommended. The service is simplified and reduced and the wear and tear on the waiters, climbing up and down stairs for every order from the main kitchen, is eliminated. This kitchen is connected with the main kitchen by stairs, elevator and conveyors so that supplies are procured quickly, and soiled dishes are removed from the floor immediately. This dining room kitchen was a very happy idea and now accomplishes more than was expected of it. There is a serving pantry and part kitchen on the ballroom floor for the banquet rooms, private dining rooms, and for the large functions in the ballroom. This room connects by two large elevators with the main kitchen three floors below. To serve the roof restaurant a serving pantry and kitchen were placed in the roof spaces. This kitchen also connects with the main kitchen by service elevators.

In working out the mechanical equipment, the most approved devices are incorporated, for of modern buildings there is none so complex as a metropolitan hotel nor none requiring greater service from its



Section Showing Trusses Over Ballroom

equipment. Great care and study have been given to the smallest detail in order that every portion of the building would function efficiently. The telephone service is most complete for intercommunication. Nevertheless, supplementing this, there are telautograph receivers and transmitters, time clocks, time stamps and pneumatic tubes, throughout the building. Details of management were determined as the working drawings progressed, and the resulting building is perfectly organized for its use, proving that architecture, structure, and plan form an entity for complete success.

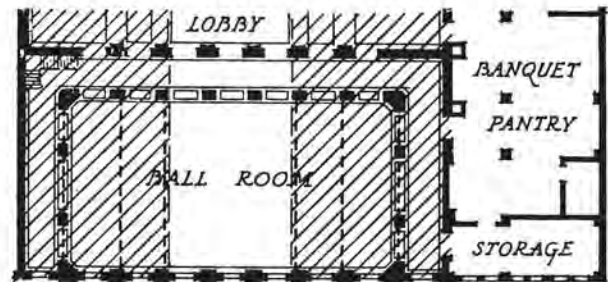
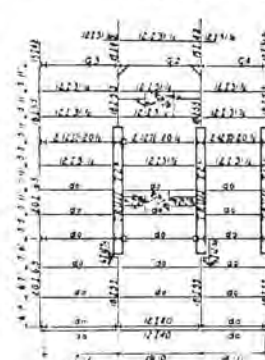
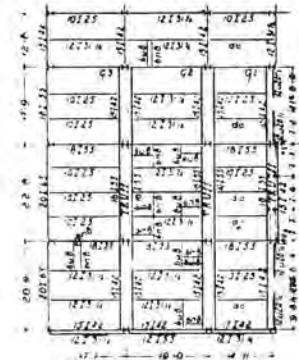


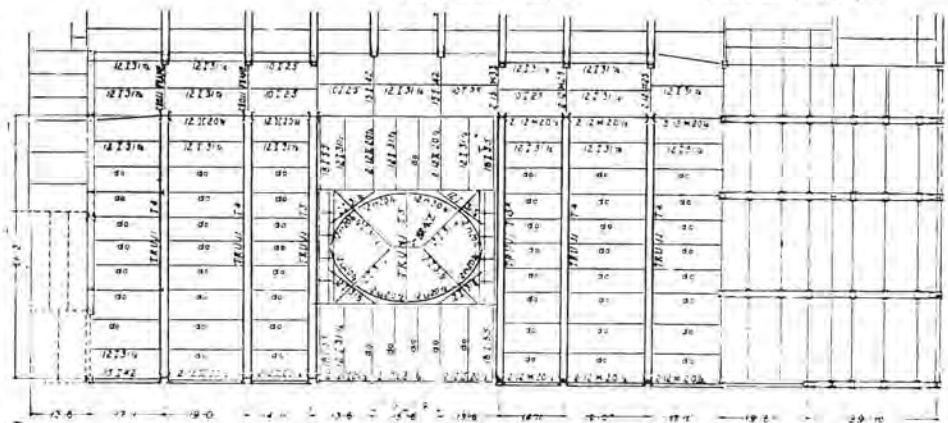
Diagram Showing Relation of Bedroom Wings to Ballroom Dotted Lines Show Position of Trusses



5th Floor, Wing 3



4th Floor, Wing 3



Third Floor Framing Plan Showing Bottom Chords of Trusses in Wings 3 and 4

Steel Framing Features of Hotel Pennsylvania

By THEODORE C. TUCK, *Engineer for Post & McCord, Inc.*

SOME of the structural features of the Hotel Pennsylvania are of interest, though they do not differ in any striking or unusual degree from those presented in other metropolitan hotel buildings, where a large part of several floors must be planned for open spaces to provide for public facilities.

A portion of the building rests on the roofs of the Pennsylvania Railroad tunnels. These tunnel roofs when constructed were designed to take the load of a future large building and the footings of the hotel that rest on them were arranged as spread footings with a load of five tons per square foot.

The large rooms that required special framing over them because of the absence of columns are the lobby, main dining room and ballroom with accompanying parlors and foyer, and the large private dining room on the 33d street side. The two pools in the Turkish baths on the third floor also required some specially heavy steel work in order to frame around them and provide for the building overhead.

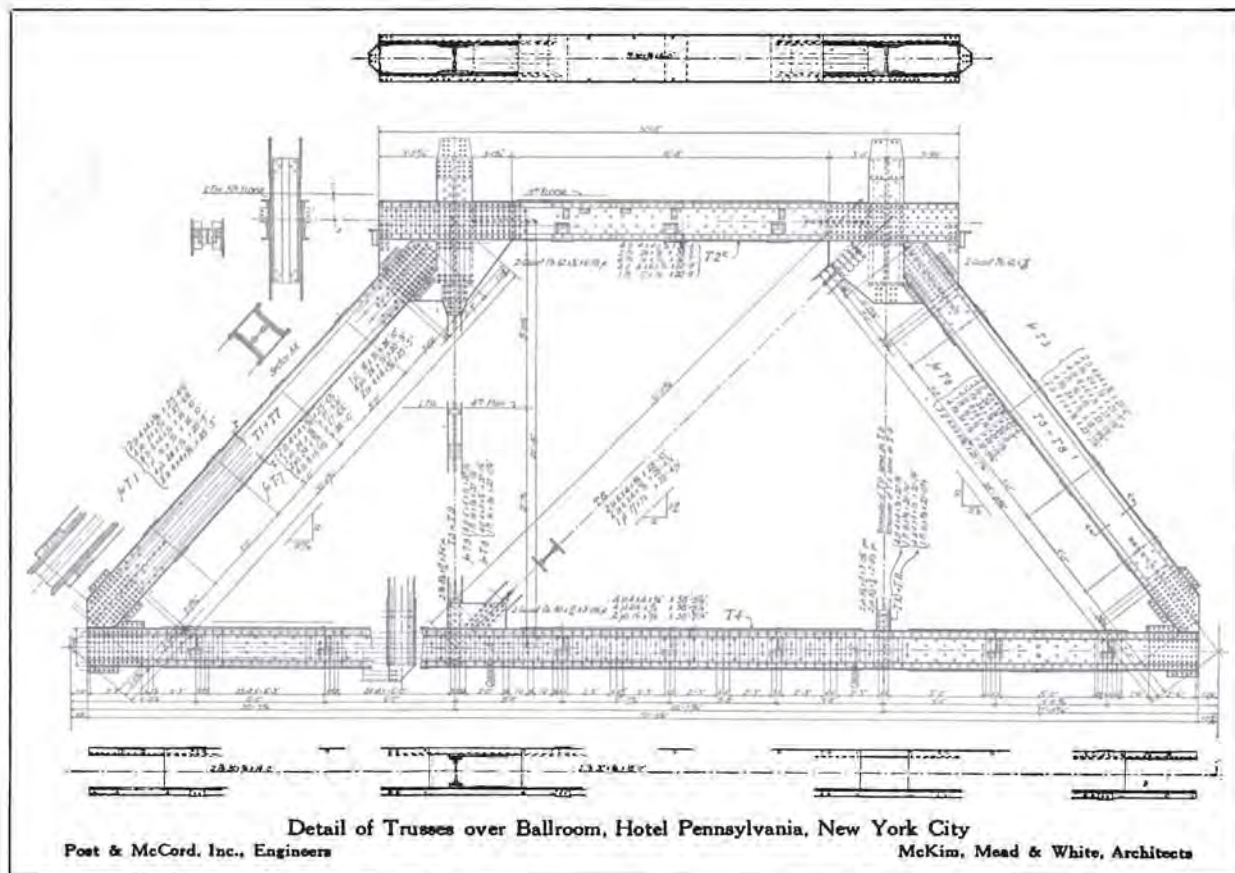
The long spans over these public rooms were taken care of with plate girders with the exception of those over the ballroom, where a series of trusses were used, as shown by diagrams on preceding page.

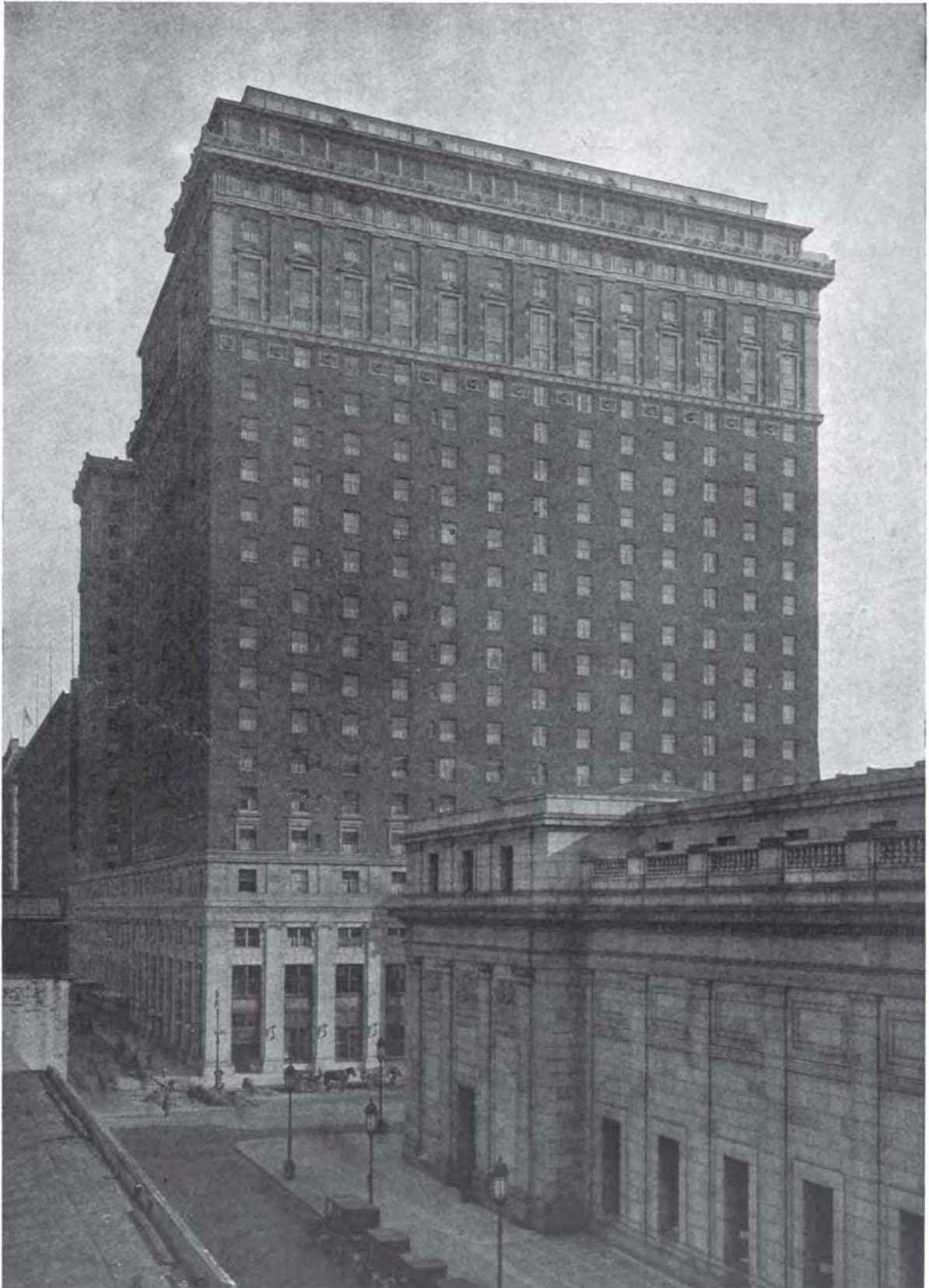
There are six of these trusses in all, each weighing sixty tons. They extend through two floors, their

top chords at the fifth floor level and the bottom ones at the third floor. Two of them occur in the opposite exterior walls of court No. 3 and two in each of the wings 3 and 4; the latter being concealed in the partitions between the guest rooms and bathrooms. The openings to the rooms and the windows in the exterior walls as shown by the accompanying section, were arranged to come in the open spaces of the trusses, so that but little space was lost, these floors showing only a few rooms less than the typical floor.

The remainder of the framing was accomplished by girders, the largest of which weighs 35 tons. The large space occasioned by the lobby is framed by a series of plate girders spanning 41 feet (the distance between the marble columns), and grouped in pairs 20 inches on center, placed at the second floor level. These in turn are supported by other deep single plate girders spanning the line of columns each side of the lobby and concealed in the deep plaster frieze.

Economy of space, consistent with both good architectural and structural design, was kept constantly in mind, and there is very little waste space in the building caused by the heavy construction, the spaces between girders being nearly all occupied with storage floors or ventilating ducts. The total tonnage of the building is 18,000.





VIEW OF SEVENTH AVENUE FACADE FROM 3RD STREET, SHOWING PENNSYLVANIA STATION IN FOREGROUND

HOTEL PENNSYLVANIA, NEW YORK CITY

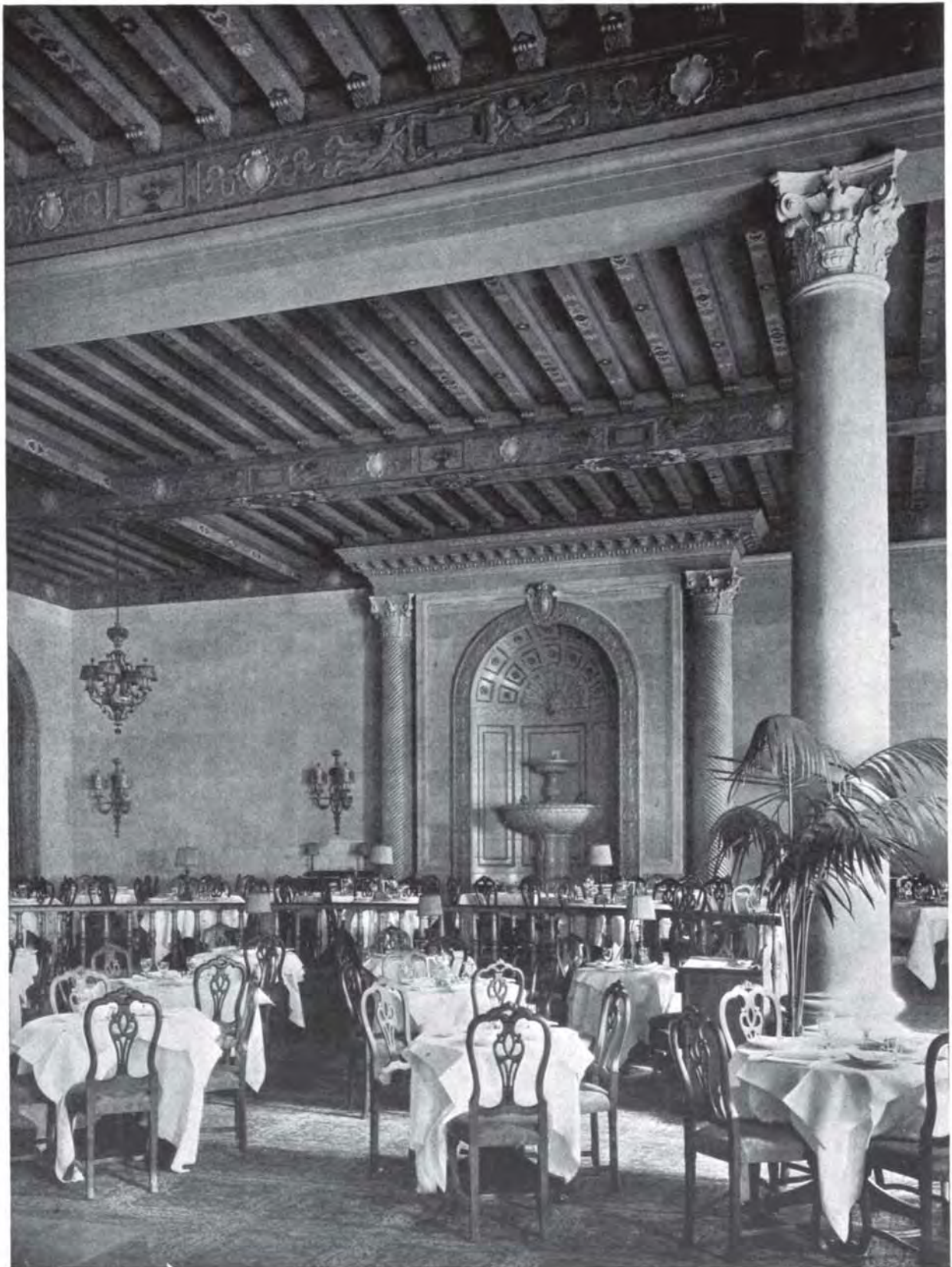
McKIM, MEAD & WHITE, ARCHITECTS



VIEW OF MAIN LOBBY
HOTEL PENNSYLVANIA, NEW YORK CITY
McKIM, MEAD & WHITE, ARCHITECTS



WEST END OF MAIN DINING ROOM
HOTEL PENNSYLVANIA, NEW YORK CITY
McKIM, MEAD & WHITE, ARCHITECTS



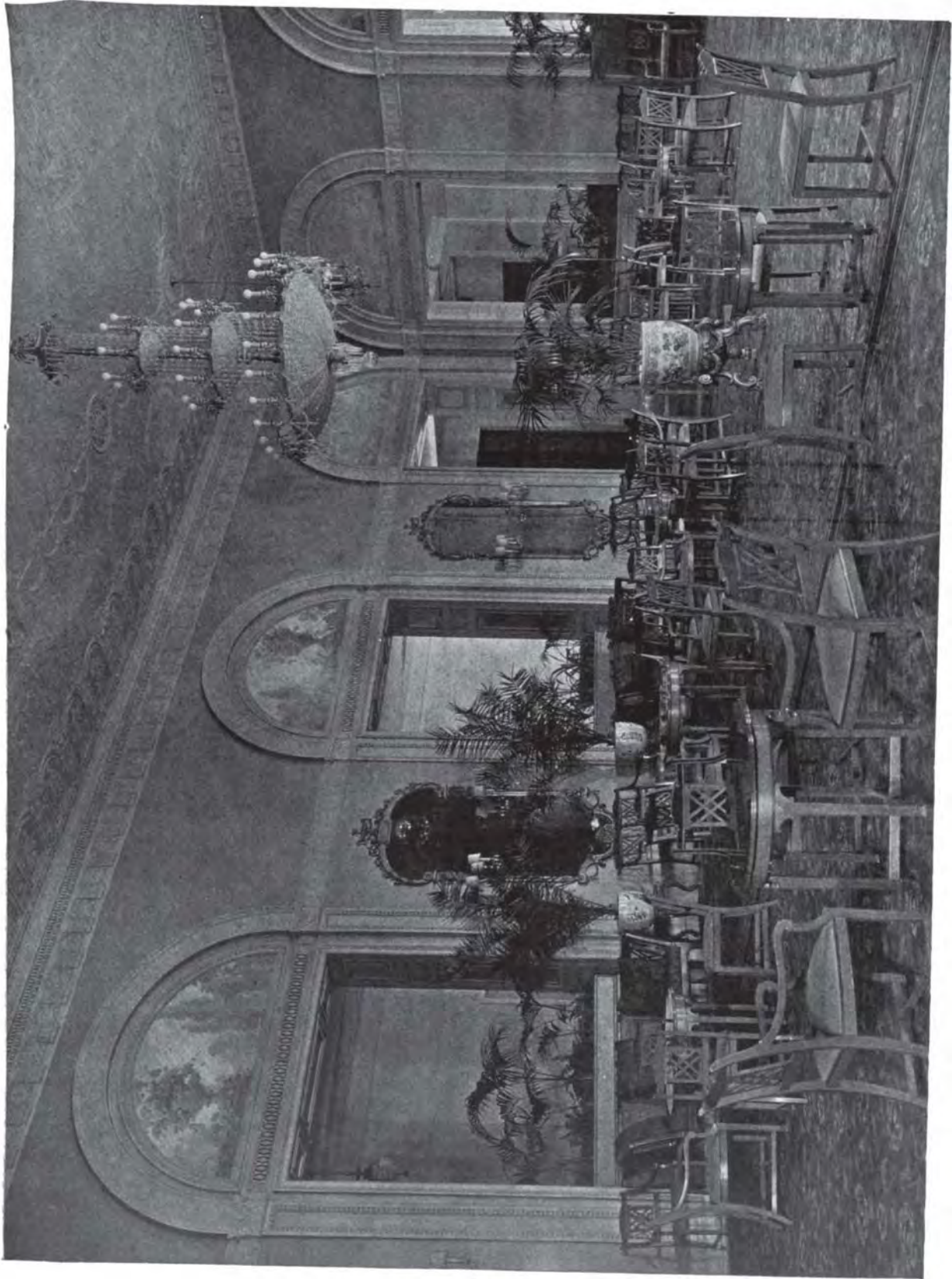
WALL FOUNTAIN AT EAST END OF MAIN DINING ROOM
HOTEL PENNSYLVANIA, NEW YORK CITY
McKIM, MEAD & WHITE, ARCHITECTS



DETAIL OF BALLROOM

HOTEL PENNSYLVANIA, NEW YORK CITY

McKIM, MEAD & WHITE, ARCHITECTS



GENERAL VIEW OF PALM ROOM
HOTEL PENNSYLVANIA, NEW YORK CITY
McKIM, MEAD & WHITE, ARCHITECTS



DETAIL OF GRILL ROOM

HOTEL PENNSYLVANIA, NEW YORK CITY

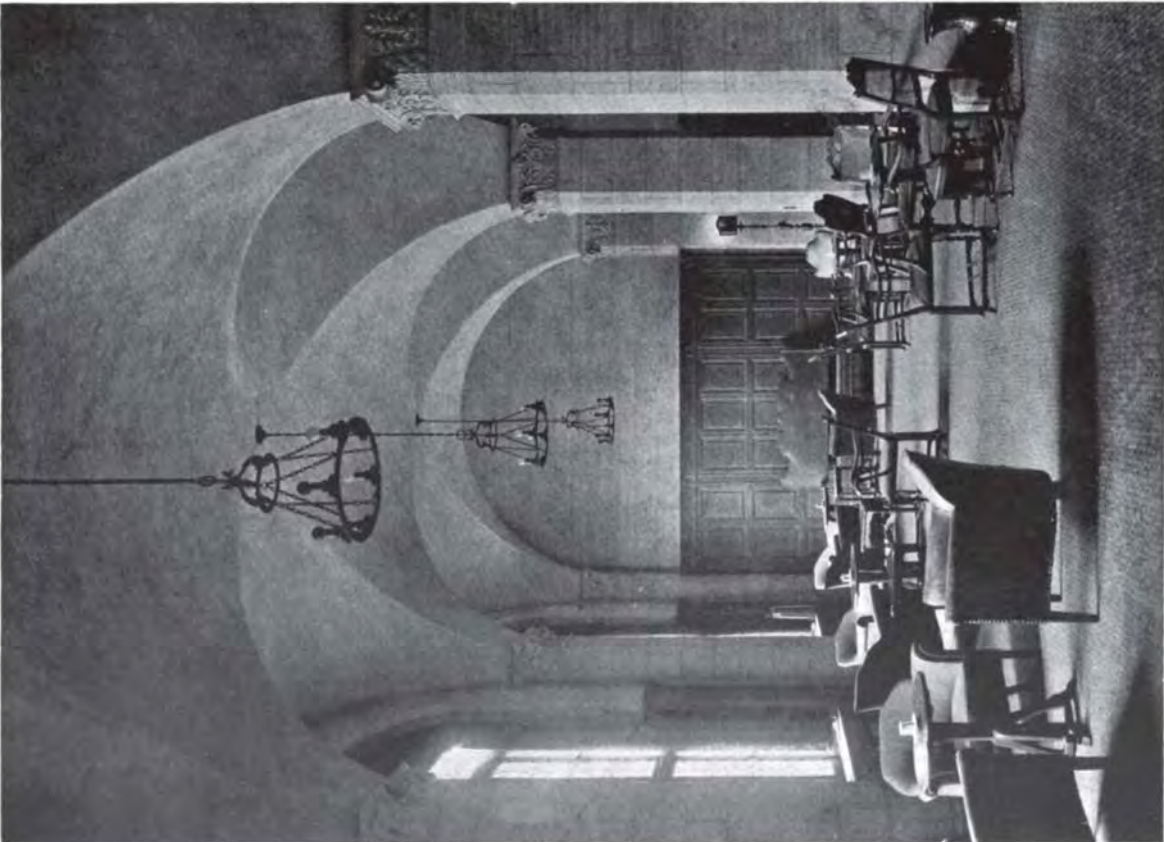
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MANTEL IN MEN'S CAFE
HOTEL PENNSYLVANIA, NEW YORK CITY
McKIM, MEAD & WHITE, ARCHITECTS

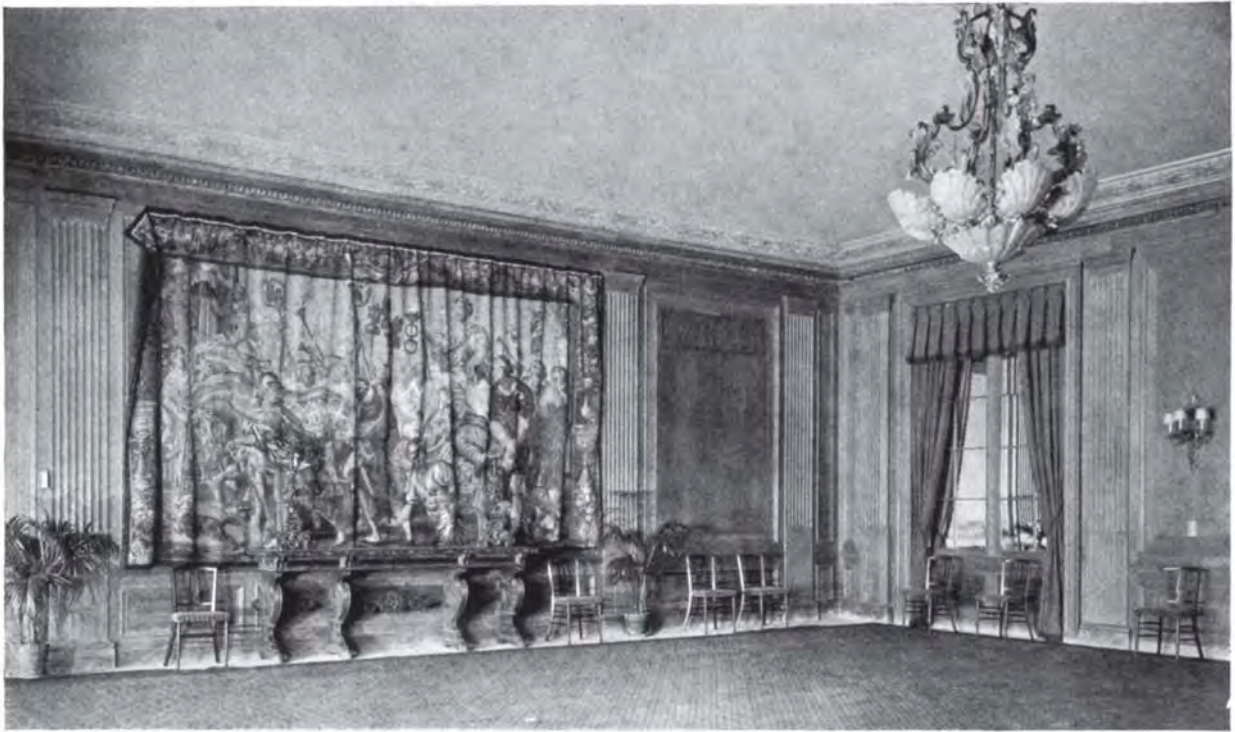


MEN'S CAFE



BARROOM

HOTEL PENNSYLVANIA, NEW YORK CITY
McKIM, MEAD & WHITE, ARCHITECTS



EAST END OF BANQUET ROOM



LIBRARY ON MEZZANINE FLOOR
HOTEL PENNSYLVANIA, NEW YORK CITY
McKIM, MEAD & WHITE, ARCHITECTS