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THE
ARCHITECTURAL
RECORD

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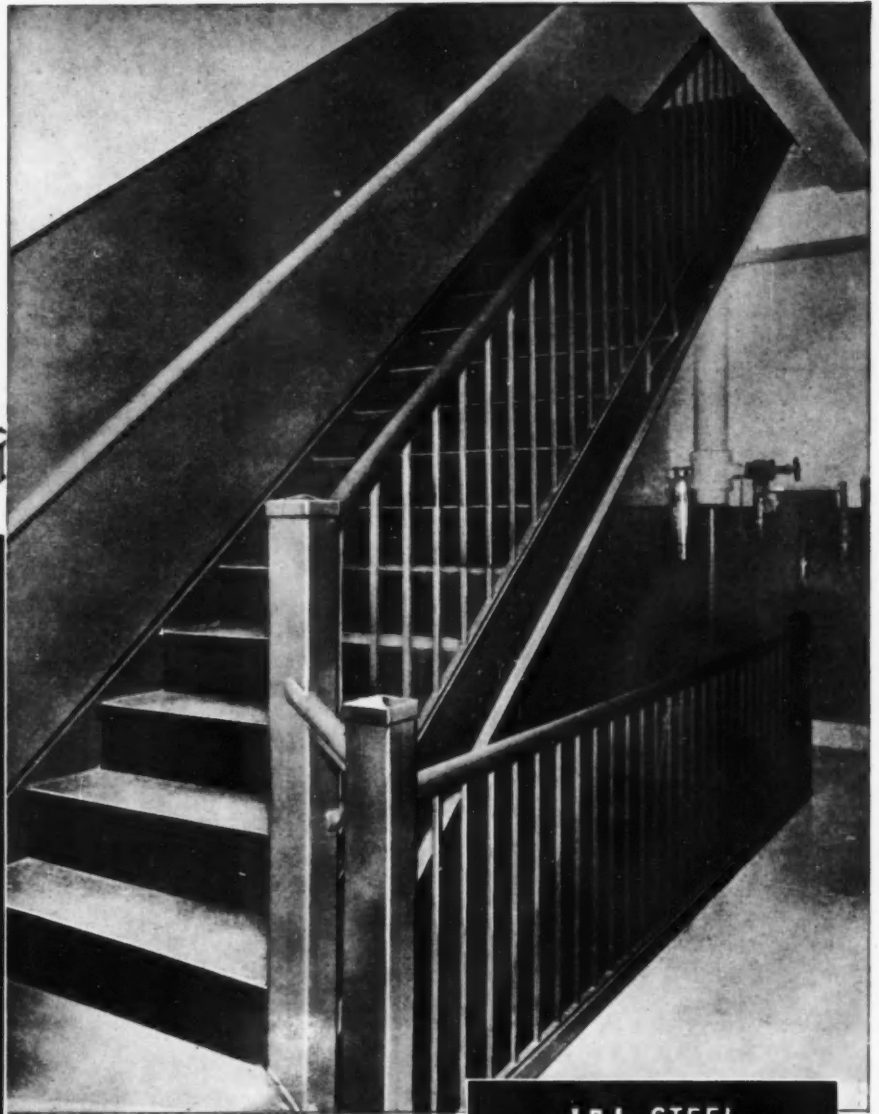


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THE ARCHITECTURAL RECORD



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VOL. 73 NO. 1 JANUARY, 1933

- Frontispiece PROPOSED MARINE PARK FOR BROOKLYN, NEW YORK
Charles Downing Lay, Landscape Architect
Renderings by Schell Lewis
- 3 NEED FOR RECREATIONAL BUILDINGS FORESEEN BY AMERICAN
INSTITUTE OF ARCHITECTS
- 4-8 MARINE PARK PROPOSED FOR BROOKLYN
Charles Downing Lay, Landscape Architect
- 9 COMMUNITY PLAYGROUNDS
Chart Prepared by Chicago Regional Planning Association
- 10-14 DEVELOPMENT OF QUEENS BOULEVARD
Program for a Three-Part Competition under Auspices of Chamber
of Commerce of the Borough of Queens, Long Island City, N. Y.
- 15 PLAYFIELD SPACE REQUIREMENTS
HIGH-SPEED TRUNK HIGHWAY
- 16 ALTERATION WORK FOR ARCHITECTS IN 1933
- 17-40 PORTFOLIO OF CURRENT ARCHITECTURE
Indiana Union Building, Indiana University, Bloomington, Indiana—
Granger and Bollenbacher, Architects.
All Souls Unitarian Church, New York City—Hobart Upjohn, Architect.
Long Island Area Headquarters Building, New York Telephone Com-
pany—Voorhees, Gmelin and Walker, Architects.
- 41-56 AN AMERICAN ARCHITECT IN JAPAN—
THE WORK OF ANTONIN RAYMOND, ARCHITECT
Text by Hugh Ferriss
- 57-66 TECHNICAL NEWS AND RESEARCH:
PLANNING OF BREWERIES
By George Warren Rustay
PRINCIPLES OF BREWERY PLANNING
By Joseph Douglas Weiss, Architect
CHECKLIST REQUIREMENTS OF BREWERIES
By George Warren Rustay
- 67-71 ELECTRICAL PRODUCTS DEVELOPED IN 1932
By H. D. James, Consulting Engineer, Westinghouse Electric and
Manufacturing Company
- 72 BUILDING TRENDS AND OUTLOOK
22, 24 (adv.) By L. Seth Schnitman
- 12, 14 (adv.) THE ARCHITECT'S LIBRARY
- 16, 18 (adv.) ARCHITECTS' ANNOUNCEMENTS AND CALENDAR
THE FEBRUARY ISSUE
- 26, 28 (adv.) CORRESPONDENCE FROM ARCHITECTS
ARCHITECTURAL ACTIVITIES
- 20, 32, 34, 36 (adv.) MANUFACTURERS' ANNOUNCEMENTS

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Macbeth Hallstadt
Semi-Indirect Il-
luminating Globe
in Galax Glass

Reproduced from an original etching by J. J. King



ON WISCONSIN! *to greater illuminating efficiency*

The recently completed first unit of the State Office Building at Madison, Wisconsin, is an outstanding example of modern efficiency expressed in graceful architecture. The present unit is one of five planned for completion within the next two years. To the skill of Arthur Peabody, State Architect, goes the palm for the conception of this beautiful and purposeful structure. Not least among the efficient elements of the building are the Macbeth semi-indirect illuminating globes used in the lighting system. These globes of Macbeth Galax Glass utilize most effectively the upward component of light, reflecting it from the dense white lower portion of the globe through the light-opacity, slightly diffusing upper portion. The result is a perfection of light distribution and absence of glare. Complete photometric data may be found in "Sweet's" or will be mailed on request. **MACBETH-EVANS GLASS COMPANY, Charleroi, Pennsylvania.**



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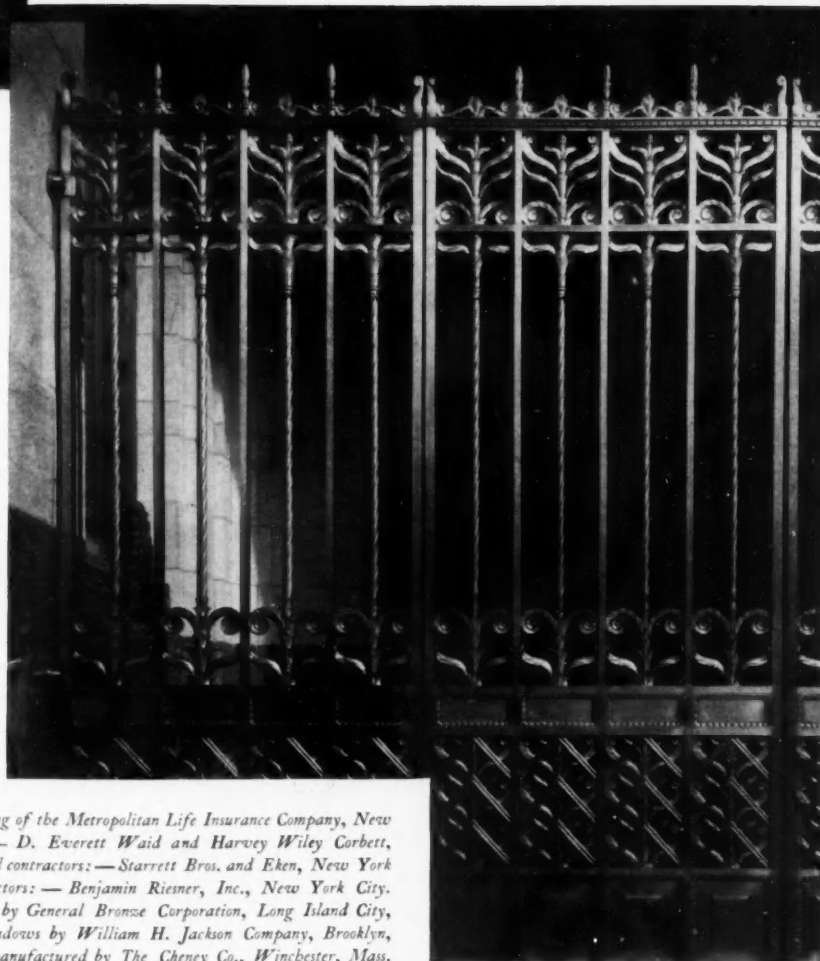
for Metropolitan New Home Office Building

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Such a generous use of nickel silver is notable . . . as are the many uses to which it has here been put . . . first story windows, doors, screens, grilles, counters, mouldings, escalators, revolving doors and certain parts of the loggia gates shown here.

Among Revere's other architectural products are PR Pipe (all copper) joined with compression or solder fittings and Revere Brass Pipe. For further information on any or all of these products, write Revere Copper and Brass Incorporated, 230 Park Avenue, New York City.

New Home Office Building of the Metropolitan Life Insurance Company, New York City. Architects: — D. Everett Waid and Harvey Wiley Corbett, New York City. General contractors: — Starrett Bros. and Eken, New York City. Sheet metal contractors: — Benjamin Riesner, Inc., New York City. Ornamental metal work by General Bronze Corporation, Long Island City, New York. Bronze windows by William H. Jackson Company, Brooklyn, New York. Flashings manufactured by The Cheney Co., Winchester, Mass.



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From "The Disappearing City"

"FIND THE CITIZEN"

THE DISAPPEARING CITY. By Frank Lloyd Wright. Published by William Farquhar Payson, New York. 90 pages; 6 illustrations. \$2.50.

"The Disappearing City" is a reiteration of Frank Lloyd Wright's basic creed that shows pattern-like through all his work, that has been the lodestar of his life: the certainty that great art and great life are one. He sees the City and the present economic system as perversion and sterility. The unearned increment of rent is a self-destroying monster; its abortive child, the City, a devourer of all that should be good in life. Except for the vehemence of feeling, there is little that is original in his destruction; it is the obvious, concurred in heartily by many thinkers. Wright is not by nature a good destroyer; to destroy requires hard logic, which he has not; to create requires passion, which he has, and consequently it is his affirmation of a belief in Democracy and the Individual that, in a period of negation, gives the book its value. The Broad Acre City which is to take the place of the Disappearing City, and with which the book is really concerned, is Wright's vision of what he thinks might be if only man's many inventions were turned to the service of Man.

Broad Acre City is decentralization, subjugation of the machine, freedom of movement, freedom of growth. Naturally, for Wright it is an architectural problem—things in space, related to each other, related to the earth on which they stand, and above all to the men who use them. It is the architect who must do the relating; it is the architect who must coordinate science, engineering and art, so that the world may be beautiful and man may rejoice in his inheritance. A new scale has come into existence; man is no longer pedestrian: for Broad Acre City the mile and not the foot, the acre and not the "lot" will be units of measure. Why do we huddle in stone deserts when telecommunication has annihilated distance; when with airplanes and hard roads what is far is already

nearer, in time, than the now near in the space of our cities? Broad Acre City will have its groups for factory sites, for markets, for certain administrative necessities; there will be a few metropolitan centers—ports of call. The rest will be along the great highways, themselves architecture, as is the fine parkways system of New York state in Westchester, or the great development at Jones Beach, an existing example of Wright's future. Roadside markets, the gas station expanded to a shopping and amusement center, schools many and small, conveniently located airports, broad space and free movement. Buildings suited to the site; for the small home owner, houses made up of standard units that can be freely combined into many forms, all functionally good, all well designed; variety and individual beauty for each house, for with the units beautiful, the combined forms too will be beautiful. Standardization need not mean monotony, far from it—properly conceived, standardization of units is a release of power for greater freedom in the large.

For the architects of the future to achieve any of this, architectural education must undergo great changes. To that end Wright's faith in such a future, his belief in his own dreams, is not one of the written word only. He has the works of his faith to show at Taliesin, where the first Design Center of Broad Acre City is rising from the Hillside School of the Jones Sisters.

For months a small group of devoted students has been at work, making drawings and sketches, measuring the old buildings, staking out the new ones. They have been felling oaks in the wooded acreage, hauling the logs to the site, and seeing how the sawyer turns timber into lumber of sizes called for by the progress of the job. They have spent nights in the open, feeding the fire of the lime kiln. They have been quarrying rock, and watched it being dressed and put in place by Charley, the grand old English mason who built Taliesin

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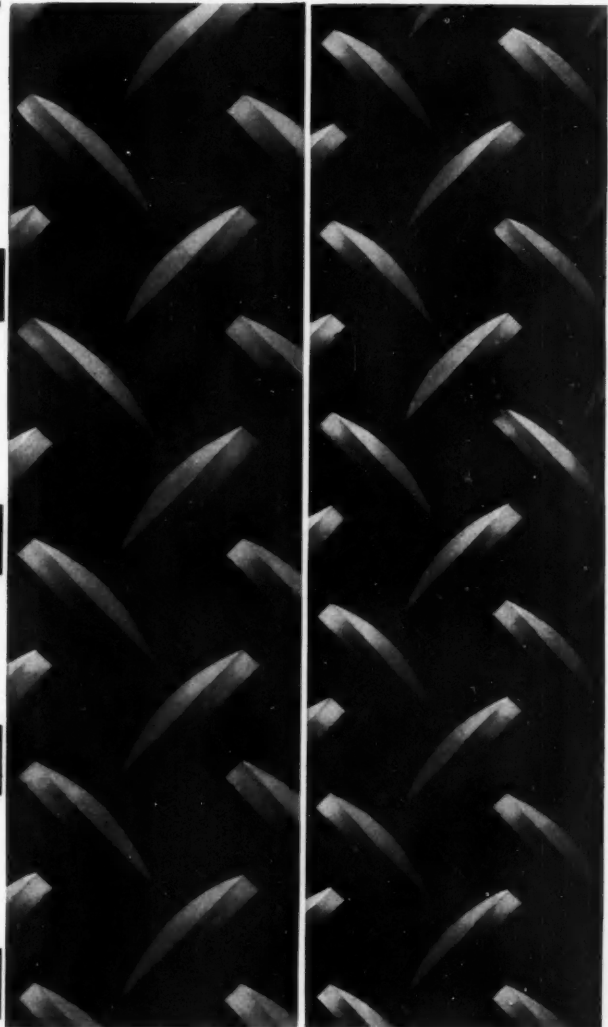
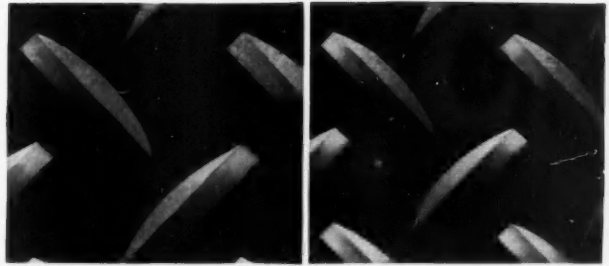
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II as well as Taliesin III; and they see an inert mass become a wall of noble masonry.

If the work now going on at Taliesin seems to be in the nature of craft rather than machine-age production, it must not be forgotten that a machine is a tool working on inert material, and that the nature of that material must govern the impress made upon it by the mind through the tool. Later, when the hoped-for machines are installed, designing directly for those tools will be better understood because of the work with hand tools.

All this, and the work in the studio, proceed under Wright's direction. His feeling for the essential nature of material is imparted at first hand; his sense of pattern and design is brought to bear on the materials at their source. Fundamentals of architecture, not superficialities of "design"; from nature through the machine to service of use, with the impress of the individual marking it a thing of beauty for all to take pleasure in freely; the philosophy of Broad Acre City.

What is going forward now is solely because of Wright's single faith and power. That it may expand as he plans it, assistance is much needed; financial assistance; and, even more, that of men who, like himself, believe that fundamentally a philosophy of life must underlie the practice of art, that creation is the flowering of deep feeling, that, in the words of Blake, "Joys impregnate; sorrows bring forth." Such a philosophy is what the young architects of this country need, and it cannot be evolved from a training in "styles" that ignores all the basic forces that in the past have created Style. It is Wright's conviction of this, his desire to help the individual to full growth of his own, not to become a "disciple" or work in "the manner of," that should make the Taliesin Fellowship an influence not only on the architecture of the future but on the whole social scene. "The outline of an ideal is better than any specific plan for any house. . . . The ideal once fixed, the plan will come."

It is doubtful if our Bourbons will give Wright the help that should be his, particularly if they read "The Disappearing City." He is a visionary, a self-confessed idealist, "unpractical." Perhaps so. But if the physical city is not yet actually disappearing, the economic structure is collapsing through the ineptitude of the "practical." Something must come to take its place. Wright would at least add to the community of economics a community of spiritual freedom and human dignity that the Russian experiment seems to lack.

"The Disappearing City" should be read by every young architect or student of architecture, read in the spirit of inspiration in which it was written. It would be easy enough to pick specific flaws of detail, or indeed to sweep aside the entire scheme as an Utopia beneath the dreams of avarice. But let the Young Man in Architecture read: it may give him, perhaps, the faith to believe he need not inevitably be a cog in a machine, nor a builder of machines, but again, rightfully, an architect, a planner and a creator of beauty.

Henry S. Churchill, *Architect*

AIR CONDITIONING FOR COMFORT. By Samuel R. Lewis. Engineering Publications, Inc., Chicago. 244 pages. \$2.

The book treats of theory and practice. It takes the reader through fundamental data required in the designing of a system of air conditioning; shows the application of the formulas developed to the necessary calculations; and finally proceeds to the actual calculations required for installations in two residences and a restaurant.

Types of equipment now available and various methods of humidification, dehumidification, cooling, filtering, etc., are described. Chemical processes of extracting moisture and the use of refrigerants and ice are covered.

Attached to the inside back cover of the book is a large psychrometric chart. Its use is developed in the pages of the book. Necessary tables and formulas for calculating heat losses, friction in pipes and ducts, for the conversion of ducts from round to rectangular, for calculating sizes and power, etc., can be found in the book, together with detailed drawings of equipment and of the inclosures for which calculations are made. An adequate cross-index adds to the reference value of the work.

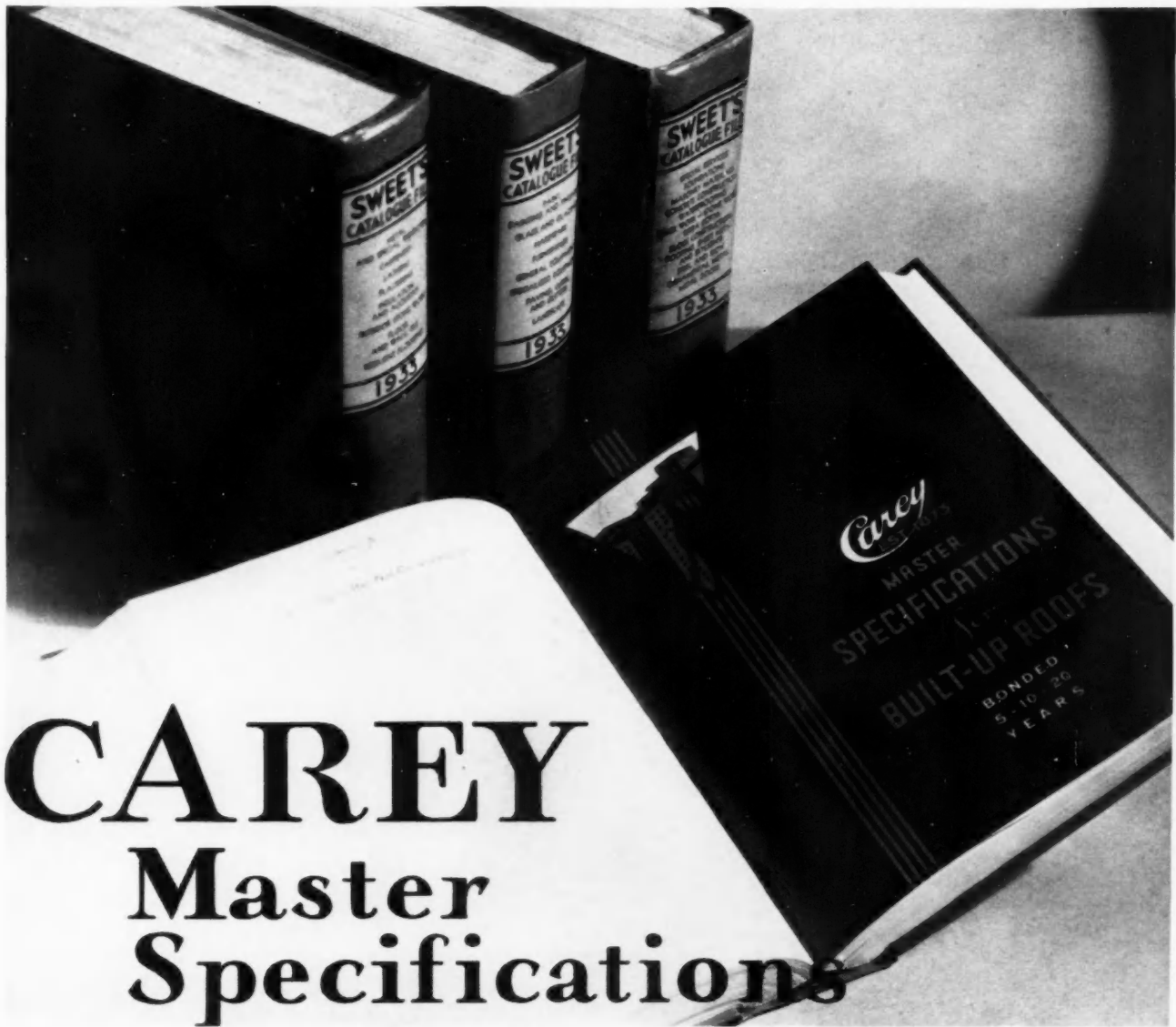
STEEL AND CONCRETE. Special Double Number of The Architectural Review, November, 1932. The Architectural Press, 9 Queen Anne's Gate, Westminster, S. W. 1, London, England. Price: 5 shillings. The Architectural Review, during the last eighteen months, has collected material for a special number surveying the history of the uses of steel and concrete in all branches of architecture, engineering and transport.

Among the important articles which have been written expressly for this issue are contributions by Sir Edwin Lutyens, Sir E. Owen Williams, Wells Coates, and C. J. Kavanagh, secretary of the British Steelwork Association. P. Morton Shand writes on the history of steel and concrete, Walter Goodesmith on the evolution of design, and F. R. S. Yorke on the facings of steel and concrete buildings.

The illustrations in this double number of which there are more than two hundred in the editorial pages alone, form an excellent collection of photographs of steel and concrete construction from all parts of the world. They include examples of domestic architecture, factories, dams, hotels, power stations, communications and transport of every sort, roads, bridges and railways.

BOOK REQUESTED

Requested by James H. L. Merrill, c/o The American Express Company, 11 rue Scribe, Paris, France: A copy of "Development and Character of Gothic Architecture," *second edition*, published between the years 1900 and 1912. The author of the book is Charles Herbert Moore, an American professor of art, formerly of Harvard University. Mr. Merrill is "interested only in the *second edition*, in good condition, with all plates intact."



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CALENDAR OF EXHIBITIONS AND EVENTS

- January 15 Closing date for nominations of contestants for the LeBrun Travelling Scholarship. Apply to the Secretary of any A. I. A. Chapter or to the LeBrun Scholarship Committee, 522 Fifth Avenue, New York City.
- January 18 Closing date for applications for James Templeton Kelley Fellowship. Apply to Niels H. Larsen, Secretary, Committee on Education, Boston Society of Architects, 814 Statler Building, Boston.
- January 20 Closing date for applications for James Harrison Steedman Memorial Fellowship. Apply to School of Architecture of Washington University, St. Louis, Mo.
- January 20 "A World Cruise"—the 14th annual winter ball of the Society of Beau-Arts Architects at the Hotel Waldorf-Astoria in New York.
- January 23-25 Annual meeting of the American Society of Heating and Ventilating Engineers, in Cincinnati.
- January 25 Educational meeting of Producers' Council Club of New York at 12:15 P.M. at The Architectural League. Aluminum Company of America. Subject: "Aluminum."
- February 1 Closing date for entries in competitions for fellowships at the American Academy in Rome. Address Roscoe Guernsey, Executive Secretary, American Academy in Rome, 101 Park Avenue, New York City.
- February 17-18 Twenty-sixth annual meeting of The Royal Architectural Institute of Canada at the King Edward Hotel, Toronto, Ontario, Canada. Alcide Chaussé, Honorary Secretary, 706 St. Gabriel Street, Montreal, Quebec, Canada.
- February 18-March 11 Forty-eighth annual exhibition of The Architectural League of New York to be held in The Fine Arts Building, 215 West 57th Street, New York City.
- February 23 Educational meeting of Producers' Council Club of New York at 12:15 P.M. at The Architectural League. Carrier Engineering Corporation. Subject: "Air Conditioning."
- February 23-25 Eleventh annual North American Conference on Church Architecture at the Stevens Hotel, Chicago. An exhibit of ecclesiastical architecture will be held under auspices of the "Christian Herald."
- March 1 Closing date for registration in competition for improvement of Queens Boulevard, Queens, New York. For details see January issue of The Architectural Record, pages 10-14.
- April 23-30 Better Homes week, an educational movement under auspices of Better Homes in America, 1653 Pennsylvania Avenue, Washington, D. C. Demonstrations of new and remodeled houses, lectures, contests, etc., are urged.
- June "A Century of Progress," International Exposition at Chicago.

ARCHITECTS' ANNOUNCEMENTS

Gustave J. Abrams, architect, has changed his address from 3060 Hull Avenue to 2101 Cedar Avenue, New York City.

Ralph D. Huszagh, architect, has moved from 6 North Michigan Avenue to 8 South Michigan Avenue, Chicago, Illinois.

William F. Abts, Jr., architect, has moved from 369 East North Avenue, Wauwatosa, Wisconsin, to 912 West Ring Street, Milwaukee, Wisconsin.

Lyman St. John, architect, has changed his address from 149 West 5th Street to 57½ West 3rd Street, Saint Paul, Minnesota.

Emanuel V. Buchsbaum, architect, has moved from 6930 South Shore Drive to 2373 East 70th Street, Chicago, Illinois.

George C. Buchtenkirk, architect, has moved from 55 West 42nd Street to 205 East 42nd Street, New York City.

G. Albin Pehrson has moved from 621 Old National Bank Building to 820 Old National Building, Spokane, Washington.

Paul McGrath, architect, has changed his address from 38 South Dearborn Street to Room 308, 225 North Michigan Avenue, Chicago, Illinois.

James A. Britton, architect, has moved from 174 Great Road, Maynard, Massachusetts, to 10 Federal Street, Greenfield, Massachusetts.

Allen E. Stoltz, designer, has moved to 2576 Delhi Street, Dubuque, Iowa.

Harry L. Colton has severed his connections with the firm of Colton, Knecht, McCarty and Theband, architects, and has opened offices at 754 Burton Street, S. E., Seymore Square, Grand Rapids, Michigan.

Donald Barthelme, architect, announces the opening of an office for the practice of architecture at 1122 United States National Bank Building, Galveston, Texas.

Charles A. Platt, architect, announces that William and Geoffrey Platt have become his partners under the firm name of Charles A. Platt, William & Geoffrey Platt, with offices at 101 Park Avenue, New York City.

Announcement is made that the firm of architects heretofore practicing under the name of Philip L. Small will practice in the future under the name Small, Smith & Reeb. The partners in this firm are Philip L. Small, George C. Smith, J. Elmer Reeb and James I. Kuhn. Offices are in the Terminal Tower, Cleveland. Mr. Francis K. Draz, 13124 Shaker Square, will be associated with Small, Smith & Reeb in residence work.

RECOGNITION



Givens Hall, School of Architecture, Washington University, St. Louis, Mo.

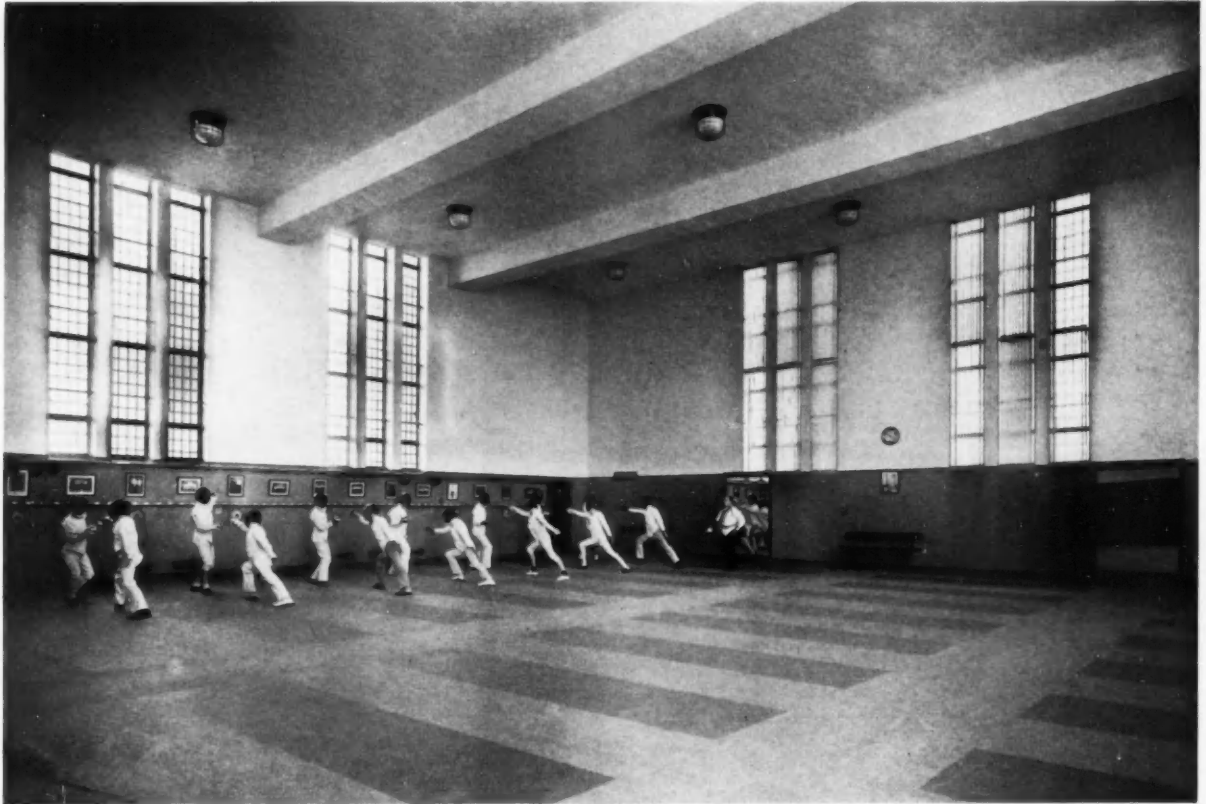
There are many factors which recommend the use of Libbey-Owens-Ford Quality Glass, but far more convincing than statements concerning it are the silent testimonials offered by the character of the buildings for which it is specified. Illustrated, is Givens Hall, School of Architecture, Washington University. L-O-F Quality Glass is used throughout. Jamison & Spearl, St. Louis, are the architects; James Black, St. Louis, the contractor. For many, many years, the students of architecture within its walls will have their labors lightened and brightened by the lasting brilliance and clearness of windows of Libbey-Owens-Ford Quality Glass.



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FEATURES IN THE FEBRUARY ISSUE



FENCING ROOM IN PAYNE WHITNEY GYMNASIUM, YALE UNIVERSITY

OFFICE OF JOHN RUSSELL POPE, ARCHITECT

PAYNE WHITNEY GYMNASIUM, Yale University—Office of John Russell Pope, Architect. A complete photographic showing of a notable new college gymnasium which won the distinguished merit prize in the Olympic Games World Competition for a building devoted to sports. Exterior views are given, together with many interiors of the swimming pool, arena, gymnasium and rooms for various games.

WORKING DATA ON BUILDING ALTERATION. A checklist of construction and plan items that the architect should consider in remodeling a property for new uses. Among the buildings illustrated will be:

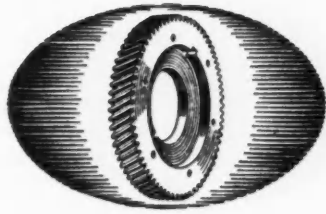
The remodeled Emigrant Industrial Savings Bank, New York City.
Voorhees, Gmelin and Walker, architects.

The Sutton Place Branch of The National City Bank.
Aaron G. Alexander, architect.

Remodeled building for The Economy Grocery Stores Warehouse,
Boston. Richmond and Morgan, architects.

The Astor Restaurant, New York City. William Muschenheim.

GYMNASIUM PLANNING (Technical News and Research). A building type study that covers the procedure involved in planning athletic facilities for colleges, schools and club buildings. The working data for planning and equipping the gymnasium includes space requirements, lighting standards, etc., for basketball, squash courts, indoor tennis, fencing, rowing, boxing, handball and other indoor sport activities. This article, prepared by the Office of John Russell Pope, has particular reference to the planning and construction of the Payne Whitney Gymnasium at Yale.



*A*pppearance and character. . . . Every person has two aspects . . . the one we see and the one we know. The first is apparent immediately. The second appears only with acquaintance. . . . In this respect, machines are like men. In appearance they may conform to written specifications. Upon the unwritten depend their behavior. Their quality and stamina and worth can be established only after long acquaintance. Upon these unwritten specifications Otis Elevator Company has established a tradition for the finest in elevator construction . . . a tradition constantly enhanced by pioneering work in the fields of invention, research and testing. True progress comes by never standing still. . . . Otis Elevator Company.

• F L E T C H E R • G R A N I T E



SLEDGES & WEDGES & BIG MUSCLED BOZOS HAVE NOT YET VANISHED—ALTHO GREAT NEW GANG SAWS SLICING THIN GRANITE SLABS QUICKLY & ECONOMICALLY ARE HERALDING A NEW ERA IN GRANITE DESIGN
F L E T C H E D C O . W E S T C H E L M S E O R D M A S S





Bird's-eye view of the Inlet Yacht Club showing Yacht Harbor beyond. Floats for launching sailing canoes are shown in front. At each side is a double-deck boardwalk. Beach storage for 500 canoes is provided.



View of the Field Stadium seating 20,000 persons, showing tunnel to Flatbush Avenue, Floyd Bennett Field and to proposed subway.

PROPOSED MARINE PARK FOR BROOKLYN, NEW YORK
 CHARLES DOWNING LAY, LANDSCAPE ARCHITECT—RENDERINGS BY SCHELL LEWIS

THE ARCHITECTURAL RECORD

JANUARY, 1933

VOLUME 73—NUMBER 1

NEED FOR RECREATIONAL BUILDINGS FORESEEN BY AMERICAN INSTITUTE OF ARCHITECTS

"We are going to turn our attention to parks, municipal and national, and to the building of swimming pools, outdoor gymnasiums and country hotels."

A change will take place in buildings, and "this change will be not only in style but in kind," it is declared in a report of the Committee on Industrial Relations of the American Institute of Architects, of which William Orr Ludlow is chairman.

"The increase in leisure time will create a demand for the kind of building that leisure time will need," according to the report, predicting an era of construction activity. "The kind of building that will be required first will certainly not be the skyscraper. Dwellings and institutional buildings, schools, hospitals, churches, and similar non-commercial buildings will probably lead the way.

"There is, however, a new factor in the situation that will mean building along another line. The new factor is shorter hours of labor and longer hours of leisure. A 'five-day week' is practically an accomplished fact, and perhaps the 'four-day week' is just around the corner, for we shall keep on inventing machinery to replace handwork.

"Whether the outcome is 'five days' or 'four days,' the average man and woman will have an unprecedented amount of leisure time that is going to be filled with recreation and amusement. Already the automobile has changed our manner of living, and it will be the means of making the greatest use of out-of-doors and the buildings that go with it. The time is not far away when the heart of our great cities will be abandoned as places for residence, and will be given over to office buildings, centers for the distribution of freight and passengers by rail, bus and airplane.

"Amusements, shopping and residence are already beginning the process of decentralization, as one can readily see by the establishment in suburban towns of branches of our department stores, of moving picture houses and legitimate theaters, and by the popularity of out-of-town apartment houses. Even in these times, when there is apparently no money for building, people have been building private residences in suburbs and country.

"City congestion reached its limit in 1929, and

the many nostrums which simply seemed to make the disease worse are giving way to the obvious cure—taking the people away from the city and not into it. It is probable that skyscrapers will not be built for many a long day. We are going to turn our attention to parks, municipal and national, and to the building of swimming pools, outdoor gymnasiums and country hotels.

"The additional leisure will also promote buildings of many sorts for indoor recreation and amusement. Theaters and movie houses will flourish, great gymnasiums for football, baseball, tennis, skating and the like will be built to make outdoor sports possible indoors, for winter and at night. Our colleges, schools, hospitals and charitable institutions are even now at full capacity, and better times and more available money will bring about a great expansion of these and the new housing necessary to accommodate them.

"Wiping out the Eighteenth Amendment, without the return of the saloon, but with more general leisure, may well bring about the European way of drinking, and we shall be building beer gardens, dance pavilions, and music halls.

"We shall also build many straight highways for travel and traffic, and winding roads of scenic beauty for pleasure driving. Landscaping, planting, flowers, bridges, pavilions for rest, recreation and refreshment, public playgrounds, and golf courses, will of course accompany these in ever increasing numbers.

"Architects, engineers, city planners, landscape architects, builders, park boards and public officials will do well to think a little in advance of the inevitable trend of affairs. They should prepare for great building activity, taking account of our rapidly changing conditions and probable mode of living, so that whatever is done shall not be done in the costly haphazard fashion of former days, but shall be planned with careful study and comprehensive scheming for the greatest economic use and the most adequate future development."



Bordering walks with four rows of elm trees give many sites for lily pools, monuments, fountains and flower beds.

MARINE PARK PROPOSED FOR BROOKLYN

CHARLES DOWNING LAY, Landscape Architect

Marine Park as developed in preliminary plans comprises approximately 1,850 acres. The site, which adjoins Floyd Bennett Aviation Field on one side and fronts on the Rockaway Inlet of the Atlantic Ocean, was, in its original state, salt marsh with meandering creeks and patches of sedge growing on the mud and sand bars. Much of this area has been recently reclaimed by sand fill covered with subsoil and topsoil.

Surrounding this area is a district partly built up with one- and two-family houses; farther to the west and north is concentrated an apartment-house population without adequate park facilities. Within a 16-mile radius is a population of six million persons. Proposed subway extensions will make the park accessible to this metropolitan population.

Proposed Facilities for Recreation

The park will have 427 acres of water for marine sports and 425 acres of lawn for games in addition to 264 acres of walks, 156 acres of roads and drives, a 130-acre golf course, 17 acres of tennis courts, 17.2 acres of playgrounds, 9.6 acres of farm gardens, and 6 acres of flower gardens. Thirty-eight buildings are planned.

Water Sports

Natural topographical conditions have determined the planning of this marine park in fact as well as in name. Water areas within the development

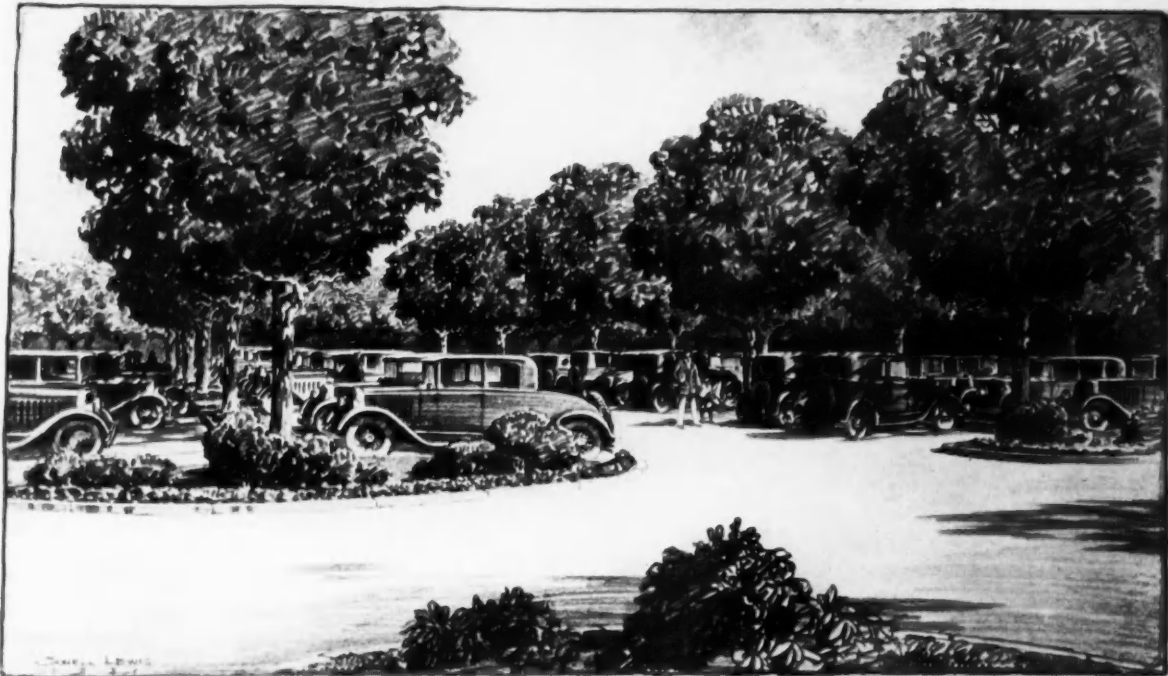
are featured as four separate units: (1) the Long Canal, (2) the Big Pool, (3) the Outboard Harbor, and (4) the Yacht Basin.

The Long Canal starts with a basin for canoes, shells and rowboats and runs a distance of $1\frac{1}{2}$ miles to the Big Pool, which is 2,600 feet in diameter. The Big Pool and the Long Canal together form a watercourse more than $2\frac{1}{3}$ miles long and 500 feet wide over which eight crews in eight-oared shells may row a two-mile race. It is estimated that more than 4,000 canoes and small boats can be accommodated in this water area. Storage space is provided for 2,400 canoes and 2,400 rowboats.

The Big Pool in itself will be the largest lake in the New York park system. Sandy beaches separate this water from the sports field, and canoe or rowboat slides connect it with the Yacht Basin and the Outboard Motor Harbor through the canoe river, a canal 100 feet wide.

A 600-foot canal connects the 25-acre water area in the Outboard Harbor directly with the Rockaway Inlet. The outboard motor boats are not to be allowed elsewhere in the park; while on the Inlet they are under Federal control so that they are kept away from restricted areas. Boat-houses are designed to store more than 1,300 boats and motors under cover.

The Yacht Basin is 3,500 feet long, 2,000 feet wide and provides berths for approximately 1,400



Parking for automobiles in the shade of plane tree groves.

yachts of varying sizes. It will have two clubhouses with restaurants, clubrooms and lockers.

The Sailing Canoe Dock, although on the Inlet, is within the park. Storage for 500 sailing canoes is provided. All along the beach the park offers facilities for spectators as well as navigators. Steamboat docks with a total length of 2,100 feet will serve fishing excursions and New York steamers along the entrance to Sheepshead Bay.

The Boardwalk extends from Sheepshead Bay nearly two miles to Rockaway ferry. It is proposed to build the boardwalk at two levels: one near the beach and the other 12 feet above. The upper deck will be watertight so as to protect the lower level from sudden showers or a too hot sun. The lower level will be suitable for cafeterias, soda fountains, and comfort stations.

Water System

At present waters surrounding New York suffer from pollution, but sewage disposal plants are under construction by the city. The plans for Marine Park have been developed on the assumption that the waters of Jamaica Bay will be free of sewage and suitable for bathing within 5 to 10 years. The Marine Park beach is without appreciable surf and the plans envision swimming in the still waters of the Bay with floats and diving stages anchored off-shore.

It is proposed to install a sufficient number of wells and pumps to furnish seven million gallons of water a day to the Canal and to supply the fresh-water swimming pools as well as to furnish enough water to sprinkle all lawns at 10-day intervals. Salt water will be pumped from the Inlet to

supply salt-water bathing pools. The fresh water in the Canal and the Big Pool will be maintained at a fixed height of one foot above sea level. The water will be kept fresh by springs and by pumping from shallow wells. The current will be directed in such a way that no motionless spots occur and there will be a constant flow from the head to the overflow basin, where the fresh water will again be pumped into the Yacht Basin and in the Outboard Basin.

If swimming is allowed in the Big Pool as expected, chlorination will be required. Altogether ten swimming pools are planned: one indoor, two surf pools, four Olympic pools, and three smaller pools. Their combined capacity at one time will be 9,000 persons. In a cold winter these water areas will give exceptional opportunities for skating.

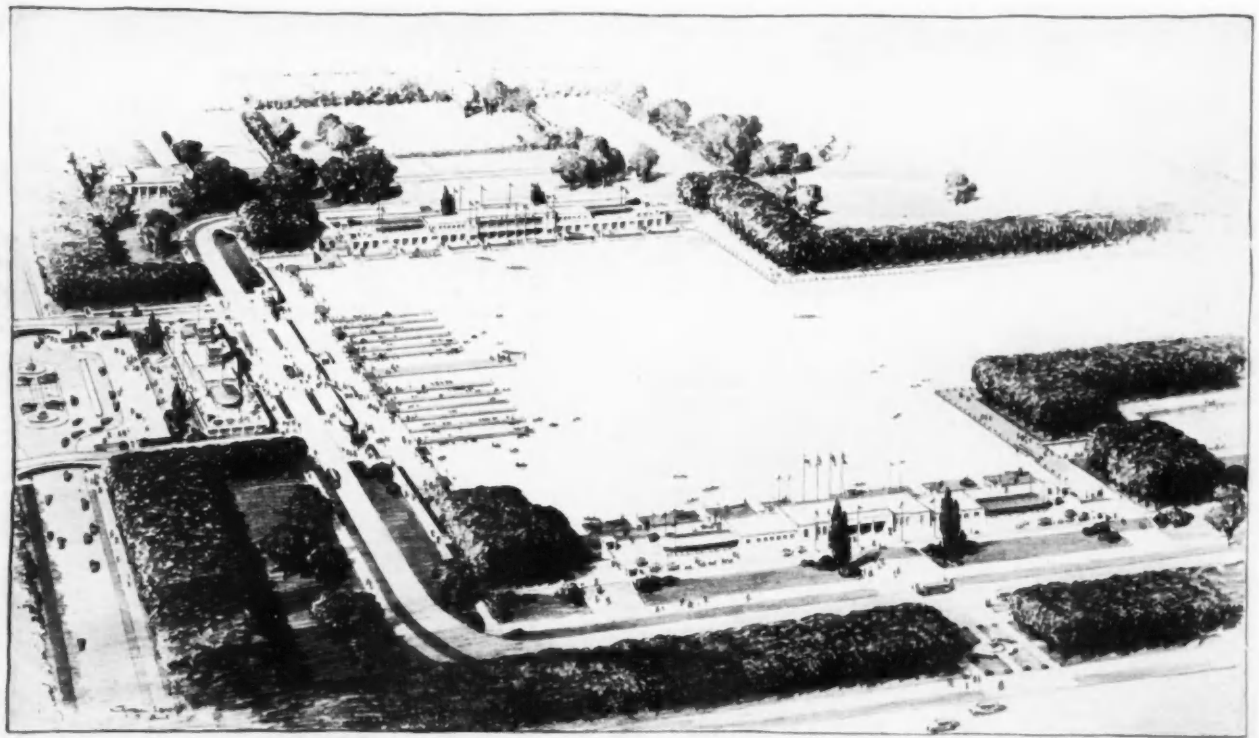
Other Park Features

A Zoo or Menagerie is proposed and an area has been set aside for an ample collection of animals and birds together with plenty of space for spectators.

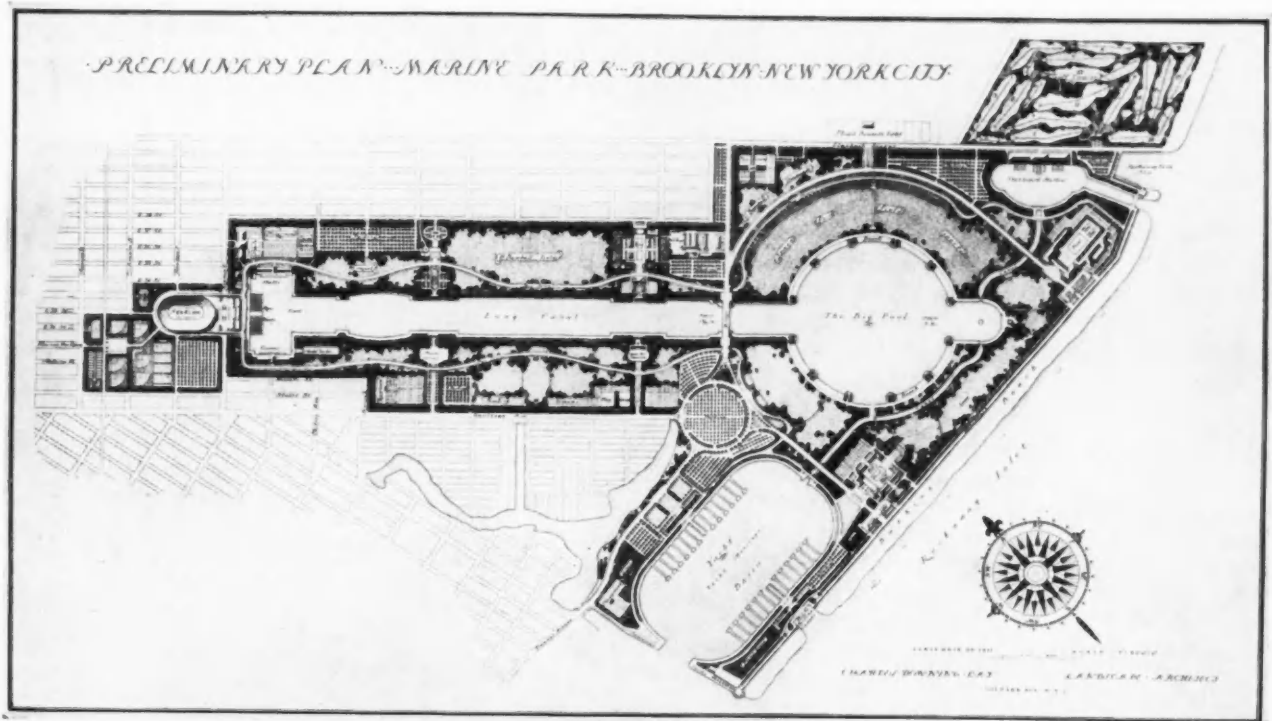
A music shell in the Music Grove will face the water so that music can also be heard by people in boats and canoes. The back of the shell is toward the street, and street noises are further isolated by planting and by mounds of earth on each side of the shell.

The Casino and Formal Garden are planned for vistas of the Long Canal and for the enjoyment of quiet and cool breezes. Ample parking space adjoins the Casino.

A Stadium seating about 100,000 persons is planned to have a small-size gymnasium, locker



Bird's-eye view of the head of the Long Canal. In front, the Canoe House storing 2,400 canoes. At the left, Rowboat House for 2,400 rowboats, with restaurant. This is reached from the big Stadium by bridges over the avenue. At the back is the Shell House for 450 shells.

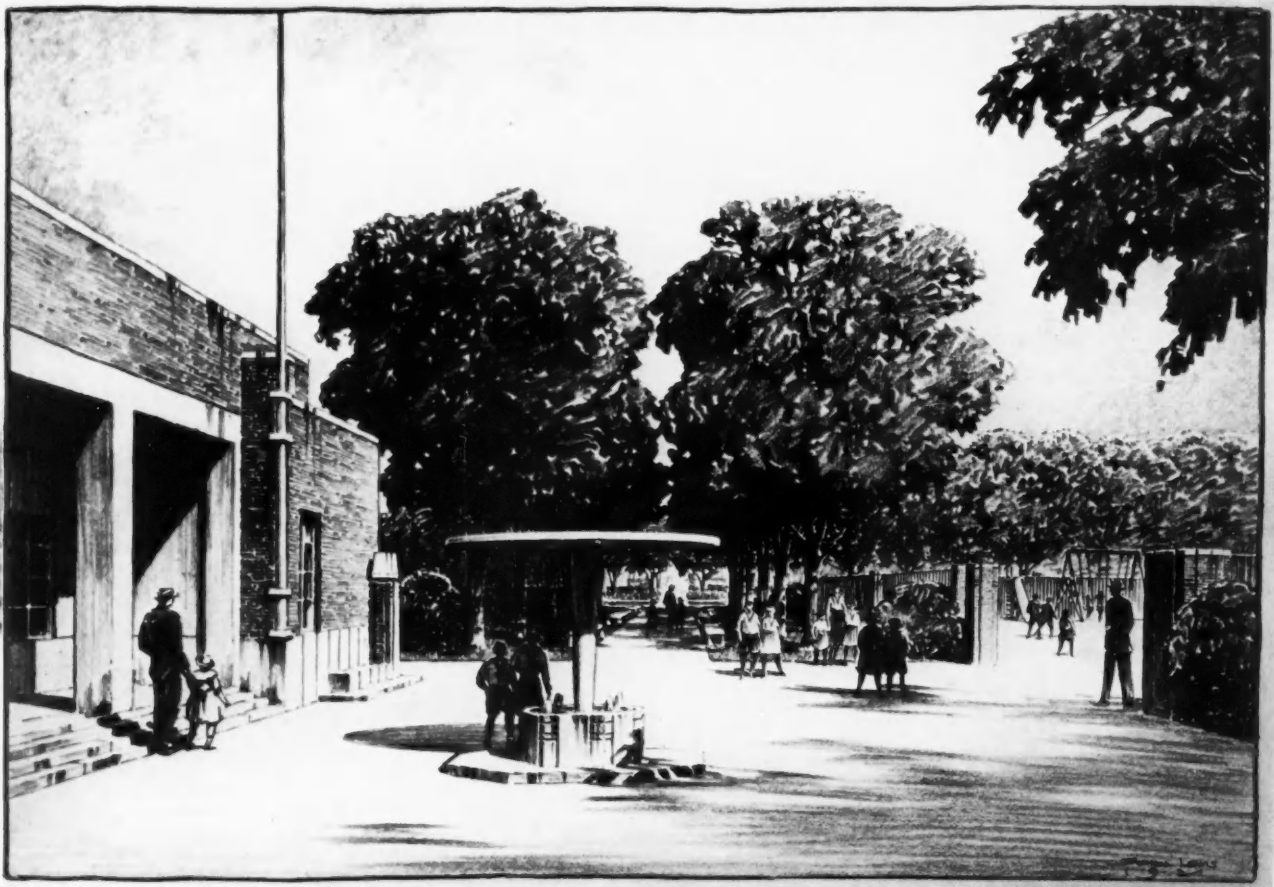


General Plan

PROPOSED MARINE PARK FOR BROOKLYN, NEW YORK
 CHARLES DOWNING LAY, LANDSCAPE ARCHITECT



The Outboard Motor Boat Harbor and Clubhouse for storing 1,300 boats. Flatbush Avenue, with a proposed subway, is at the back of the building.



A small field house accommodates attendants for playground, tennis courts and farm gardens, and gives locker and toilet facilities for all three activities.

PROPOSED MARINE PARK FOR BROOKLYN, NEW YORK
CHARLES DOWNING LAY, LANDSCAPE ARCHITECT

rooms, offices, administration quarters, and ample toilet facilities for the public. The running track has been omitted because track and field events generally do not attract large crowds and the presence of a track would place all spectators farther from the football field which is the main attraction. Within the stadium area are five permanent football fields (three with stands) and six baseball diamonds (one with a stand). Twenty-two tennis courts are also planned for this playground area.

Seven playgrounds on the borders of the park are so disposed that children living near-by can reach them easily. Buildings will serve the needs of each playground and the tennis courts.

All permanent tennis courts are to be of concrete or clay. Many courts in addition can be laid out on the turf of the sport fields. The Tennis Stadium will have three turf courts and a seating capacity of 10,000 persons.

Handball facilities are to be found in the twenty-eight 4-walled roofed courts of the East Bathhouse. A quarter-mile running track is planned for the West Sport Field; it will have a locker building and a 2,800-seat stadium.

The Lawns are all to be open for play. Together they will contain 425 acres and provide facilities for all kinds of exercises or games.

Sun-bathing facilities are proposed for the bathhouse roofs so that they can be used the year round

by tubercular children who can be brought to the park in buses, cared for all day and returned to their homes at night.

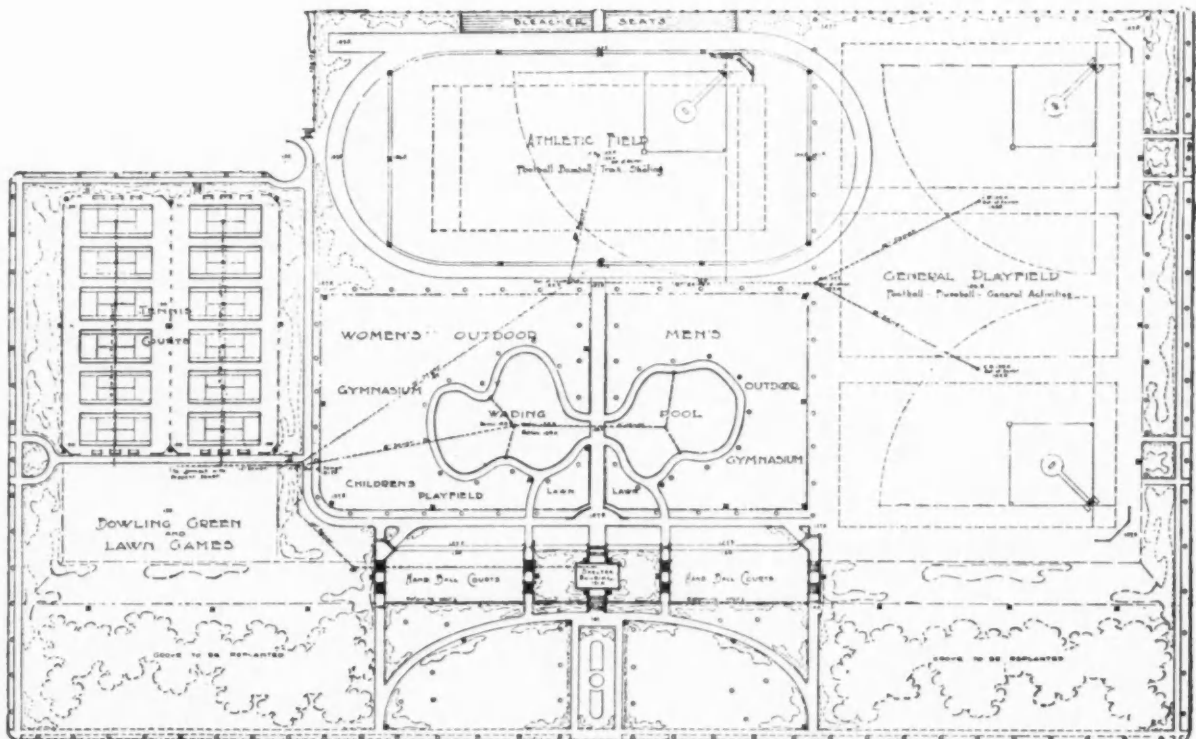
Parking Space

It is estimated that only 10 per cent of the park visitors will come by automobiles after the proposed subway lines are put into operation. Parking space consequently is provided for only approximately 17,500 cars. Overflow parking can be accommodated on the neighboring streets. If additional space is needed, plans call for construction of double-deck parking levels, one 6 feet above the street and the other 6 feet below.

All parking spaces are to be planted with trees. This planting is estimated to take 5 per cent of the total parking area.

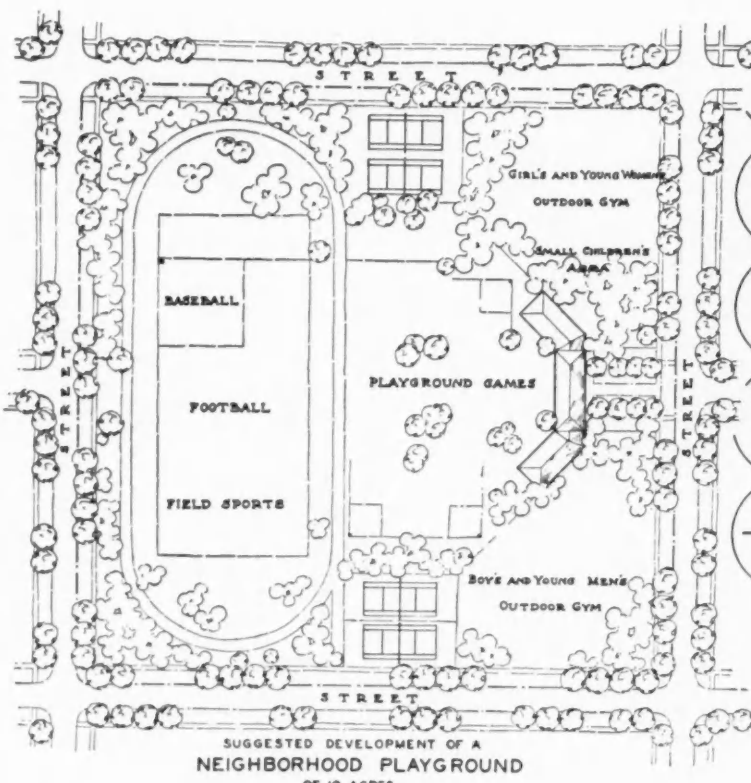
Maintenance

The adoption of the fee system has been urged for the Marine Park development. According to the architect, this system is not to be considered as a scheme for putting parks on a "paying" basis, but merely to cover the yearly cost of the services alone. It is believed that golfers should pay the entire cost of the maintenance of the golf course. Fees for tennis, croquet, field hockey or other games are reasonable and make possible the construction of additional courts or fields.

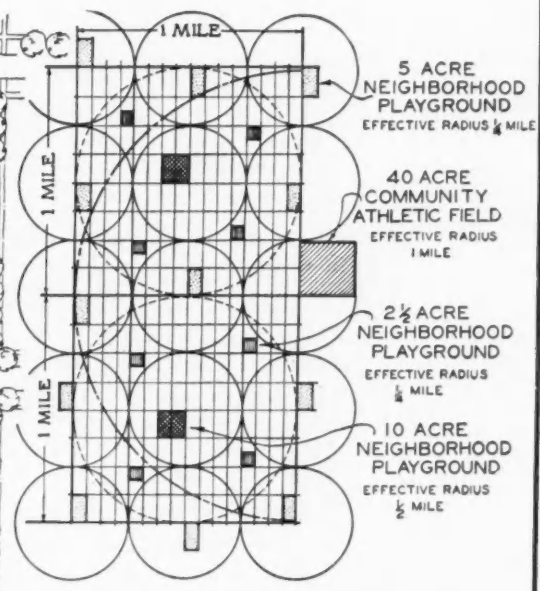


From "Play Areas"

Nicollet Field, Minneapolis. A feature of this 21.3 acre field is the unusual provision for organized games and sports. Except for planting strips, the small groves on either side of the entrance and the section devoted to the playground, practically the entire field is active recreation area. This is an excellent plan as to design, variety of facilities provided and economical use of available space. The bleacher seats are on the east side of the field—not an entirely satisfactory location. A well-located area of this type may be developed as a sports center for the entire community.

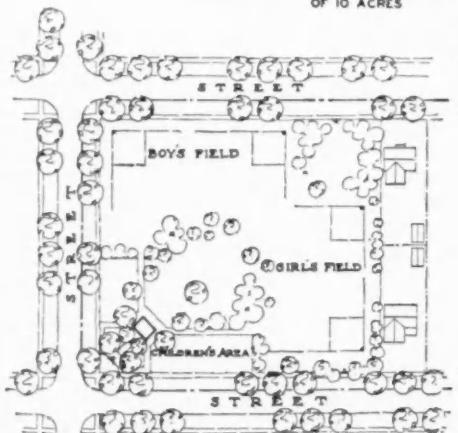


SUGGESTED DEVELOPMENT OF A NEIGHBORHOOD PLAYGROUND OF 10 ACRES

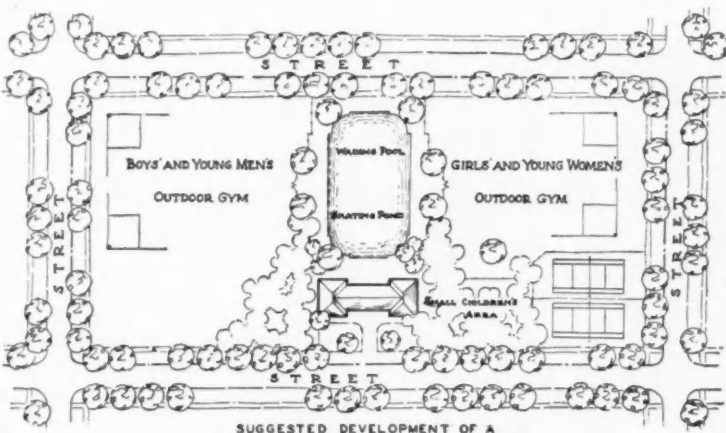


THEORETICAL PLAYGROUND DISTRIBUTION AT AN AVERAGE DENSITY OF 12 PERSONS PER ACRE

NOTE - IN ADDITION TO PLAYGROUNDS EVERY LARGE COMMUNITY SHOULD HAVE ENOUGH ADDITIONAL ACREAGE OF WOODED LANDS AND NATURAL BEAUTY SPOTS ALONG STREAMS, RAVINES, ETC. TO PROVIDE A RATIO OF 10 ACRES OF PLAYGROUNDS AND PARKS FOR EVERY 1000 PEOPLE



SUGGESTED DEVELOPMENT OF A SMALL NEIGHBORHOOD PLAYGROUND OF 2 1/2 ACRES



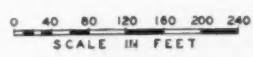
SUGGESTED DEVELOPMENT OF A NEIGHBORHOOD PLAYGROUND OF 5 ACRES

CITY POPULATION	NEIGHBORHOOD PLAYGROUNDS			COMMUNITY FIELD 40 ACRE
	2 1/2 ACRE	5 ACRE	10 ACRE	
2500	1	1	0	0
5000	2	2	0	0
10000	4	2	1	0
20000	6	5	2	0
30000	8	6	3	0
40000	10	10	4	0
50000	10	10	4	1
75000	18	16	5	1
100000	24	20	6	2
125000	38	24	8	2
150000	46	25	9	3
175000	58	30	11	3
200000	68	34	13	3

IN ADDITION TO PLAYGROUND EQUIPMENT EACH 40 ACRE COMMUNITY ATHLETIC FIELD SHOULD HAVE A FIELD HOUSE OR STADIUM WITH A LIBRARY, SWIMMING POOL, A HALL FOR COMMUNITY GATHERINGS, AND FACILITIES FOR INDOOR WINTER SPORTS SUCH AS BASKETBALL, ETC.

COMMUNITY PLAYGROUNDS

THREE ACRES PER 1000 PEOPLE
 COMMITTEE ON RECREATION FACILITIES
 CHICAGO REGIONAL PLANNING ASSOCIATION
 402 BURNHAM BLDG. CHICAGO, ILL.



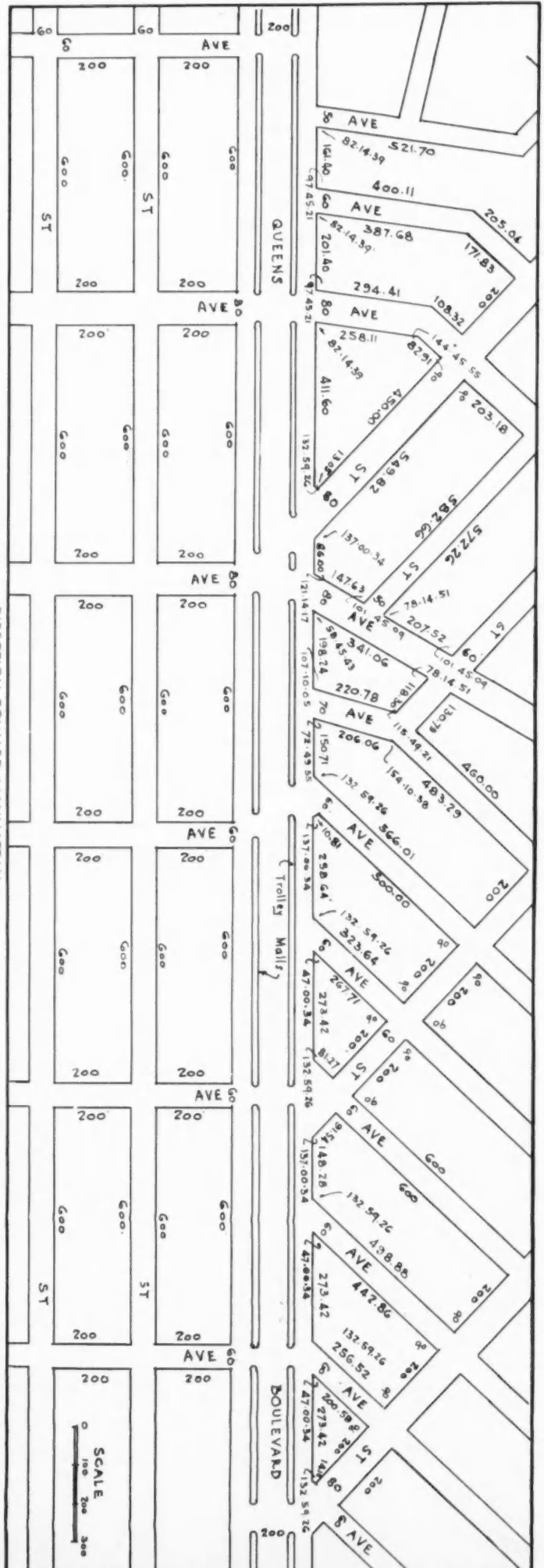
QUEENS BOULEVARD COMPETITION DATA

See following pages for terms of competition.
 (Below) Existing condition of the Boulevard.
 (Right) Plan of street intersections typical of entire length of Boulevard.



Albert Frey

← DIRECTION TOWARD MANHATTAN



DEVELOPMENT OF QUEENS BOULEVARD

PROGRAM OF A THREE-PART COMPETITION

UNDER AUSPICES OF

CHAMBER OF COMMERCE of the BOROUGH OF QUEENS

LONG ISLAND CITY, N. Y.

Competition approved by American Institute of Architects

The Chamber of Commerce of the Borough of Queens proposes a competition for the development of Queens Boulevard as follows:

Introductory

Queens Boulevard is the central artery of the Borough of Queens. It is one of the main feeder lines of secondary and minor traffic routes. It is one of the natural means of communication between Manhattan and residential Long Island.

The development of Queens Boulevard has been slow because of the great amount of difficult grading work required. The construction of the city subway beneath the greater part of the Boulevard has further retarded development.

The Boulevard itself is now almost completed and the subway is expected to begin operation early in 1933. For the purposes of the competition it is assumed that the differences in grade are negligible.

The Chamber of Commerce of the Borough of Queens is anxious to assist the development of the Boulevard. In order to guard against mistakes it desires to work out suggestions for an orderly plan of development. For this purpose it desires to study the problems of abutting property owners as well as the problems of the Borough and of the city as a whole.

Property owners along Queens Boulevard have during the last five to ten years been forced to carry their properties virtually unimproved and wait for the completion of public improvements. These owners have been obliged to make the most out of such temporary earnings as it was possible to collect from gas stations, billboards, storage yards and even the selling of earth for fill. As a result the thousands of motorists approaching the city via Queens Boulevard are given a false impression of the Borough as a whole.

Competition to Stimulate Ideas

The Chamber of Commerce is seeking ideas which will improve the conditions now existing. It recognizes that any transition must be slow. For this reason it proposes to hold a competition in three parts in which both the immediate future and the ultimate development of the Boulevard will be considered.

Part I: A proposal which will immediately improve the appearance of the Boulevard and permit

present owners to earn enough from temporary use to pay taxes and reasonable carrying charges.

Part II: A proposal for the treatment of a typical shopping, business or recreational zone on the Boulevard in such a manner that there will be ample protection to adjoining residential properties, as well as space and facilities to attract the patronage of the immediate neighborhood and in addition adequate space for those approaching by motor.

Part III: A proposal for the ultimate treatment of an apartment house zone lying between two business zones.

Conditions

The competition will be open to all architects, landscape architects, architectural draftsmen and engineers.

The conditions and requirements for the three parts of the competition are set forth in detail hereafter.

Copies of the program may be obtained by calling personally at the Architectural League, 115 East Fortieth Street, New York City.

Copies may be obtained either by mail, or by calling personally at the offices of the Chamber of Commerce, in the Crescent Plaza Building, Bridge Plaza South, Long Island City, N. Y., or THE ARCHITECTURAL RECORD, 119 West Fortieth St., New York City.

All competitors intending to compete must send in a letter of registration, giving the name and address of the competitor, on or before March 1, 1933, in order to qualify for Part I.

Part I of the competition will close March 15, 1933, and all drawings must be delivered flat in a package, before 5 o'clock P. M., March 15, 1933, at the Chamber of Commerce office, in the Crescent Plaza Building, Bridge Plaza South, Long Island City. The second and third parts will be held later in the year at times to be announced.

Drawings shall be mounted on compo or similar board. No mount shall exceed 60" x 40". Competitors are requested to keep their borders trimmed close and to use mounts as small as possible. There shall be one mount only for the drawings submitted in each class.

Drawings shall be signed with name and address of the competitor in lower right-hand corner.

The Chamber of Commerce shall have the right

to reproduce drawings with credit to the maker and to exhibit same to serve the purposes of the Chamber.

Prizes

Prizes will be awarded as follows:

For the best drawings and solutions, of Part I, as described herein, a first prize of \$200 and a second prize of \$75.

For drawings and solutions of the problem possessing such special merit as the jury may desire to single out for honorable mention, additional awards of \$25 each.

For the best and most comprehensive statement accompanying the drawings a special prize of \$25.

Jury

The jury shall consist of the following: Leslie S. Baker, of the Regional Plan Association of New York; Theobald H. Engelhardt and Arthur C. Holden, of the American Institute of Architects; William W. Knowles, of the Society of Beaux Arts Architects; George C. Meyer, real estate interests.

General

It should be borne in mind by competitors that the Chamber seeks to benefit the entire Boulevard. For the purpose of the competition a small section is to be considered as typical. The solutions which are worked out for it will be weighed for their applicability to conditions existing generally along the whole Boulevard. For the sake of the competition it is assumed that the properties abutting the Boulevard are in the hands of a single owning trustee or corporation with which several owners have deposited their deeds in order to secure the benefit of cooperative administration.

Competitors are recommended to consult Bibliography on Housing, Zoning, and Town Planning published 1929 by National Housing Association. THE ARCHITECTURAL RECORD for January, 1933, contains additional special material. Also see Reports of Long Island State Park Commission, and Westchester County Park Commission, and Vol. I. Report of President's Conference on Home Building and Home Ownership.

PART I

Registration closes March 1, 1933. Drawings due at 5 P. M., March 15, 1933.

A proposal which will immediately improve the appearance of the Boulevard and permit present owners to earn enough from temporary use to pay taxes and reasonable carrying charges.

For the purposes of the competition it is assumed that the owners of properties bordering on the Boulevard in the mapped section have agreed to put their properties into one unified management for what they anticipate will be a transitional period of development. It is possible that this period may last as long as ten years. Competitors are asked to make proposals for the carrying of this strip of property in such a way as to stimulate development of adjoining properties and ultimately to attract the best possible type of permanent development.

Competitors are not to be held to any definite limitations. By way of suggestion it is pointed out that some owners favor the creation of at least a temporary park strip similar to the park border along the Bronx River Parkway, the Southern State Parkway on Long Island and other similar parkways. If this type of development is followed, competitors should clearly indicate the park border which may vary in depth and a secondary strip which may also vary in depth immediately adjoining. This secondary strip may contain the majority of the income-producing structures or features.

Competitors shall submit the following data: *A plan at the scale of 1" = 80'* which may be rendered in color or black and white, and which shall be suitable for reproduction purposes. This plan shall indicate the treatment of the entire portion of the Boulevard given on the accompanying map and shall show a scheme for the park border

if such is suggested, and the arrangement of the temporary buildings in the secondary border.

Competitors are desired to use their own originality. They may if they desire submit plans for concentrated parked spaces with temporary buildings at alternate locations or concentrated in groups. The conditions of the competition, however, presuppose that all of the property shown on the map will immediately be put into attractive condition and the bordering temporary buildings so arranged as to screen undeveloped property beyond from view of the Boulevard.

The park border should be developed with a certain amount of planting—lawns, flower beds and fast-growing trees and shrubbery. The grouping and landscaping of this planting is a part of the competition. In addition certain recreational features may be incorporated in the park section such as tennis courts, small recreation and rest pavilions. This park border need not be broken at every intersecting block. Competitors are permitted discretion in the temporary realignment or closing of streets, provided provision is made for anticipating increased demands for access to the Boulevard as adjoining properties develop.

Competitors are also to be given full latitude in the development of the border strip of buildings. While these have been designated as temporary, in all likelihood some buildings may be suggested of a more permanent nature. The purpose of the development of the bordering strip is to screen the adjoining vacant lots from the Boulevard and to present a unified and harmonious appearance. Provision should be made for such reasonable business as is now warranted, either in the border strip, or in the park area itself, provided the

aesthetic treatment can be satisfactorily carried out.

The character of the border buildings is left to the competitors. The frontage may be irregular, or may present a virtually unbroken surface. The buildings may be either apartments, individual houses or row houses. The style should be appropriate for a great modern Boulevard in a modern city. It is left to the competitor whether traditional or new forms shall be used. The character and size of these border buildings must be in proper relation to the rental values which now prevail along the Boulevard, and it is assumed, for purposes of this competition, that the buildings will earn enough income to pay interest charges, taxes, and at least one-half of the cost of construction within a period of ten years.

In addition to the plan, competitors will be required to submit *perspective sketches*. These may be rendered in any medium which can be satisfactorily reproduced. The sketches shall not exceed 18" in the greatest dimension. These sketches are intended to amplify and explain the plan—they should be designated by the letters of the alphabet and the location of the sketch indicated on the plan. Not less than three sketches are required and not more than five. It is preferred that these be placed on the same mount as the plan, above or below, so as to be easily interpreted.

Explanatory Material

In addition to the drawings, competitors in this part of the competition shall furnish a statement not to exceed 200 words in length explaining the general principles of their proposal and suggesting a method for compensating the owners in both park strip and border strip for the use of their property during the ten-year period. Competitors will be justified in assuming that the adoption of such a plan will spread the development along the Boulevard—along a wider strip, and that adjoining properties will be developed more rapidly because of improved conditions along the Boulevard. Competitors may suggest the way of paying for the improvements and call attention to especial noteworthy features of their design. It should be remembered that the purpose of the competition is to benefit the adjoining owners and to enable them to cooperate both for their own benefit and for the Borough of Queens as a whole.

Competitors shall append to this statement a list of names of collaborators, authorities consulted, and similar developments studied or visited.

Competitors should carefully read Parts II and III of this program and give due consideration to future developments on the Boulevard, in the proposals submitted as a solution of Part I.

PART II

Dates of registration, delivery of drawings and scale of awards to be announced later.

A proposal for the treatment of a typical shopping, business or recreational zone on the Boulevard in such a manner that there will be ample protection to adjoining residential properties, as well as space and facilities to attract the patronage of the immediate neighborhood and in addition adequate space for those approaching by motor.

Competitors in this part of the competition are asked to develop a portion of the accompanying map as a permanent business center providing at least 500 feet of store frontage. It is assumed that the Boulevard will be zoned in such a way that local business centers will be developed upon the Boulevard at intervals varying from one-half mile to a mile. Competitors may suggest the opening up of wide spaces which may be utilized for the parking of automobiles—they may assume that this opening up will be in any shape such as a triangle, a rectangle, or a semicircle. It is assumed that each of these centers will contain the local shops for the limited surrounding population. In addition each center may have a special character—for example—a movie house or theater possibly a local department store, or a local automobile sales, or repair center. A library, concert or assembly hall may also be considered. Freedom of choice is intended to be left to the competitors. It will,

however, be required that the competitor show in his drawing the method of protecting the adjoining residential sections from objectionable encroachments by the business center. The protection may be through effective rearrangement of street frontage, the placing of buffer buildings—such as apartments, or row houses at the rear of the business section or by planting carried out in such a way as to screen objectionable features in the business center.

Competitors in Part II will be required to submit a plan of the business or amusement center, drawn to the scale of 1" = 32'. This plan should be rendered in a manner suitable for reproduction and should indicate the approach from the Boulevard and the method of protection at the rear. Competitors shall also furnish a bird's-eye perspective at a corresponding scale. If the method of rear protection cannot be indicated on the bird's-eye drawing, one additional drawing may be submitted, greatest dimension of which shall not exceed 18".

Competitors shall submit a statement not exceeding 200 words explaining the salient features of the plan and pointing out how it is proposed to carry the cost of the property which it is recommended to put into the public space either for automobile parking, public streets, or planting.

Competitors shall append, as in Part I, collaborators, authorities, etc.

PART III

Dates of registration, delivery of drawings, and scale of awards to be announced later.

A proposal for the ultimate treatment for an apartment house zone lying between two business zones.

For the purpose of this competition it is assumed that the method proposed in Parts I and II of this competition has been pursued, and that certain sections of the Boulevard between the business centers will ultimately be developed into apartment house zones. Some of these sections may be developed within two or three years, other sections may not be solidly developed fronting on the Boulevard until after a period of ten years or more. It is the purpose of Part III of the competition to develop suggestions for this ultimate intensive treatment of the immediate apartment house zone lying between the business sections. It is proposed that in the section to be considered a local limitation of nine stories in height has been set—to which height portions of the buildings may be carried. It is assumed that part of the buildings will be not more than six or seven stories in height.

It is desired to show the treatment of mass formations. Competitors may at their option show treatments which are based upon uniformity or upon uniformity in combination with variations which are harmonious. It is desired to develop recommendations for local regulations for terraces,

street planting, areas and covered decks or arcades on the building line, the opening up of courts and the limitations of the amounts of main wall to be permitted on the building line.

In submitting plans, due consideration must be given to the mass of the building and to the practical limitations of interior subdivisions. Deep narrow courts will not be permitted. Solid bulks of buildings which are out of proportion to reasonable size of rooms and interior surface requirements will disqualify a competitor.

In this part of the competition there will be required a plan of all that portion of the Boulevard shown in the accompanying map with the buildings shown upon it at a scale of $1'' = 80'$. It is assumed for purposes of Part III only that the map shows the section between two business centers. The competitor may at his option select either of the following: A bird's-eye view at a convenient scale, or a detail sketch showing not less than 600 feet of Boulevard at the scale of $1'' = 16''$.

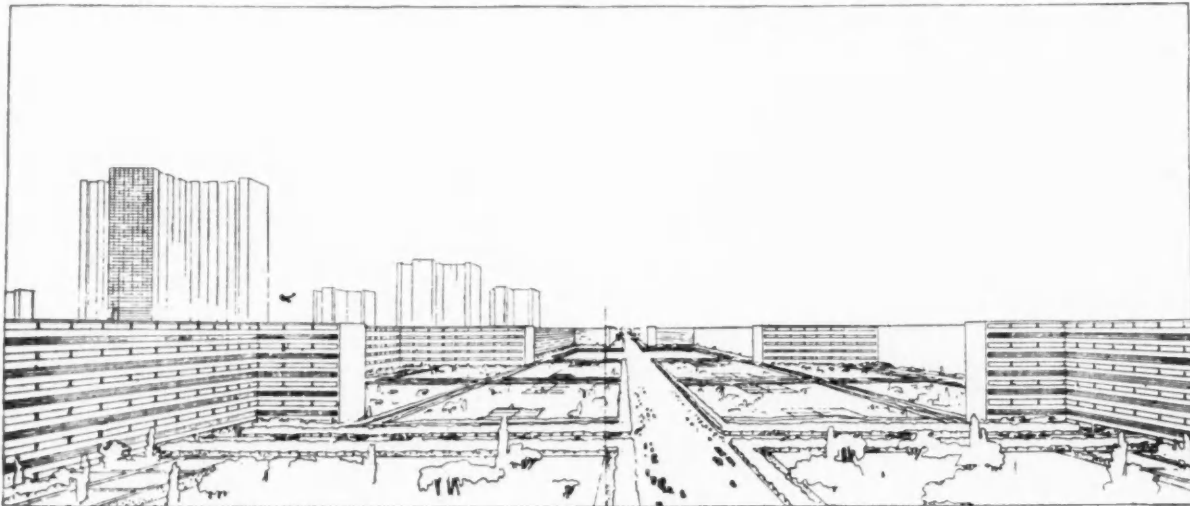
Competitors in Part III will be required to submit a statement not exceeding 200 words in length explaining their recommendations. This shall include suggestions for dividing the carrying costs of restrictions or variations in height and bulk equitably among the private owners concerned.

Competitors shall append as in Part I, collaborators, authorities, etc.



Albert Frey

PRESENT CONDITION OF QUEENS BOULEVARD



"THE CITY OF TOMORROW"—A HIGHWAY SCHEME BY THE EUROPEAN ARCHITECT LE CORBUSIER

PLAYFIELD SPACE REQUIREMENTS

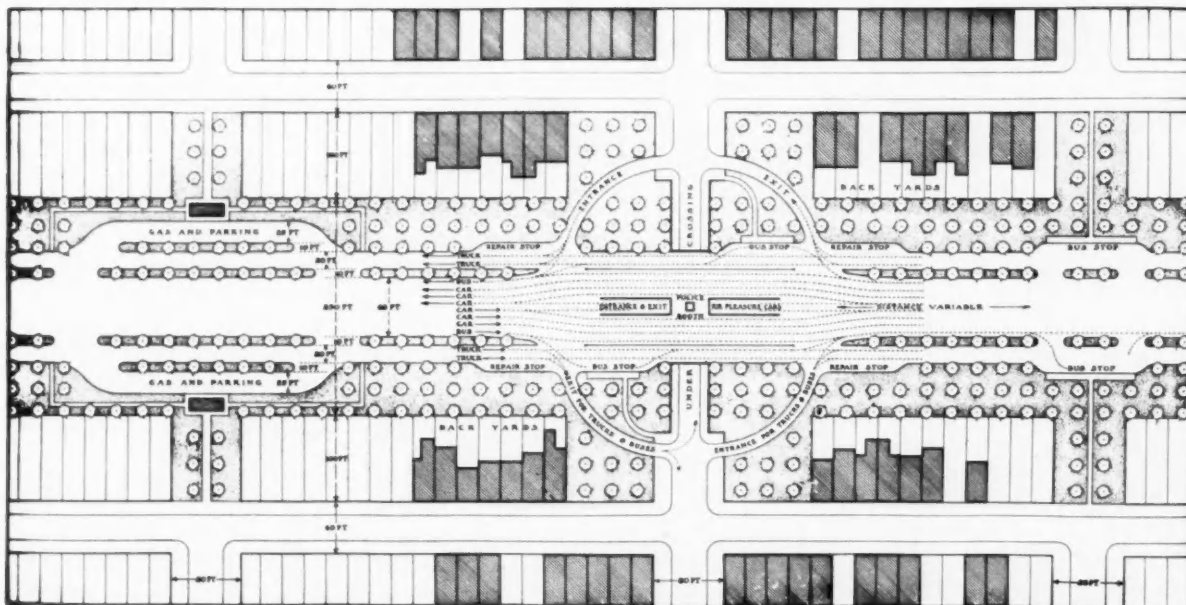
The following space divisions, recommended by the Playground and Recreation Association of America ("Play Areas," published by A. S. Barnes & Co., New York, 1928), for a 10-acre and 20-acre playfield have been suggested by L. H. Weir in "Parks—A Manual of Municipal and County Parks":

Playfield of 10 acres:

- a. Space for children's playground, about 2 acres
- b. Space for women's and girls' athletic field, about 2 acres
- c. Space for men's and boys' athletic field, about 4 acres
- d. Space for small park, about 1 acre
- e. Space for community house, swimming pool, and additional parking, about 1 acre

Playfield of 20 acres:

- a. For children's playground, about 3 acres
- b. For women's and girls' athletic field, about 4 acres
- c. For men's and boys' athletic field, about 6 acres
- d. For park and parking, about 6 acres
- e. For site for community house and swimming pool and grounds adjacent, about 1 acre



A proposed scheme by Charles Downing Lay, landscape architect, for a high-speed trunk highway through a suburban or city district. There are no grade crossings. The scheme is independent of the city street systems; there is no local traffic on the highway, and all stops for repair or gasoline or for parking must be made off the traffic lanes. Traffic in the central eight-car lane might be entirely in one direction on Saturday afternoon and entirely in the opposite direction Sunday afternoon, the small amount of opposite traffic being cared for in either of the two-lane side roads.

ALTERATION WORK FOR ARCHITECTS IN 1933

There probably never has been a time when news of developments affecting the profession of architecture has been awaited with so keen an expectation as now—an expectation founded on a hopeful belief that the long decline in building is at an end and on the conviction that the conditions of practice when the recovery sets in will differ materially from those which existed during the post-war activity.

The depression has acted as a spur to study of long-standing defects in the building industry. A program of collaboration has been adopted by the major professional, trade and business associations in the building industry to suppress abuses, remove waste and build an enduring foundation for restored prosperity. Modernization of old structures under the direction of architects is one of the major activities of the current year.

The statistical record of alteration work, including repairs and additions, indicates (1) that such work will constitute an important percentage of next year's total construction, (2) that many types of building will be represented and (3) that a large share of the alteration work will be designed by architects.

The table in adjoining column, taken from the Monthly Labor Review, published by the Bureau of Labor Statistics of the U. S. Department of Labor, shows the percentage relationship of alteration work to total construction in the building permits of approximately 350 identical cities. It goes back far enough to afford an interesting comparison of the current depression years with those of the early 'twenties.

The table at the bottom of the page, compiled by the Dodge Statistical Research Service, shows the great variety of alteration work contracted for in the first nine months of 1932 and the percentage of it designed by architects.

The inferences to be drawn from these tables

1920	19.0	1926	9.0
1921	14.6	1927	9.8
1922	10.1	1928	9.5
1923	9.9	1929	12.1
1924	9.8	1930	14.7
1925	8.4	1931	15.3
		1932 (9 months)	21.1

leave no doubt that information on the various phases of alteration work, including repairs and additions, will be timely and useful in the coming year. A good part of THE ARCHITECTURAL RECORD in 1933 will therefore be devoted to the illustration of typical examples. The architectural problem will in each case be made clear through plans, drawings and photographs, a brief accompanying text setting forth the controlling economic data.

CLASSIFICATION	ARCHITECT PLANNED	PRIVATELY PLANNED	ARCHITECTS' PER CENT OF TOTAL
Commercial Buildings.....	\$19,513,000	\$16,559,800	54.1
Factories	5,245,800	7,911,400	39.9
Educational Buildings.....	13,452,500	2,093,500	86.5
Hospitals and Institutions.....	4,748,600	2,720,900	63.6
Public Buildings	7,320,300	2,396,300	75.3
Religious and Memorial Buildings..	4,393,400	1,289,300	77.3
Social and Recreational Buildings..	4,411,000	2,518,000	63.7
Apartments and Hotels.....	6,895,000	3,861,600	64.1
One- and Two-Family Houses.....	7,569,200	9,500,800	44.3
Public Works and Utilities.....	2,413,700	12,027,100	16.7
Total	\$75,962,500	\$60,878,700	55.5
Total Number of Projects.....	6,169	10,596	
Average Value of Projects.....	\$12,314	\$5,745	

PORTFOLIO OF CURRENT ARCHITECTURE

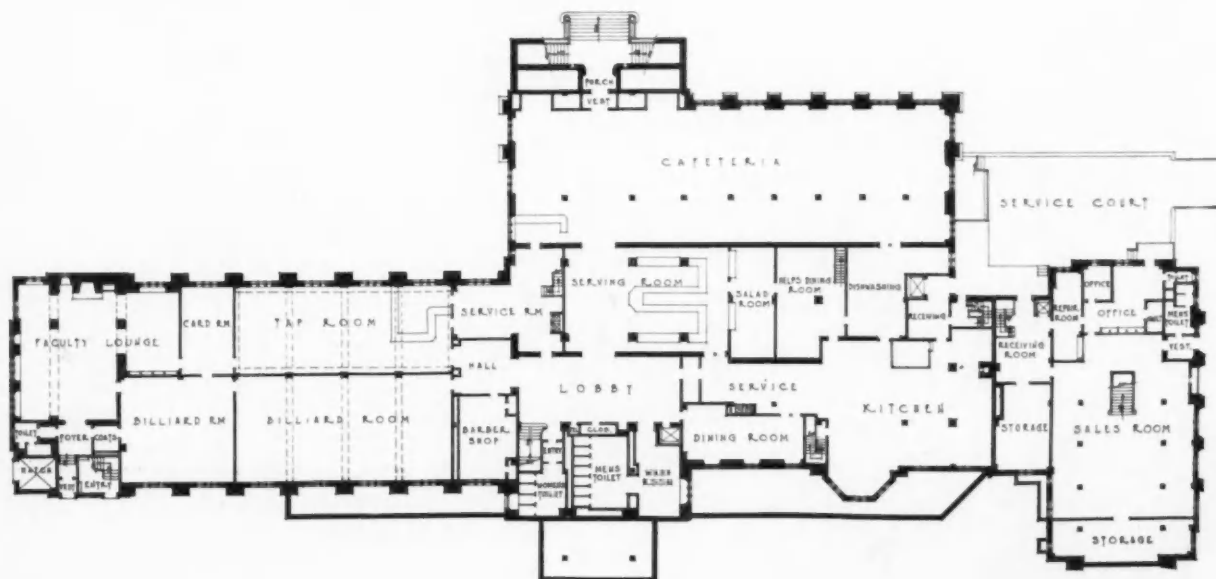


Trowbridge

INDIANA UNION BUILDING
INDIANA UNIVERSITY, BLOOMINGTON, IND.
GRANGER AND BOLLENBACHER, ARCHITECTS



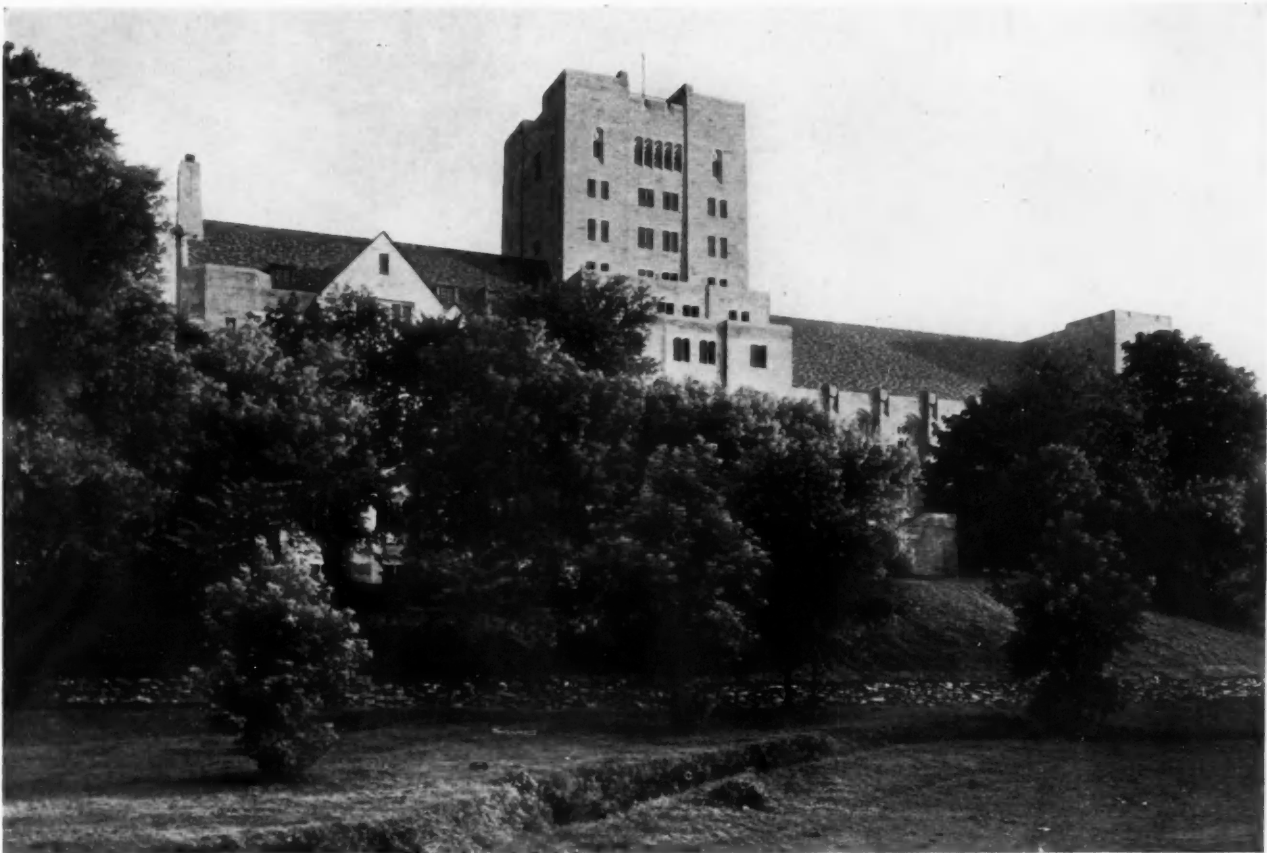
Trowbridge



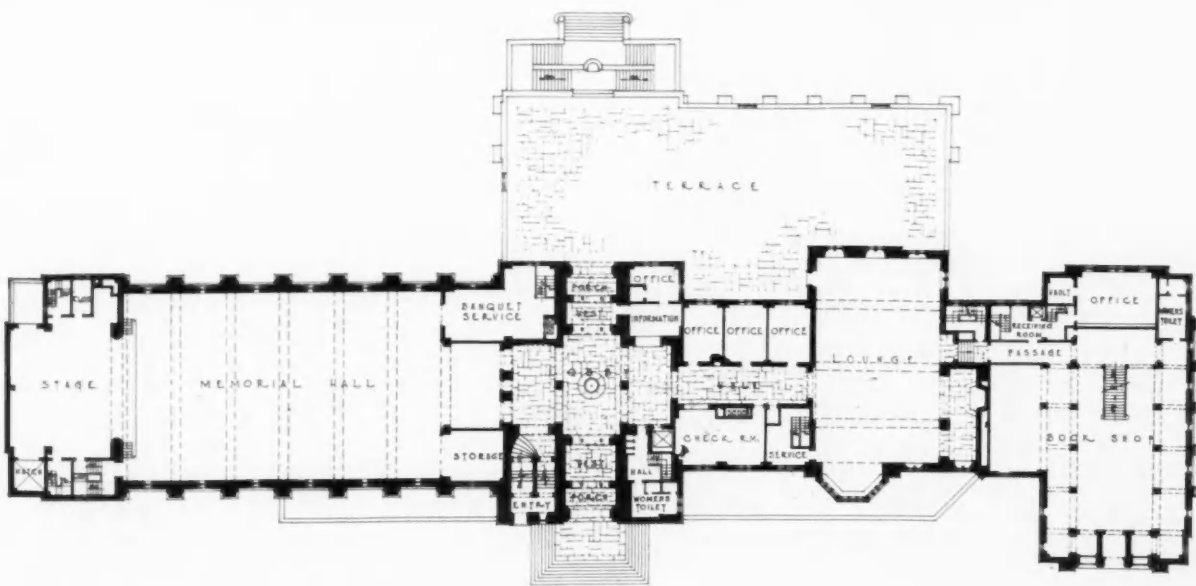
GROUND FLOOR PLAN

INDIANA UNION BUILDING
INDIANA UNIVERSITY, BLOOMINGTON, IND.
GRANGER AND BOLLENBACHER, ARCHITECTS

This building is essentially a men's club with lounge, dormitory rooms, billiard rooms, taproom, dining rooms and committee rooms, and offices for Alumni Association and many student activities. Total cost of construction: \$600,000, or 35 cents a cubic foot.



Trowbridge



MAIN FLOOR PLAN

It includes also a University bookstore wing, a faculty club, a memorial hall for assembly, theatricals, banquets and dances, and a University commons or cafeteria open to both students and the public.

INDIANA UNION BUILDING
 INDIANA UNIVERSITY, BLOOMINGTON, IND.
 GRANGER AND BOLLENBACHER, ARCHITECTS



Trowbridge

INDIANA UNION BUILDING
 INDIANA UNIVERSITY, BLOOMINGTON, IND.
 GRANGER AND BOLLENBACHER, ARCHITECTS

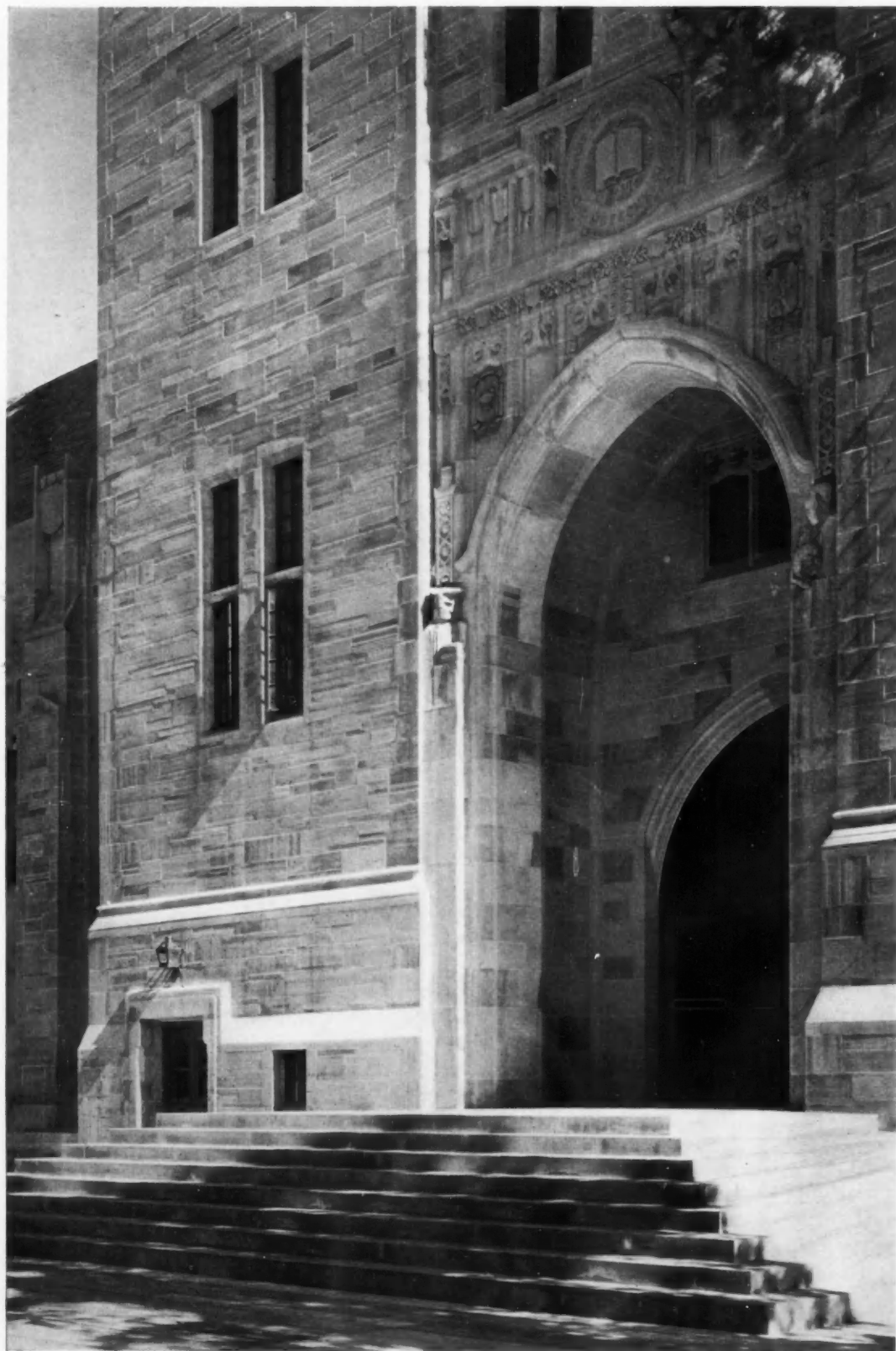
Memorial Hall (above) and Main Lounge (below). Interior wall surfaces of lobbies and Memorial Hall of Indiana limestone. Floors of flagstone on terrace, slate in lobbies, herringbone parquet oak in Memorial Hall and Main Lounge, quarry tile in kitchen, stripped terrazzo in other principal rooms.



Trowbridge

Fireproof structure of reinforced-concrete skeleton construction on foundations to solid rock bearing. Structural-steel pitched roof with roofing of unfading green and purple graduated slate. Entire exterior of Indiana limestone with broken random chatter sawed ashlar and cut stone trim.

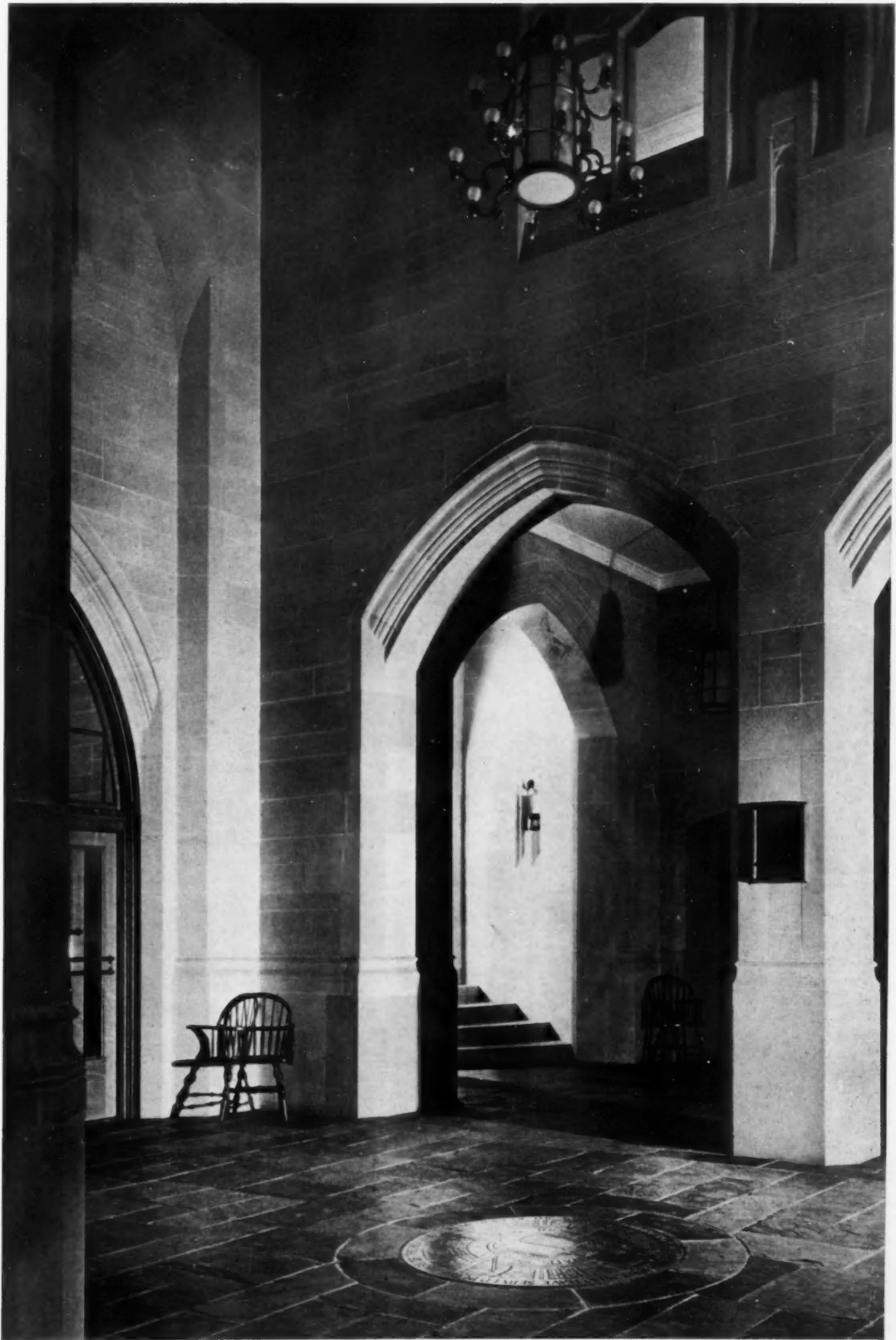
INDIANA UNION BUILDING
INDIANA UNIVERSITY, BLOOMINGTON, IND.
GRANGER AND BOLLENBACHER, ARCHITECTS



Trowbridge

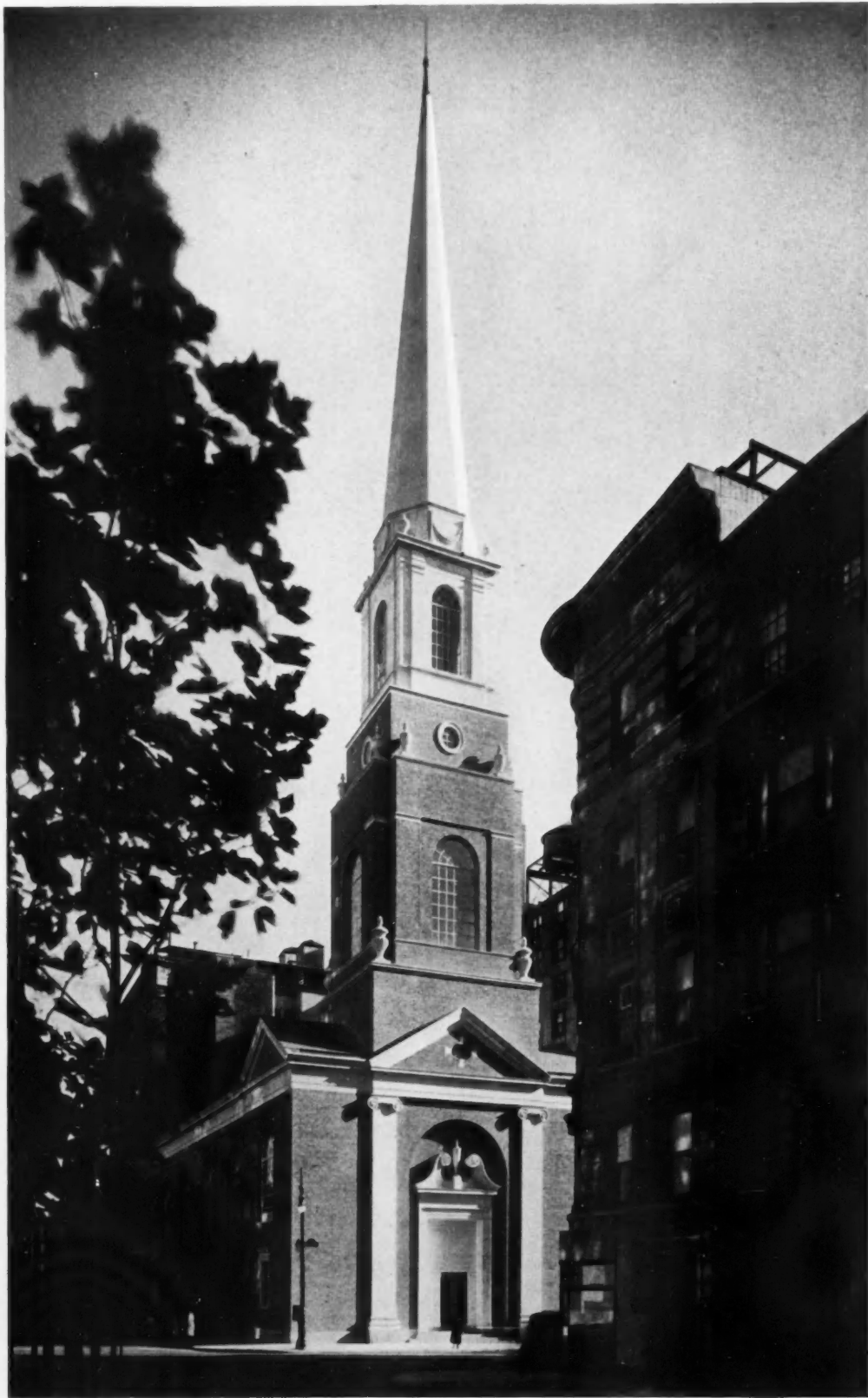
South entrance.

INDIANA UNION BUILDING
INDIANA UNIVERSITY, BLOOMINGTON, IND.
GRANGER AND BOLLENBACHER, ARCHITECTS



Trowbridge
Entrance lobby.

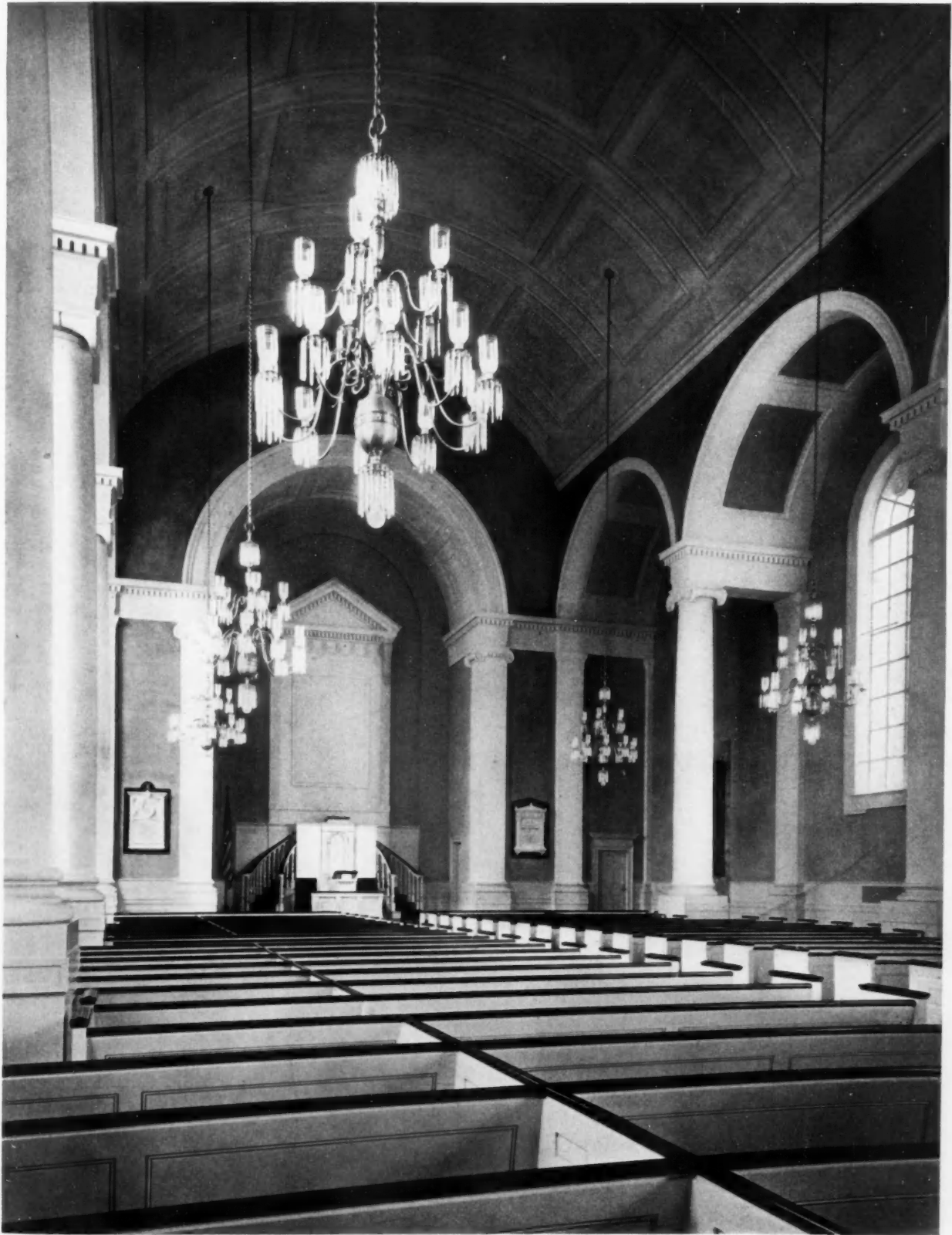
INDIANA UNION BUILDING
INDIANA UNIVERSITY, BLOOMINGTON, IND.
GRANGER AND BOLLENBACHER, ARCHITECTS



Sigurd Fischer

ALL SOULS UNITARIAN CHURCH
NEW YORK CITY
HOBART UPJOHN, ARCHITECT

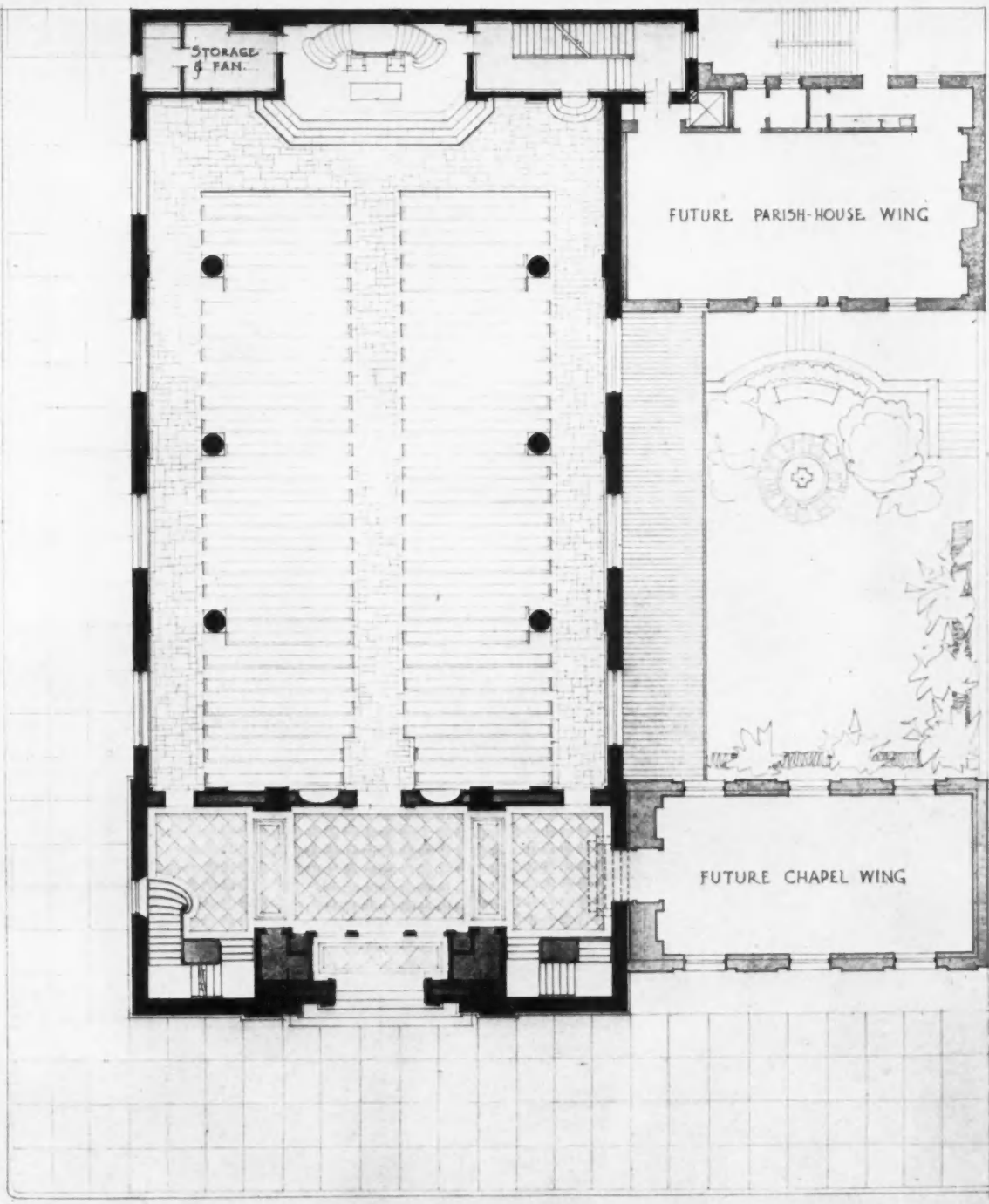
Many sketches were made trying a transeptal tower on the side, central towers and the one adopted. The sketches ran through the Italian Romanesque and variations of the Colonial style which was finally adopted.



Sigurd Fischer

The interior is treated with acoustical plaster. The furniture follows closely the precedent of Colonial architecture with the pulpit placed against the rear wall of the chancel. An organ is installed in the gallery.

ALL SOULS UNITARIAN CHURCH
NEW YORK CITY
HOBART UPJOHN, ARCHITECT



LEXINGTON AVENUE
 SCALE OF 10' 15' 0' 10' 20' 30' 40' 50' FEET

ALL SOULS UNITARIAN CHURCH
 NEW YORK CITY
 HOBART UPJOHN, ARCHITECT

The church seats 600. In the basement is a large auditorium or Fellowship Hall with a stage and dressing room. The exterior is of common brick trimmed with Texas limestone.



Sigurd Fischer

Studies of the tower treatment included some with a deep arch over the entrance and Palladian motives in the tower. A difficult feature to meet was the fact that the tower had to start with a rectangular base and gradually work into a square at the top.

ALL SOULS UNITARIAN CHURCH
NEW YORK CITY
HOBART UPJOHN, ARCHITECT



Sigurd Fischer

ALL SOULS UNITARIAN CHURCH
NEW YORK CITY
HOBART UPJOHN, ARCHITECT

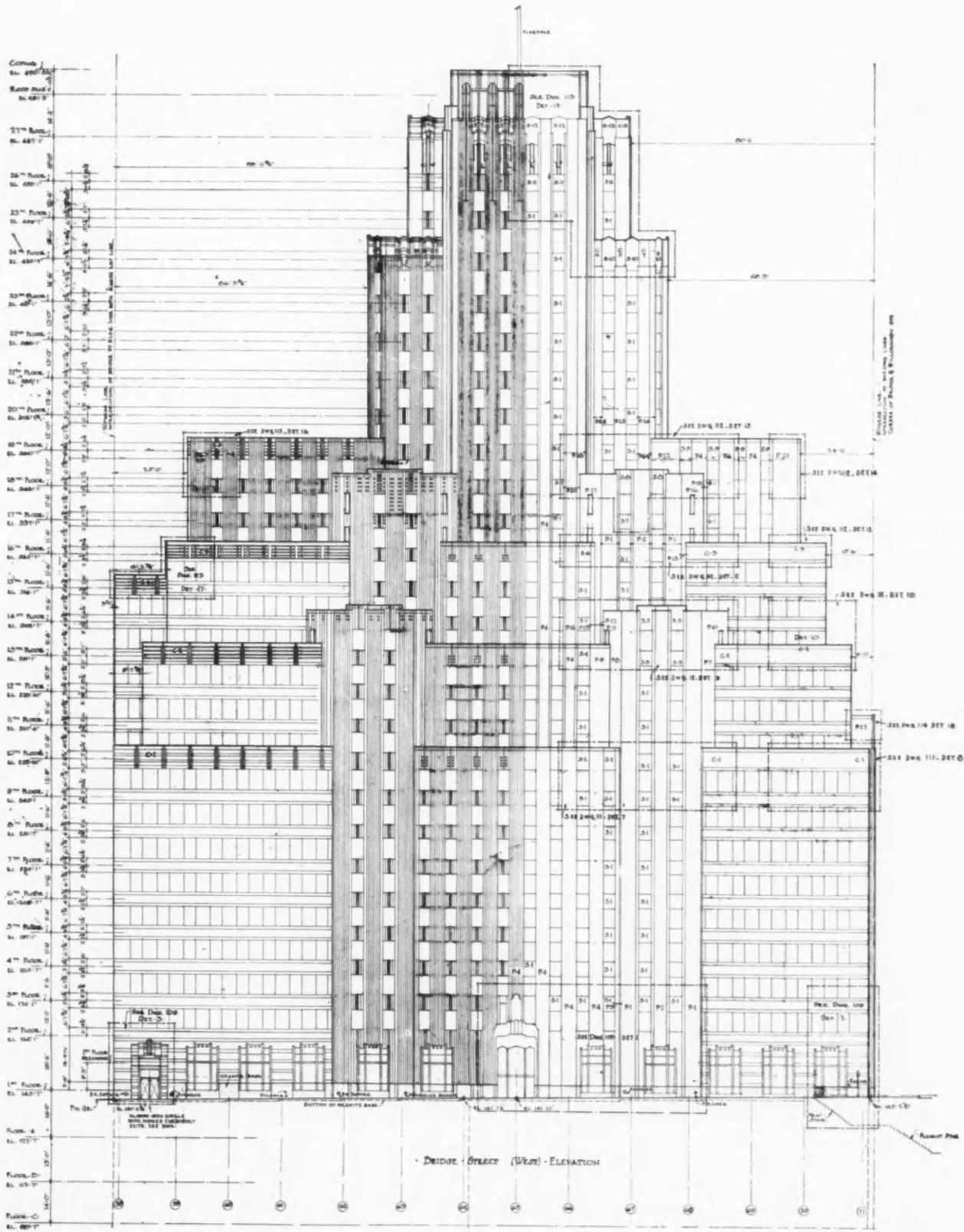
Entrance foyer.



Nyholm & Lincoln

General view looking down Bridge Street
in Brooklyn, N. Y.

LONG ISLAND AREA HEADQUARTERS BLDG.
NEW YORK TELEPHONE CO. /
VOORHEES, GMELIN & WALKER, ARCHITECTS



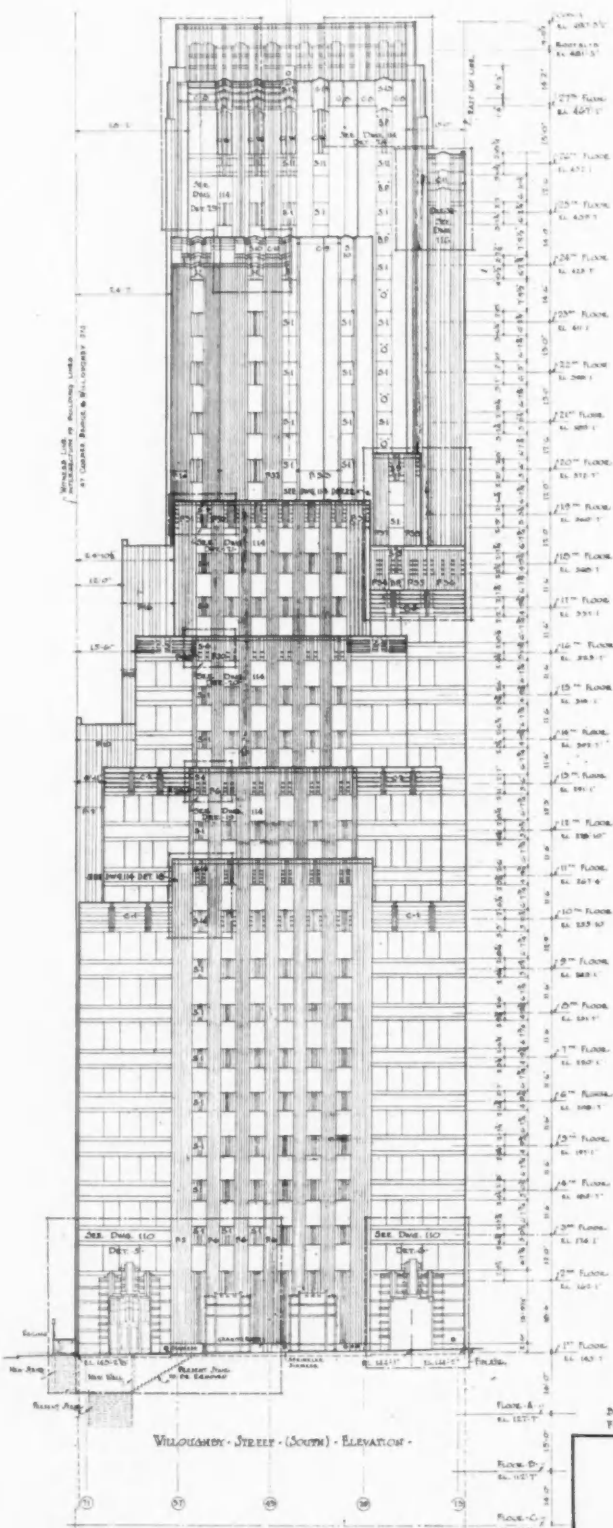
LONG ISLAND AREA HEADQUARTERS BLDG.
 NEW YORK TELEPHONE CO.
 VOORHEES, GMELIN & WALKER, ARCHITECTS



Nyholm & Lincoln

Detail of Bridge Street façade. Impervious iron spot brick in varying shades of warm tan and light sienna. Cast aluminum window sills.

LONG ISLAND AREA HEADQUARTERS BLDG.
NEW YORK TELEPHONE CO.
VOORHEES, GMELIN & WALKER, ARCHITECTS



TYPES - OF - OPENINGS

[Symbol]	TYPICAL DOUBLE HUNG JAW
[Symbol]	LOWESED OPENING
[Symbol]	FIELD JAW
[Symbol]	OPENING - NO JAW
[Symbol]	WALLS DOWN TO CORNER
[Symbol]	TRUCK BALK
[Symbol]	CASSETT WINDOW

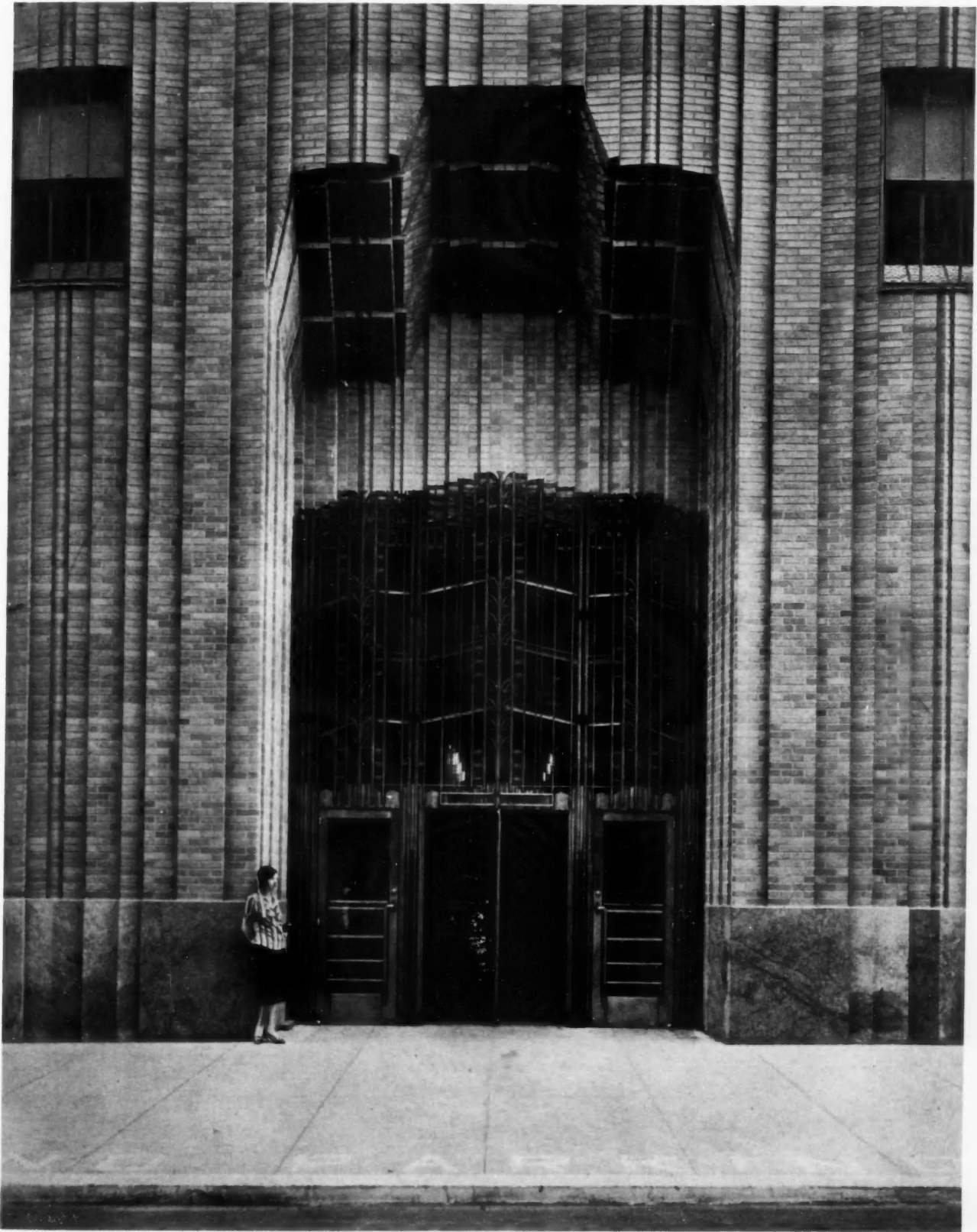
SEE DWG'S FOR SCHEDULE OF PANEL SPANDRALS AND CORNER DETAILS.

MODIFICATIONS	
1	IDENTIFY BASE CHANGED FROM 25' TO 2'-0" - 10'
2	2-7-34
3	2-7-34
4	2-7-34
5	2-7-34
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26	2-7-34
27	2-7-34

DRYCK COVERS, FIGURED @ 2" EACH FOR MODELS SEE 1/2" DETAILS

JOINT 25078
BRIDGE & WILLOUGHBY - ST. ELEVATIONS -
64-28
FEB. 30

LONG ISLAND AREA HEADQUARTERS BLDG.
 NEW YORK TELEPHONE CO.
 VOORHEES, GMELIN & WALKER, ARCHITECTS



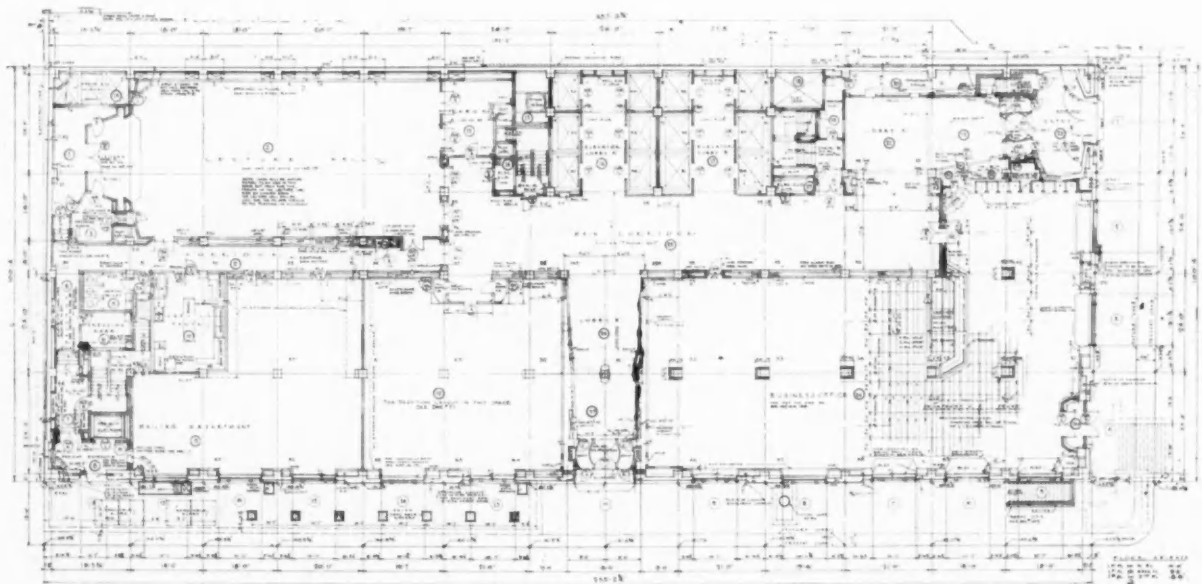
Nyholm & Lincoln

Detail of Bridge Street entrance. Doors and grille of wrought iron, oiled finish.

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Nyholm & Lincoln

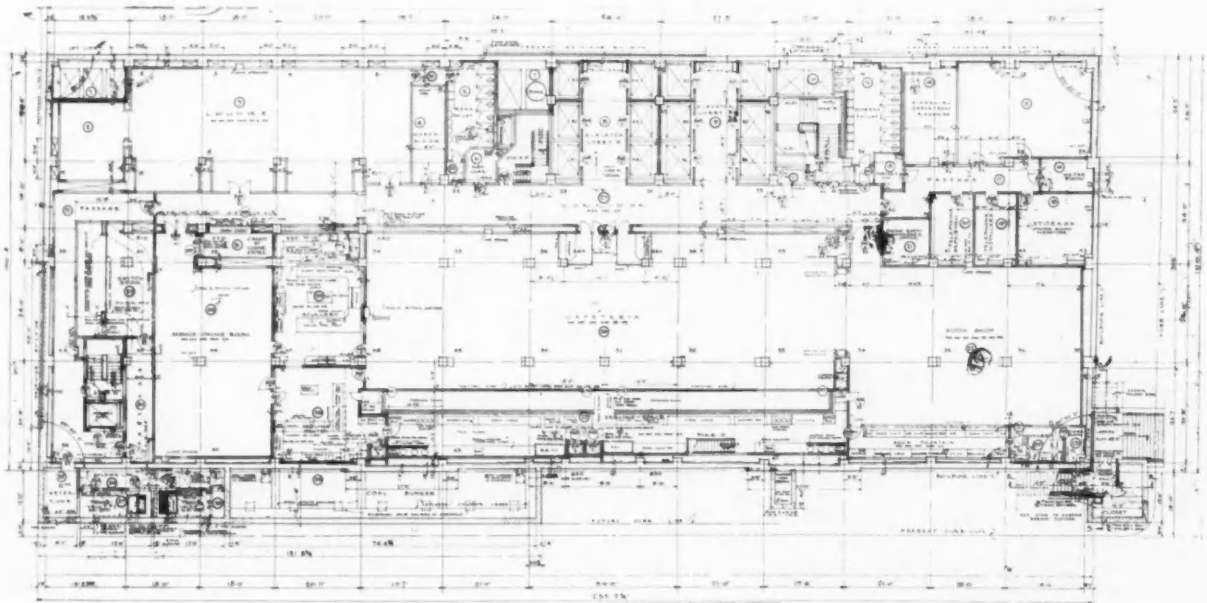


LONG ISLAND AREA HEADQUARTERS BLDG.
 NEW YORK TELEPHONE CO.
 VOORHEES, GMELIN & WALKER, ARCHITECTS

Business Office. Floors of waxed linoleum. Tan marble base. African walnut wainscot. Tan and buff Salubra wall paper. Ceiling of acoustic plaster.



Nyholm & Lincoln



Lounge. Floors of waxed linoleum. Dark red marble base. Canvas covered walls in warm tans. Plaster ceiling. Furniture upholstered in reds and tans.

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Detail of Willoughby Street entrance interior. Wrought-iron grille and doors. Lighting fixtures of frosted glass and white metal frames.



Nyholm & Lincoln

Main corridor looking towards Lecture Hall. Elevator lobby at right. Terrazzo floor. Marble walls. Plaster ceiling finished in dull silver.

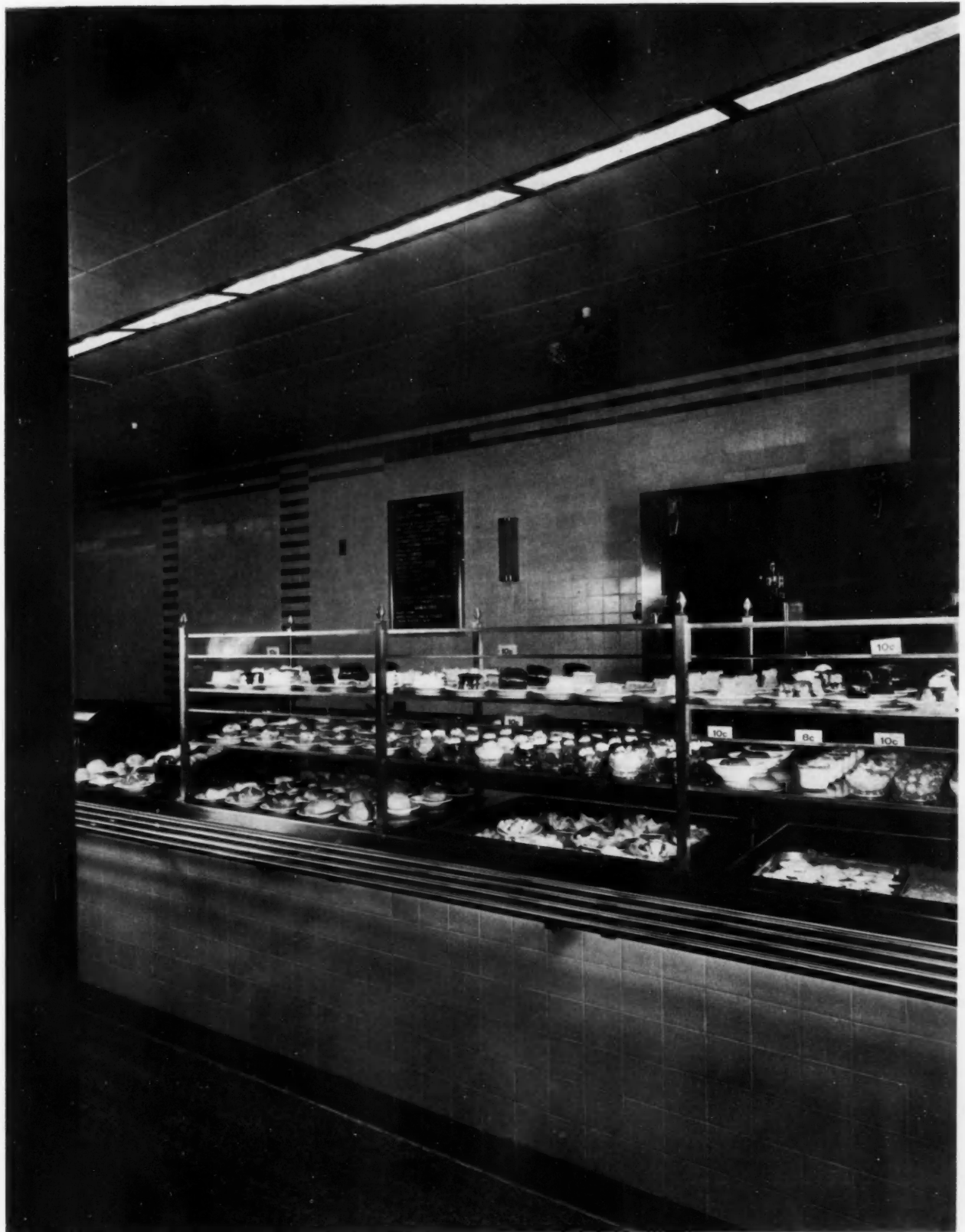
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Nyholm & Lincoln

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Cafeteria. Terrazzo floors. Dark green marble base. Canvas-covered plaster wainscot, painted green. Salubra wall paper. Acoustic plaster ceiling. Furniture of natural finish maple. Green linoleum table tops.



Nyholm & Lincoln

Serving counter of Cafeteria. Separated from dining space by translucent glass partition. White metal equipment. Holophane lighting fixtures.

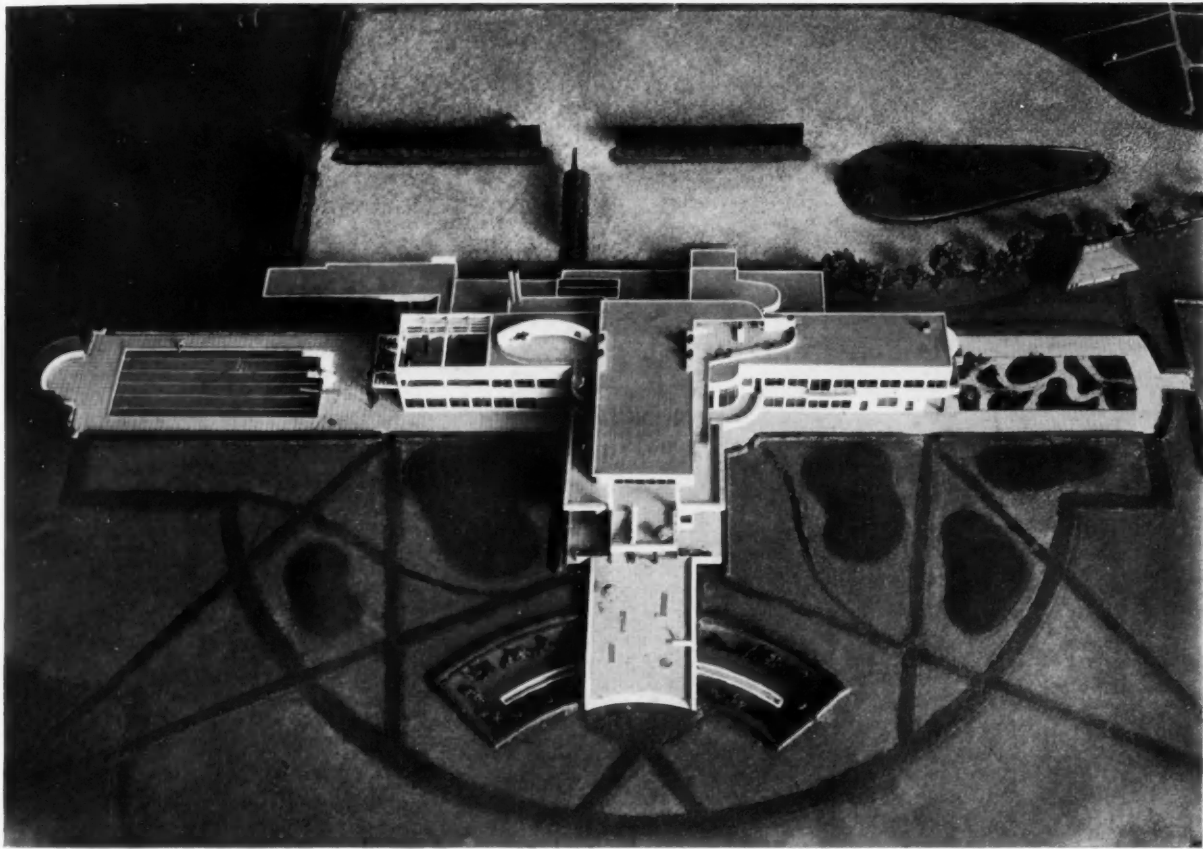
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Nyholm & Lincoln

LONG ISLAND AREA HEADQUARTERS BLDG.
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VOORHEES, GMELIN & WALKER, ARCHITECTS

Lighting fixture in Cafeteria. Frosted glass and silvered bulb.
White metal rods and buttons, and metal reflector painted to
match ceiling.



TOKYO GOLF CLUB—MODEL OF CLUBHOUSE, SWIMMING POOL AND TERRACES

AN AMERICAN ARCHITECT IN JAPAN

The Work of ANTONIN RAYMOND, Architect

Antonin Raymond was born in Prague in 1889; he studied architecture at the University of Prague, traveled extensively in Europe, and came to the United States in 1911. After several years' experience in New York drafting rooms, including that of Cass Gilbert, he joined the entourage of Frank Lloyd Wright at Taliesin. During the war (he was now a citizen of this country) he served in Switzerland on a special mission with rank, successively, of Lieutenant and Captain. Rejoining Wright, he went to Japan at the time of the erection of the Tokyo hotel. It was after the completion of this work that he took up, in that country, the independent practice in which he has since been uninterruptedly engaged. In this period he has completed more than four hundred structures. His organization, largely a Japanese personnel built up carefully over a period of years, is engaged today on what would seem to any American architect at just the present moment an impressive number of commissions.

Mr. Raymond's recent visit to New York, at which time the plates shown herewith were

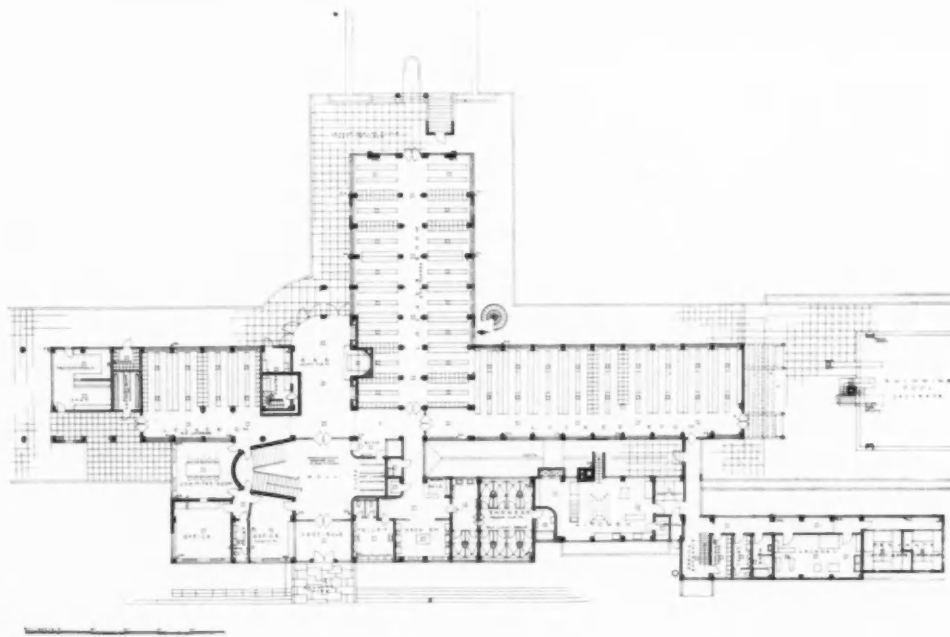
selected, was in the course of a trip around the globe undertaken, aside from business matters, to resume personal contacts with certain international figures in the field of architectural design. While here, it was interesting to one who had followed his career to learn his now-decided views on architecture, considered as art and as engineering, especially since he personally takes charge of both these aspects as well as the business aspect of his practice. It should be stated, however, that the furnishings and interiors of his buildings show the influence of his collaborator, Mrs. Raymond, known in the American art world as Noémi Pernessin.

No doubt Raymond's architecture has received more recognition to date in other countries (from which he has several decorations) than in this; it may not be inappropriate to add, although he is out on his return voyage to Tokyo as this memorandum is written, that he is expected to accomplish his work in the Far East as soon as this proves practicable and to transfer his practice to the United States.

Hugh Ferriss.



Lounge in Clubhouse.

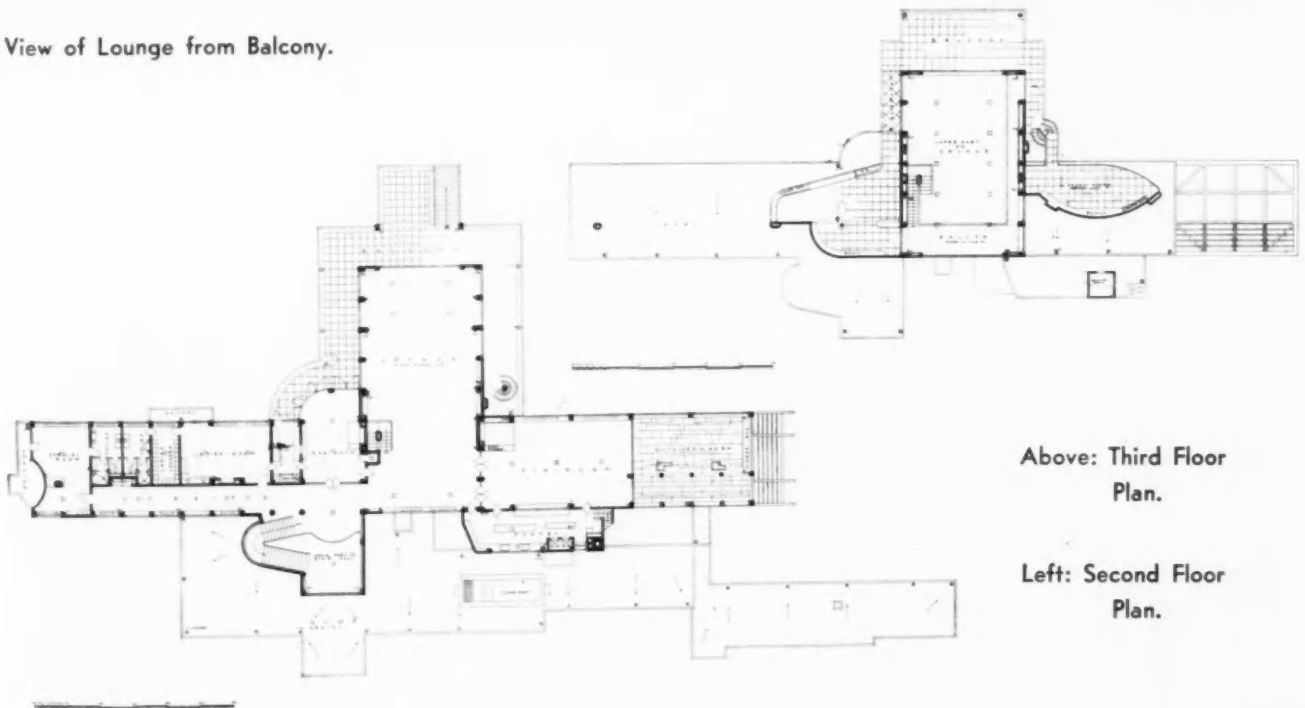


Ground Floor
Plan.

TOKYO GOLF CLUB
ANTONIN RAYMOND
ARCHITECT



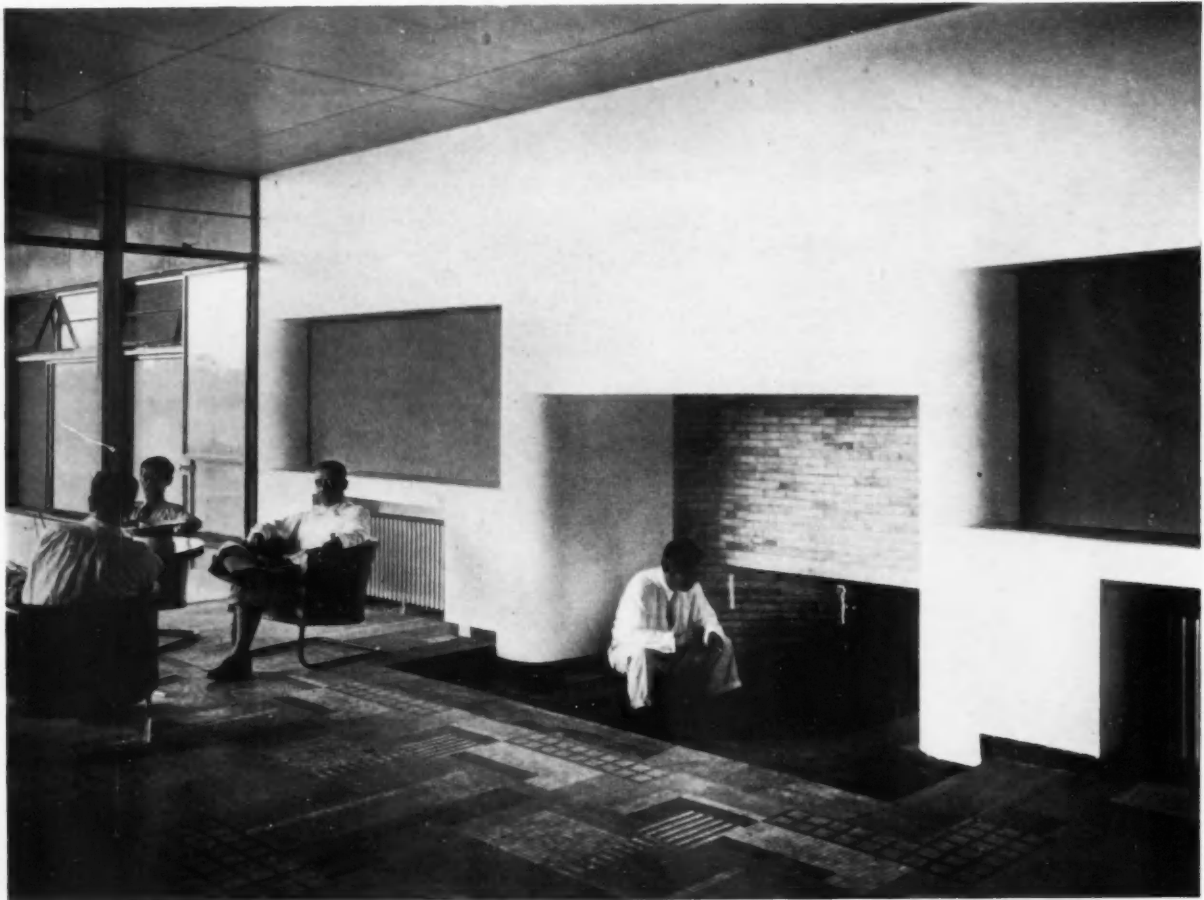
View of Lounge from Balcony.



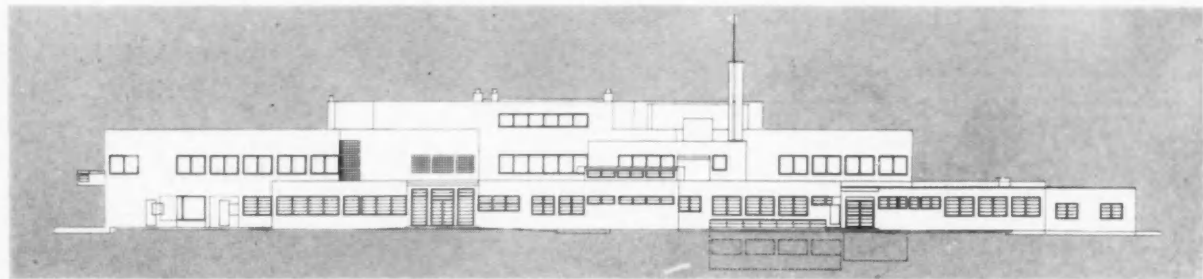
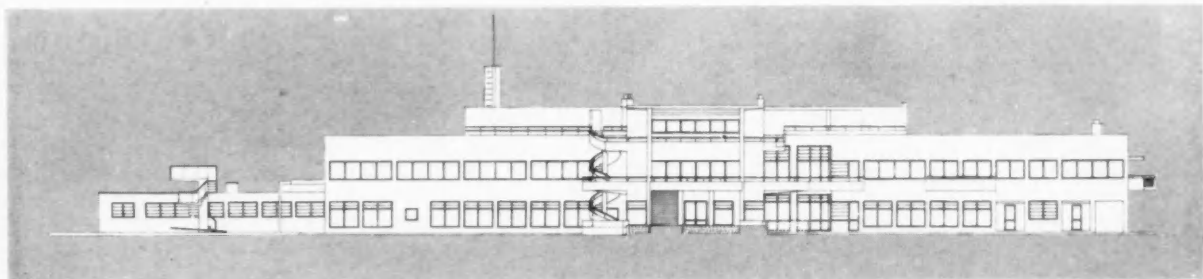
Above: Third Floor
Plan.

Left: Second Floor
Plan.

TOKYO GOLF CLUB
ANTONIN RAYMOND
ARCHITECT



Bar Room.

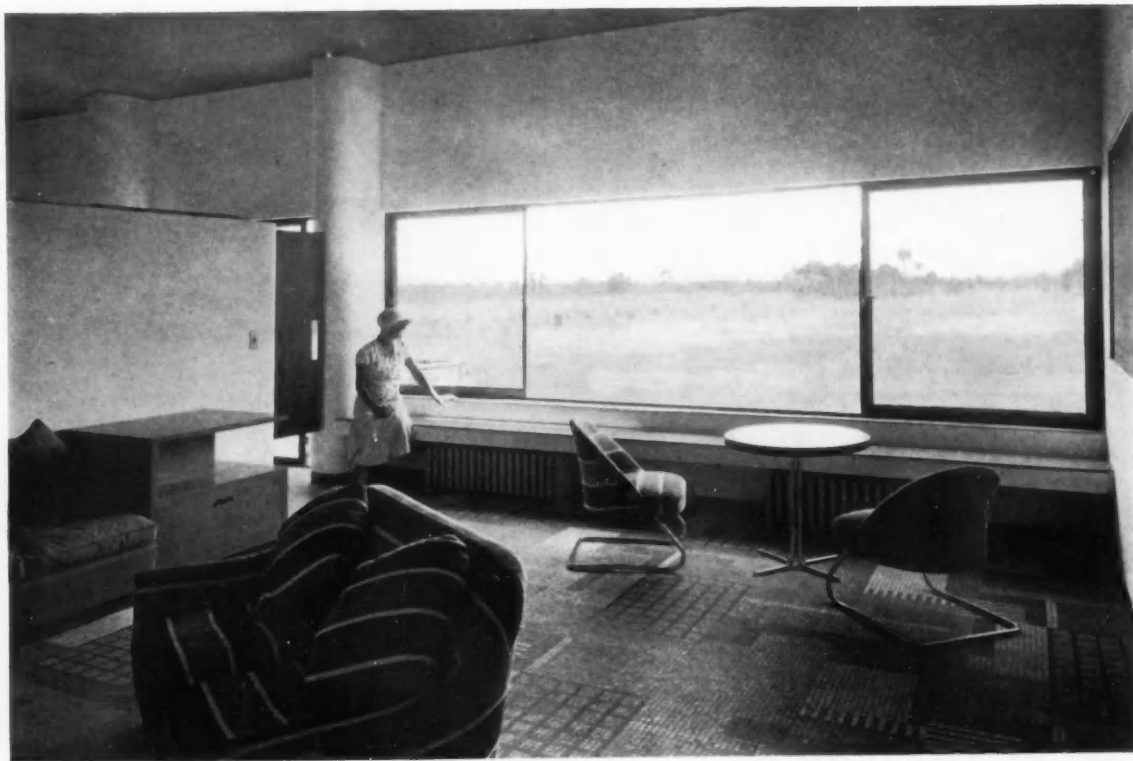


TOKYO GOLF CLUB
ANTONIN RAYMOND
ARCHITECT



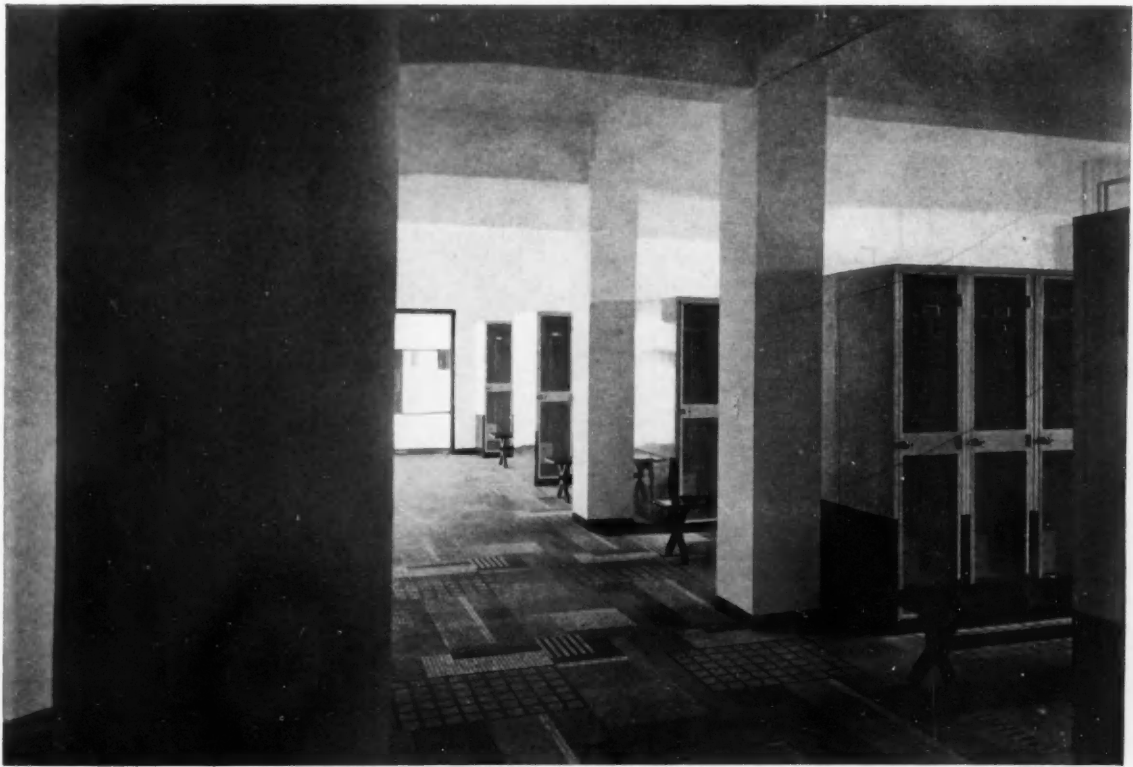
Main Stairway. Mosaic tile floor and tile base.

TOKYO GOLF CLUB
ANTONIN RAYMOND
ARCHITECT



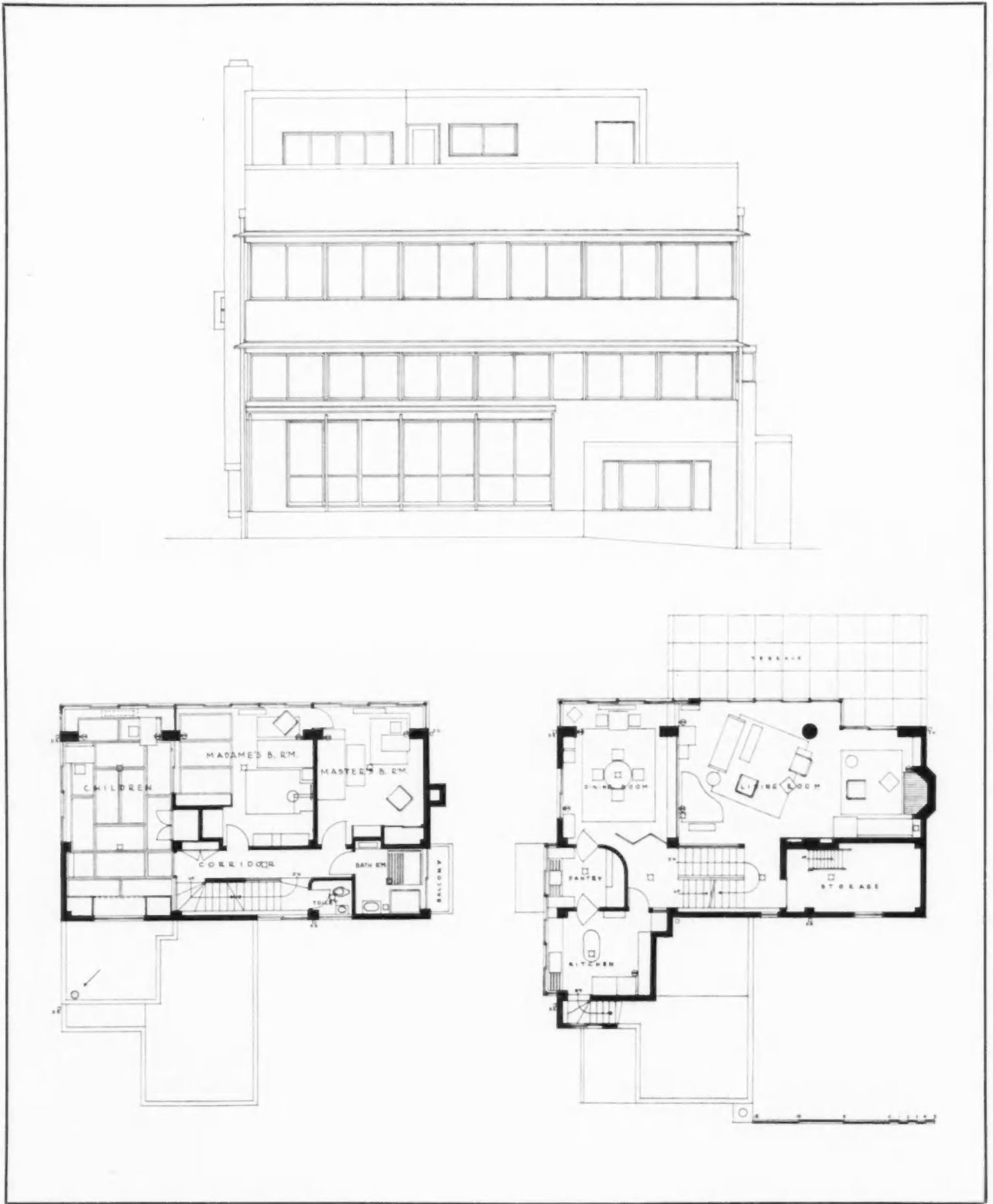
TOKYO GOLF CLUB
ANTONIN RAYMOND
ARCHITECT

Views of Women's Room. Mosaic tile floor with tile base
and tile sill. Steel sliding sash.



Views of Washroom (above) and Locker Room (below).

TOKYO GOLF CLUB
ANTONIN RAYMOND
ARCHITECT

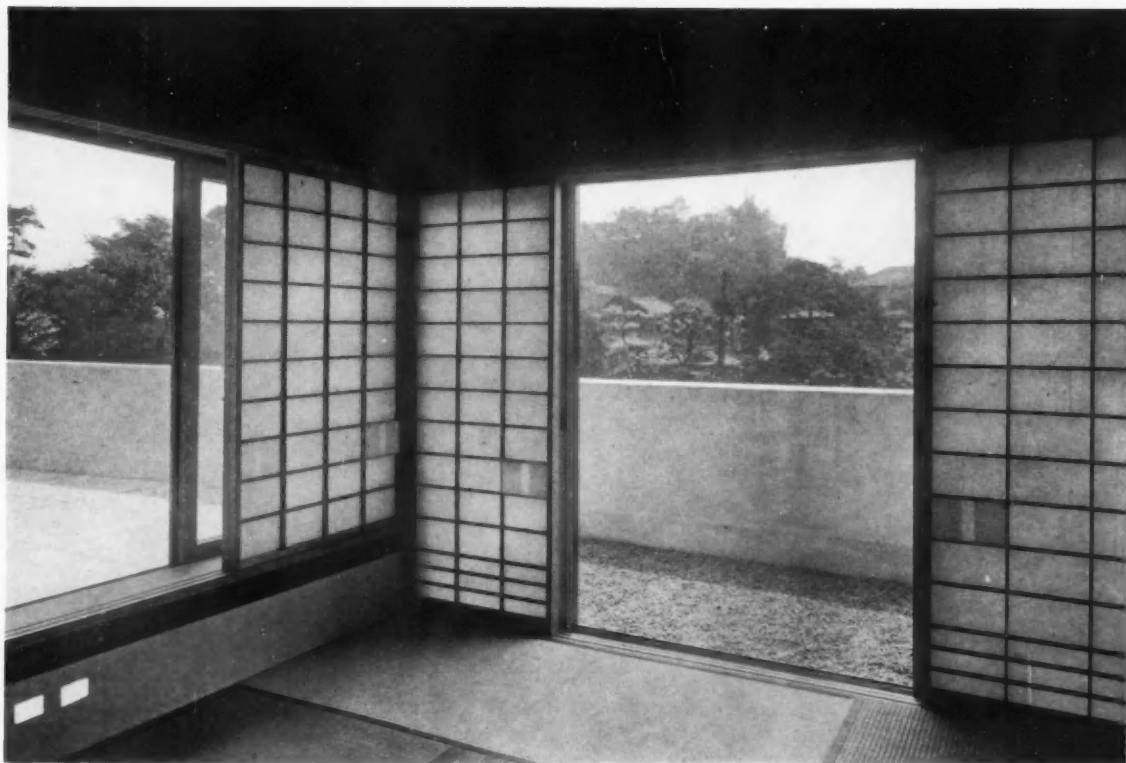


HOUSE OF SHIRO AKABOSHI
 TOKYO, JAPAN
 ANTONIN RAYMOND, ARCHITECT

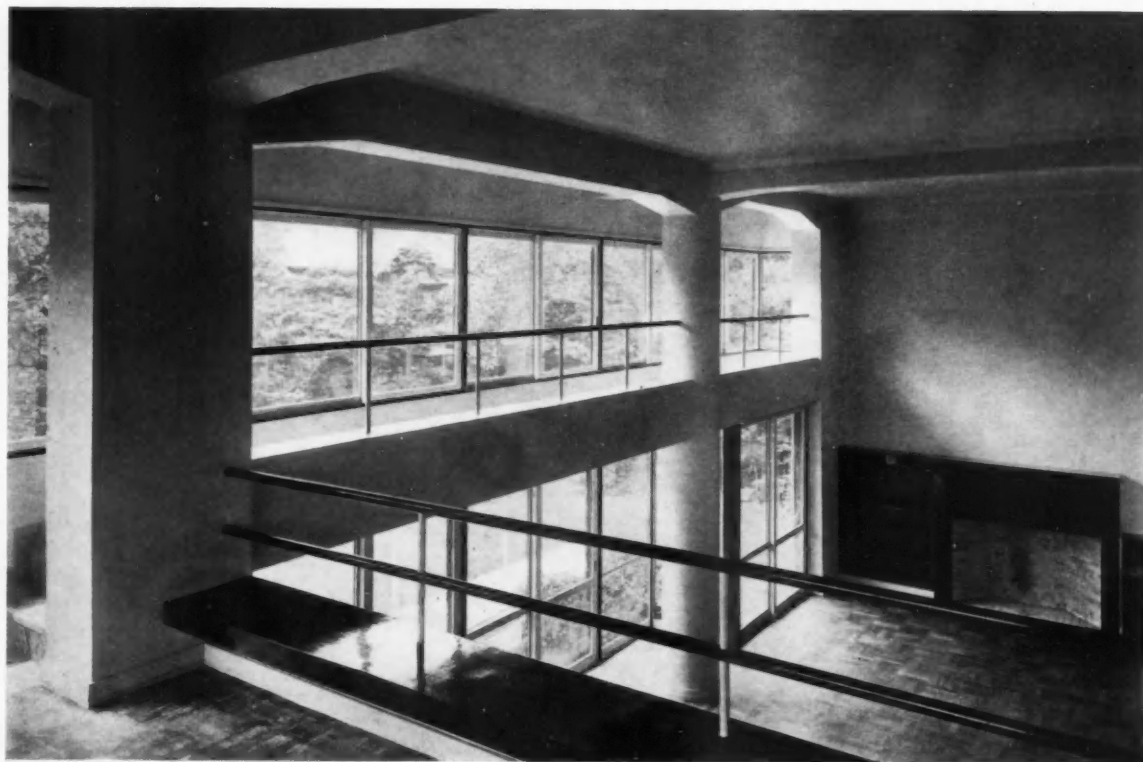


East façade.

HOUSE OF SHIRO AKABOSHI
TOKYO, JAPAN
ANTONIN RAYMOND, ARCHITECT



Japanese room on roof.



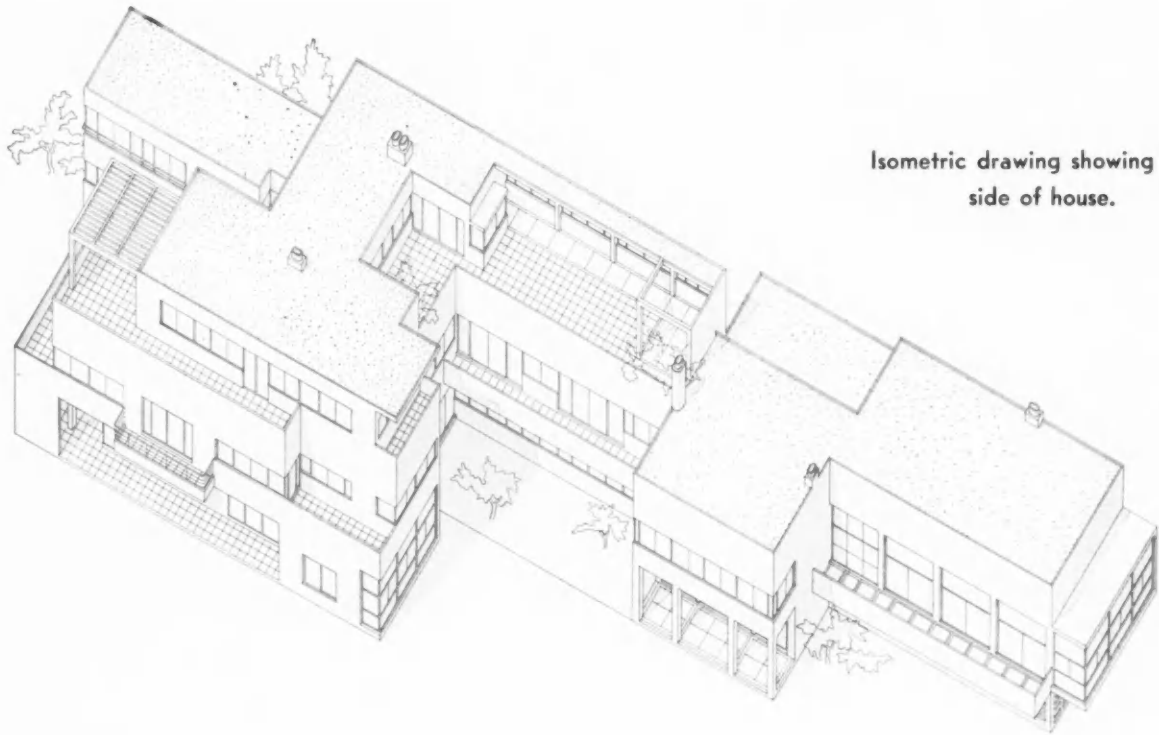
View of Living Room from Dining Balcony.

HOUSE OF SHIRO AKABOSHI
TOKYO, JAPAN
ANTONIN RAYMOND, ARCHITECT

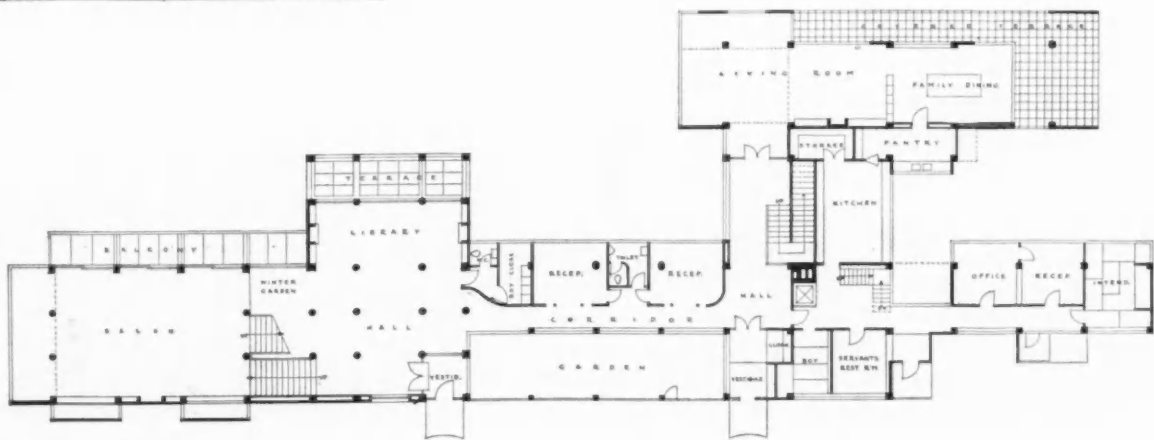
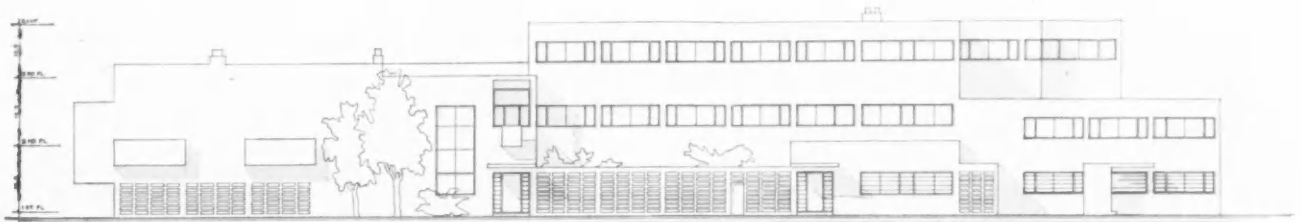


Living Room.

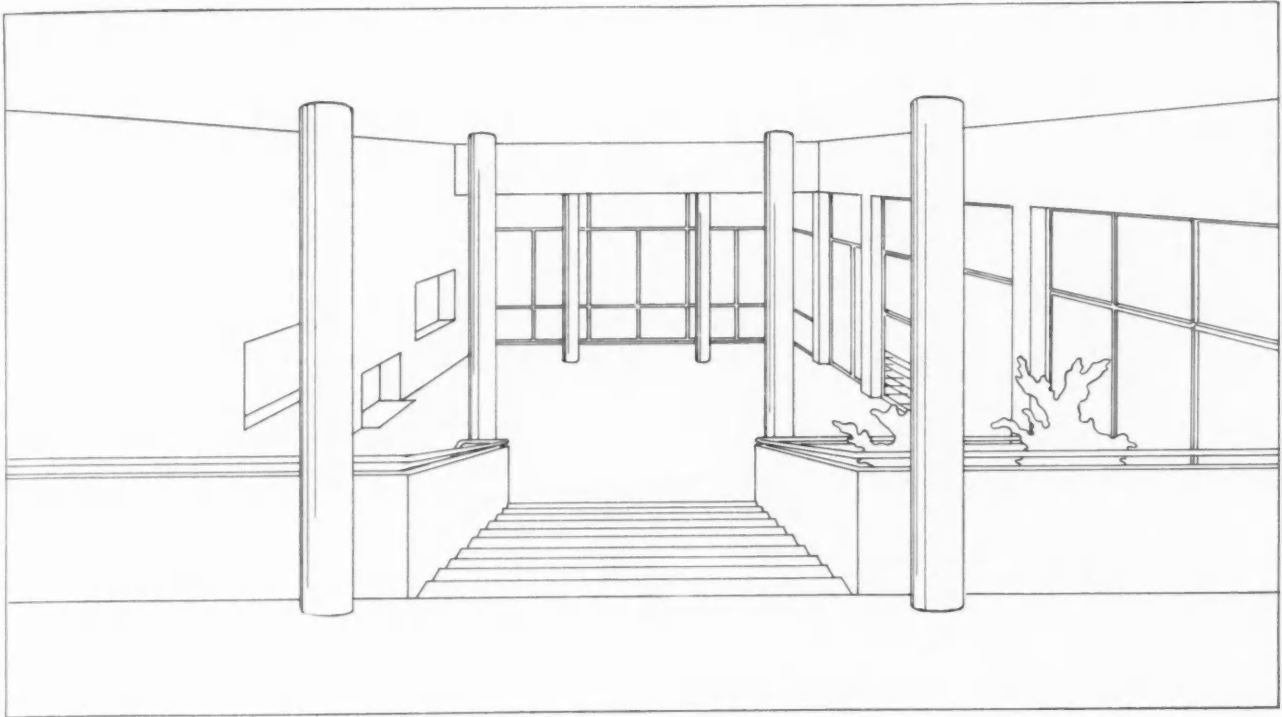
HOUSE OF SHIRO AKABOSHI
TOKYO, JAPAN
ANTONIN RAYMOND, ARCHITECT



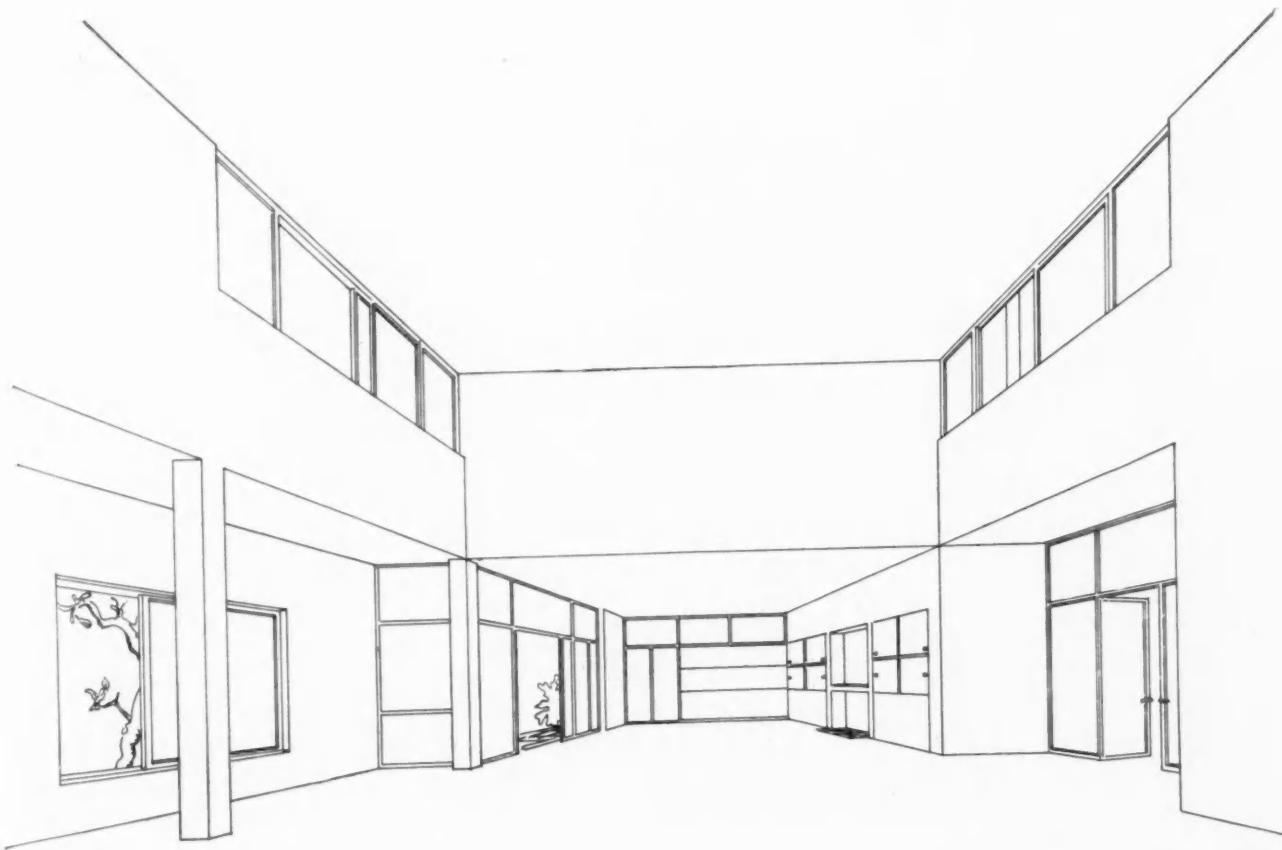
Isometric drawing showing south side of house.



HOUSE OF VISCOUNT SOMA
TOKYO, JAPAN
ANTONIN RAYMOND, ARCHITECT



Living Room.



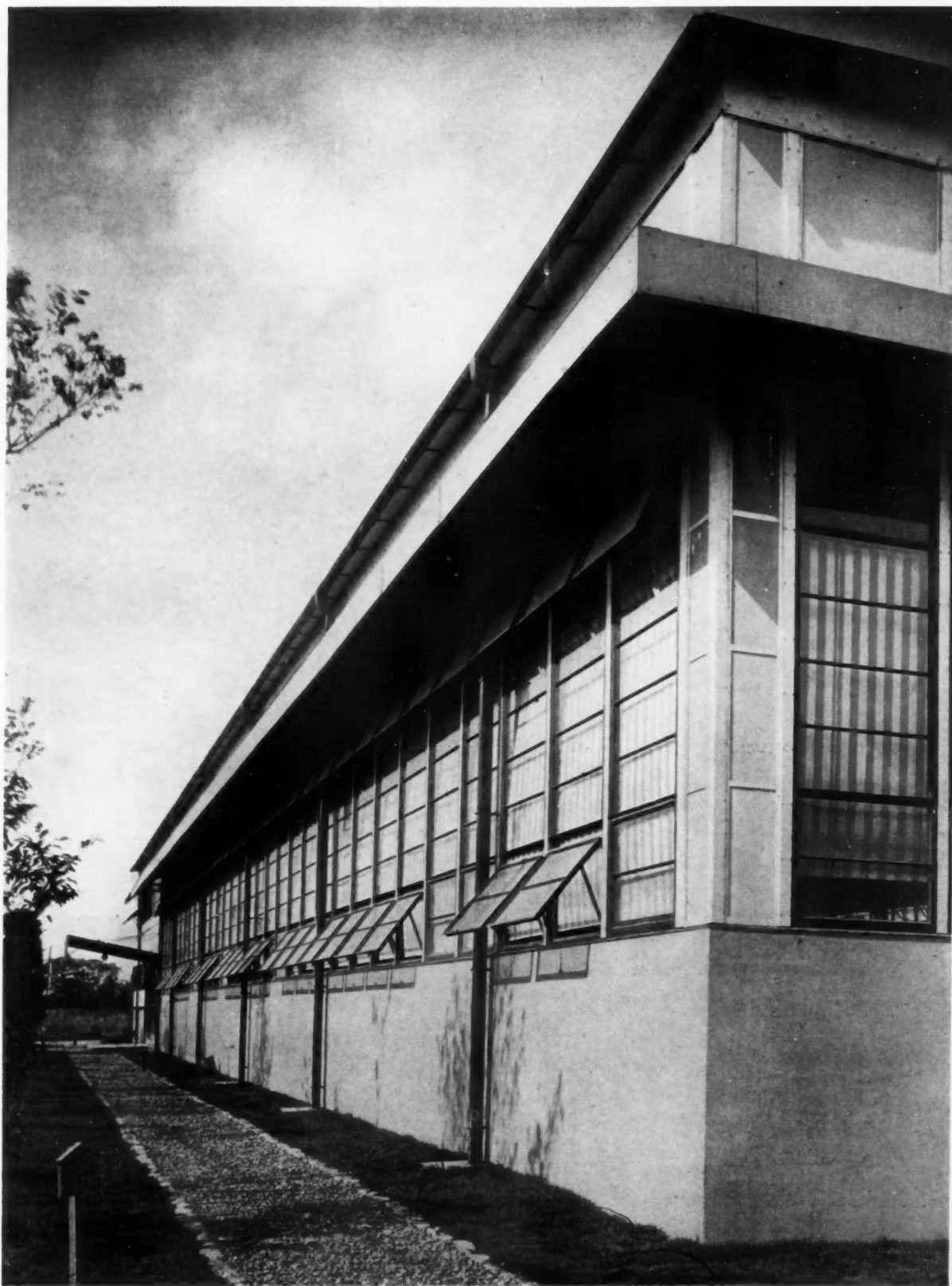
Salon.

HOUSE OF VISCOUNT SOMA
TOKYO, JAPAN
ANTONIN RAYMOND, ARCHITECT



TOKYO OFFICE BUILDING
FOR TRUSCON STEEL CO.
ANTONIN RAYMOND, ARCHITECT

Main entrance.



Exterior view.

TOKYO OFFICE BUILDING
FOR TRUSCON STEEL CO.
ANTONIN RAYMOND, ARCHITECT



TOKYO OFFICE BUILDING
FOR TRUSCON STEEL CO.
ANTONIN RAYMOND, ARCHITECT

Concrete counter with steel shutter.



PLANNING OF BREWERIES

By GEORGE WARREN RUSTAY

Until the time of Prohibition, breweries generally consisted of the small original plant amplified by a series of alterations and additions. The interval of twelve years in brewery building and recent improvements in equipment—plus the fact that European breweries differ considerably in their processes and equipment—make impossible at present writing the publishing of plans of a modern plant.

Practically every brewer has his own particular details for the manufacture of beer, of which there are several kinds. Operating conditions vary. Much equipment can be placed in either brew house or stock house, as local conditions demand. For these reasons variations from statements in the following articles may be found in many breweries. However, these articles may be accepted as a basis of knowledge for a specific problem. They present problems of brewery planning and a description of plan elements together with brewing procedure and phraseology.

Brewing Processes

The manufacture of beer involves two processes, malting and brewing.

Malt is made by causing barley to germinate or sprout. Even the largest brewers find it most economical to buy prepared malt. Malting thus becomes a separate industry and does not form part of the problem of brewery planning.

In this country corn or rice—depending upon which is the more economical—is mixed with malt.

The mixture is crushed and the starch separated in hot water. The starch is then changed by heat into dextrine and maltose. This mixture is drawn off and hops are added. The product is rapidly boiled and *wort* (beer before fermentation) is the result. This process takes place in the *brew house*.

The wort is cooled and pumped into the fermenting tanks and yeast is added. During the fermentation the yeast multiplies, attacks the sugar and liberates carbonic acid gas and alcohol. The gas passes off. The small percentage of alcohol in beer results from this natural fermentation.

After fermentation most of the yeast is separated from the liquor, which is pumped into aging tanks. Here a very mild and slow fermentation continues. The aging takes from two to three months. After aging the beer is pumped into storage tanks to await keggings or bottling. This second or fermenting stage takes place in the *stock house*.

Sizes of Breweries

There seems to be no fixed classification by size. Breweries range from small plants supplying only local needs to large plants having a national distribution. A large brewery is one having a capacity of 250,000 barrels a year.

For preliminary estimates in the vicinity of New York City a price of \$10 per barrel is used in calculating the complete cost of a brewing plant and land assumed to be purchased at a reasonable figure.

PRINCIPLES OF BREWERY PLANNING

By JOSEPH DOUGLAS WEISS, Architect

The brewing industry is very closely supervised by governmental authorities and a number of special laws restrict the freedom of design. In other respects the brewery is like any industrial plant with a great variety of manufacturing processes. The problems of storage and shipping present the chief planning requirements.

Selection of Site

The selection of a site is governed by two main considerations—water supply and shipping facilities.

Water is of prime importance because it is used in large quantities and because as an ingredient its chemical characteristics influence the quality of the beer. Water serves three main purposes: (1) generating steam and power, (2) a certain type of cooling and (3) as an ingredient of beer. In many localities well water is used for the beer, and city water or filtered river water for all other purposes.

Some breweries used to manufacture their own ice, chiefly for supply to retail dispensers. With mechanical refrigeration available to retailers ice manufacturing probably will disappear almost completely from the brewery.

The architect will, of course, not be called to decide the desirability of the water supply. It is

sufficient to note that the waters used by famous breweries differ widely and in many cases artificial corrections are used to change the chemical characteristics.

Where breweries can be placed near railroad sidings they will be in an advantageous location. The shipping of full and empty bottles, barrels, hops, malt, cereals, soda and other supplies will be facilitated. In some of the larger cities, however, this may not be possible: the plant should then be located as near as possible to the consuming centers and where delivery trucks can get in and out easily. In a given location the receiving and shipping departments should be placed on the less congested streets.

In general the manufacturing processes determine the main plant divisions: (1) Boiler Room and Power Plant; (2) The Brew House; (3) The Stock House; (4) The Bottling Department; (5) Storage Buildings.

BOILER ROOM AND POWER PLANT

These should be either in one building or very near to each other. Steam generating boilers are used for driving the machinery and for heating water and other ingredients in the brew house and bottling plant. The boilers may be fired by any of the generally accepted methods—oil, natural or artificial gas and pulverized coal being preferred for the important advantage of cleanliness.

The power house should contain electric generators since most breweries prefer to generate their own power and will probably continue to do so. Electric power is used for driving machinery in different departments and for supplying light. The most important machinery that this part of the brewery will house is the refrigerating plant serving the stock house and some of the warehouses which have to be kept at low temperatures. Refrigeration is also used throughout the manufacturing process.

In this building or near it should be located the machine shop and the pipe fitters' shop.

THE BREW HOUSE

The cereal raw materials (malt, rice, corn) are usually stored in bins which might be several stories high and built of wood, concrete or steel. From these bins or silos the malt is first delivered to a cleaning or polishing machine, then to a mill where it is cut or crushed into small particles. From the mill it is conveyed into the mash tubs. In the mash tubs the malt is mixed with a quantity of hot water. In most American breweries other cereals, such as rice, corn in the form of flakes or meal, are mixed with the malt in the mash tub.



Acme

Testing beer from a giant kettle in the Jacob Ruppert Brewery in New York.

These are preboiled in a "cooker" before being added to the mash. Some breweries use oats and syrups to obtain special flavor.

The mash then is filtered and drained into brew kettles, where it is boiled for concentration and purification and for other chemical and physical reasons.

Hops are added to the brew. The liquid which is now called wort is strained from the kettles and pumped to a cooler. In modern breweries enclosed-type coolers are used almost exclusively. In some breweries in Continental Europe open shallow pans are used for cooling purposes. This practice, however, is almost unknown in America. From the coolers the wort is pumped into the fermenting tanks, where pure yeast is added to the liquid. These fermenting tanks are usually located in the stock house.

This process gives only the most important steps in brewing. In between are many operations, such as filtering, pumping, cooling, mixing, boiling, straining, and even in the main steps as described some breweries may follow different methods.

In general it may be said that a brew house should be designed to work on the gravity principle. On the highest floor should be located the hot-water tanks, below that the malt and cereal grit containers, then the mash tubs and cookers, then the mash filters, underneath which should be the brew kettles with the strainers below, and then the closed wort cooler.

Construction

No definite data can be given for floor heights or floor carrying capacity in a brew house, because the whole building is practically a support for the different kettles, pumps, mixing tubs, coolers, etc. The architect will have to assemble his data from the equipment manufacturers supplying the particular brewery he is about to design. In order to accommodate the many connecting pipe lines, the tanks and cookers which sometimes go from one floor to another, only construction readily adaptable for change and future alteration should be used. Almost exclusively steel frame buildings are recommended. The floors may vary from reinforced concrete slabs to checkered steel plates.

THE STOCK HOUSE

This part of the plant should be near the brew house. It is a building where a great variety of operations are performed.

After the liquid wort is pumped into the fermenting tanks, which should be located on the upper floors of the stock house, yeast is added. The liquid starts to ferment in a very short time and generates a large quantity of carbon dioxide. The gas is collected and pressed into containers for use later in carbonizing the beer. After the wort has fermented for periods of time varying according to the practice of the brewery and the kind of beer desired it may be filtered and stored. Accord-

ing to American practice, before the beer is shipped it is first cooled to about 32° F, carbonated under pressure and either stored or in most cases pumped to the bottling department or the racking department where kegs are filled ready for shipment.

When there is a tax on beer the collection of this revenue makes necessary certain methods such as first pumping all beer, which will be bottled, into so-called "government gauged" tanks.

The stock house usually contains the following departments:

(1) *A yeast culture room* where the beer yeast culture is prepared for use in the fermentation tanks. This room should be preferably on a high floor of the building. It should have a sanitary tile floor and walls. Artificial ventilation is needed to admit only filtered air. Modern breweries will have air conditioning systems to keep the temperature at a constant level.

(2) *Fermentation floors* on which are located the fermentation tanks. These may be of different materials. Steel with enamel lining is popular. Stainless steel, copper and wood are also used. Some breweries have concrete tanks lined with a sanitary coating.

(3) *The storage rooms* where the beer is kept after fermentation in wood or steel tanks.

(4) *The racking room* where the beer is put into kegs. This department has as its adjunct the cooperage shop and keg washhouse where empty kegs are repaired, repainted and washed. Usually the racking room is on a lower floor near the shipping platform so that the beer kegs can be rolled out to the trucks.

Construction

Floor heights should be from 12 to 14 feet, depending on the type of tanks which will be used. Floor live loads should be calculated from 500 to 700 pounds per square foot.

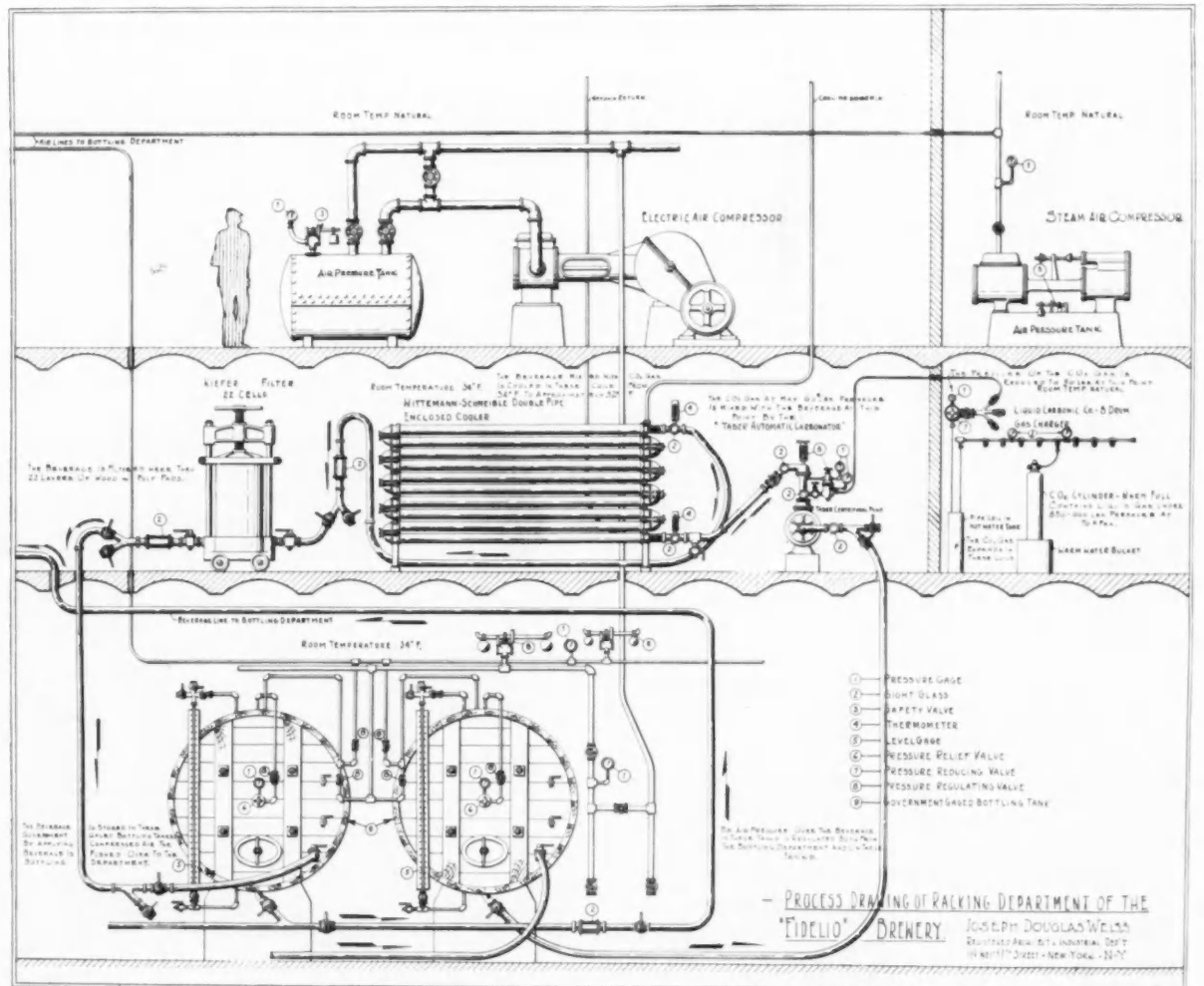
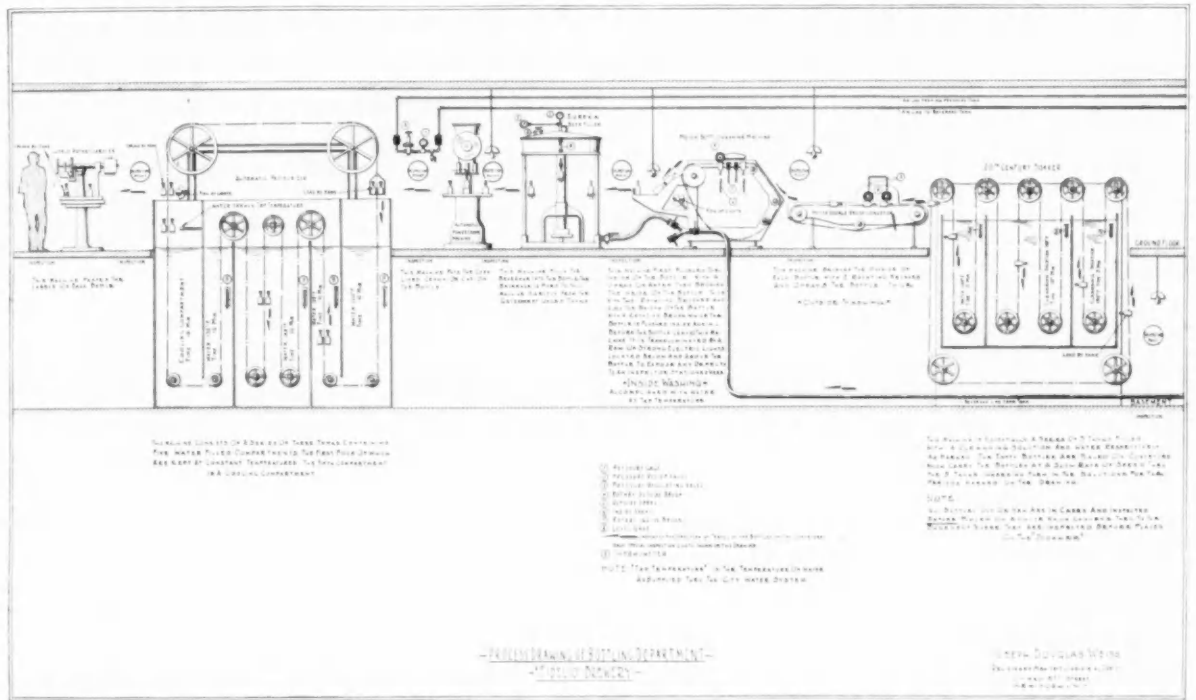
The entire stock house should be insulated so that the different floors can be kept approximately at about 34° F. The most popular insulating material is cork boarding covered with an asphalt emulsion and painted with aluminum or cement plaster.

The floors should be concrete with an ample supply of drains to which the floor level is pitched.

Artificial ventilation should be used for the fermentation rooms.

Government Gauged Cellar

As already mentioned, all beer delivered from a brewery may have to pay its share of revenue to the Government. This is done by pumping all beer first into tanks which have official gauges. The room containing these tanks is called the Government cellar and is usually located in the cellar of the stock house. This room which is only an extension of the tankage rooms should be approximately 34° F.



Drawings by Joseph Douglas Weiss, architect, showing manufacturing routine.

Under the Government gauged cellar or within one floor of it should be located a room where the beer as it comes from the tanks is first re-carbonated, then cooled in a closed cooler and filtered before it enters the Government gauged tanks. Since this operation is performed at 34° F. the logical place for it is in the stock house. From the Government gauged tanks the beer is delivered by compressed air to the bottling department.

THE BOTTLING DEPARTMENT

The bottling department is the most thoroughly mechanized part of the modern brewery. Whereas in the past the washing of bottles and the filling was done manually almost exclusively, today the whole operation is performed by a series of machines and the duties of the employees are only those of inspection. Manufacturers of bottling machinery have progressed greatly during the years of Prohibition by developing more efficient units serving the dairy and soft drink industries.

The Federal Law (see digest on page 65) governing breweries today and also the laws before Prohibition required that the bottling department should be in an entirely separate building with no connection to other parts of the brewery except the pipe line which carries the beer to the filling machinery after it has been measured for taxes.

The building where the bottling is done is usually the shipping department (or near by) from where the beer is loaded on trucks or railroad cars. This part of the brewery should be of special interest because most plants are building new bottling departments or rebuilding their present departments.

Bottling Process

The immediate supply of beer in the bottling department is stored in the Government gauged tanks. From these tanks the beer is carried into the bottling department through a pipe with different locks and gauges as prescribed in the Federal Laws. This probably will be the point—as in the past—where the Government collects its taxes.

Delivery trucks bring back empty bottles or bring in a supply of new bottles. These bottles must be washed before they can be used. The washing is done by a series of machines the first of which is the soaker—essentially a series of tanks filled with hot caustic soda solution and hot water. The empty bottles are placed on conveyors carrying the bottles at a slow speed through the three tanks and immersing them in the solution for approximately twenty minutes. From the soaker the bottles are conveyed to a machine which brushes the outside of each bottle. Leaving this machine the bottles enter another unit which flushes the insides with a spray of water, then brushes the insides and also the bottoms with rotating brushes. Before the bottles leave this machine they are trans-illuminated by a row of strong electric lights below and above the bottles to expose any defects to an inspector who is stationed there.

The bottles are then carried to a filling machine which feeds the beer into the bottles from a small tank directly connected with the Government gauged tanks. Still traveling on a conveyor the bottles are deposited on a circular platform of the automatic power crown machine, which puts the crown or cap on the bottle.

Pasteurization and Labeling

In order to prevent fermentation and to insure purity every bottle of beer in a modern brewery is pasteurized. The bottles are placed on trays which are immersed in a series of tanks filled with water kept at constant temperatures for varying times. This temperature begins as high as 155° and the compartments are cooler towards the end of the pasteurizing apparatus, so that the bottles are luke-warm when they leave the routine. They are then placed on a labeling machine. The finished product is placed in cases of 24 bottles and conveyed either into storage or to the loading platform.

Location of Machinery

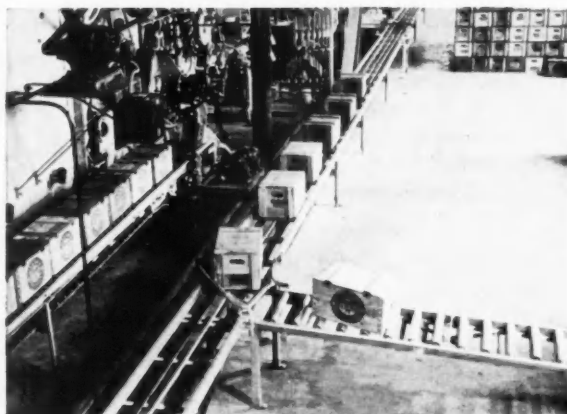
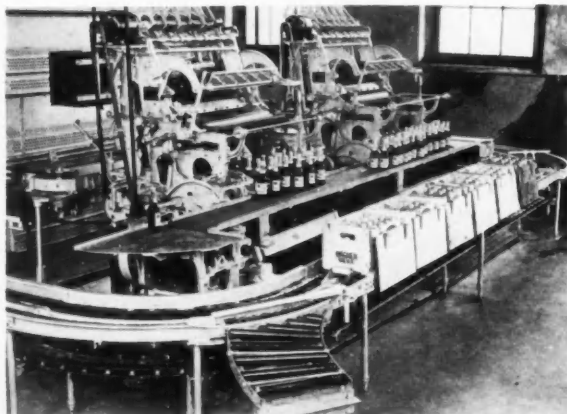
The bottling department may be designed to follow one of two systems: (1) the machinery may be put on a high floor and all the finished cases conveyed down by gravity or (2) the machinery may be placed on a lower floor and the cases which are put into storage before shipping must be carried up and then down again to the loading platform. Most breweries have their bottling machinery on a lower floor because the weight of the soaker and pasteurizer is considerable. These are really water tanks and some of the pasteurizers weigh as much as 250,000 pounds which means a floor load of approximately 1,500 pounds per square foot. Another reason for placing the department on a lower floor is that the Government tanks should be immediately under the beer filling machinery. If the Government gauged tanks are too far below the filling machine the pressure required to carry the beer up to the machine causes trouble at the point of filling. This may be overcome but the preference is generally otherwise.

Conveyors

As in every factory process labor saving is an important factor. Conveyors therefore are used extensively in the bottling department and between the bottling department and full and empty case storage.

Storage

The cases containing empty bottles are brought to the loading platform by returning trucks. These cases are put on a conveyor which takes them to the storage floors. From here the conveyor goes to the soaker where the bottles are put through the washing process. The empty cases then travel on conveyors to the labeling machine, where filled bottles are again packed for delivery.



Views showing use of conveyors in beer manufacture. Alvey Mfg. Co., St. Louis.

Box Inspection

Every box as it returns to the brewery is inspected. Space is provided in the bottling department for inspection, repair and repainting of cases.

Miscellaneous Storage

A large variety of materials are kept on storage in or near the bottling department building. Such materials are soda, corks or crowns, labels, etc., which must be protected from the moist atmosphere prevailing in the bottling department. In transferring these materials an elevator is necessary.

Construction

The bottling department is usually a one- or two-story-and-basement building if it is not combined with a full or empty bottle storage. Except under the soaker and pasteurizer the floor may be designed for 150 to 200 pounds per square foot loads. The floors where bottles are stored in cases should be designed for a load of 300 pounds per square foot which is approximate if the cases are stacked nine high. If the bottling machinery is all on one floor a minimum of 18 feet should be allowed for ceiling height. Another alternative is to carry the bottling machinery through on a high

floor with a surrounding mezzanine for storage of filled cases, inspection of empty cases, etc. This arrangement is used in the new bottling department of the Fidelio Brewery in New York.

The floors of the bottling department should be either concrete or asphalt emulsion on concrete to prevent dusting. The walls, if possible, should be tile or any other hard finish. Inasmuch as most of the transportation is done by conveyors there is no hand truck wear on these floors. They are, however, subjected to much washing, exposed to caustic soda solutions and oil, and must be absolutely dustproof. This department does not need insulation but requires as much light as possible. Good ventilation is essential.

STORAGE BUILDINGS

A comparatively large amount of space is necessary for storage. In general two types of space are needed—one for storing cases containing full bottles of beer, the other for cases containing empty bottles. In winter when beer consumption is low the empty case storage naturally requires a proportionately larger space, and part of the full bottle storage may be used to store "empties."

Construction

Usually the empty and full case storage building is either above or very near the bottling department. Conveyor lines cover each floor.

The cases are usually stacked nine high. The floor live loads should be figured at 300 pounds per square foot for full bottle storage and 185 pounds per square foot for "empties." Approximately one-third of the net floor areas will be taken up by conveyors and passageways. Inasmuch as the height of the cases is approximately eleven inches, the minimum clear ceiling height is about 10' 6".

GENERAL DATA

A barrel contains 13½ cases of beer.

A case contains 24 bottles.

A bottle contains 12 fluid ounces of beer.

A metal case filled with 24 bottles of beer weighs 53 pounds.

A metal case filled with empty bottles weighs 30 pounds.

Dimensions of standard cases:

Steel cases—19" long, 13" wide, 11" high.

Wood cases—13½" long, 12" wide, 10½" high.

Cartons—19" long, 12½" wide, 9" high.

Some special brews are packed in larger cases. One of the widely used cases for special dark beer is 32" long, 14" wide and 9" high.

The length of a whole battery of large modern bottling machinery consisting of a soaker, bottle washers, fillers, crowners, pasteurizer and labelers is approximately 87 feet. These machines, however, may be arranged in many different ways or on two stories.

CHECKLIST REQUIREMENTS OF BREWERIES

By GEORGE WARREN RUSTAY*

In all cases a market is established and then a site as near as possible to that market is determined. The distance from the market is modified by the following factors:

(1) *Water* forms 86 per cent of the finished beverage. In addition it is used for washing and cooling, and for steam in the manufacturing process. For brewing purposes a good, clean, medium, hard or soft water is necessary. The hardness or softness of the water if not extreme is easily corrected. Most brewers consider it wise to have two sources of supply.

(2) *Cost of Site.* As with any income-producing building the cost of the land must be reasonable or the project cannot be financially successful. This will be apparent in the preliminary financial set-up.

(3) *Transportation.* The product can be successfully transported by motor truck within a radius of 100 miles. A railroad switch or trackage is desirable, especially if national sales are anticipated.

(4) *Labor* supply and general conditions should be checked.

(5) *Space Available.* In earlier days brewing plants were generally sprawled out. With modern refrigerating methods it is easier and more economical to build up rather than out. Equipment can be fitted into almost any shape. A street must cut through the site to separate the bottling house from rest of plant (see Federal Law).

(6) *Miscellaneous.* Trucking facilities should compare favorably with those of warehouses, markets, etc. Smells and odors do not seem objectionable to the neighborhood, and exhausts from the brewing can be fairly successfully trapped.

PLANNING RESUME

The up-to-date brewery consists, apart from the power house, of two main buildings: the brew house and the stock house. Around the latter should be arranged, to suit local circumstances, the wash-house, racking room and loading ramp. In a smaller building should be the bottling house which is required by law to be separated from the brew house and stock house by a public street. The bottling house should also include the bottle storage rooms, bottle washing and pasteurization. This arrangement requires only one pumping operation for the beer in the process of manufacture, viz., the pumping of the wort from the brew house

*Assistance in the preparation of this article was given by Mr. Newman of the architectural firm of Ely Jacques Kahn; Mr. Hartung of Ruppert's Brewery; Mr. Herbert J. Noll of the New Amsterdam Brewery; Mr. Dale Badgely, Architect; Mr. C. F. Hettinger, Refrigerating Engineer; York Ice Machinery Co., York, Pa.; Rostock & Baerlocher Co.; Mr. Joseph Douglas Weiss, Brewery Architect and Engineer.

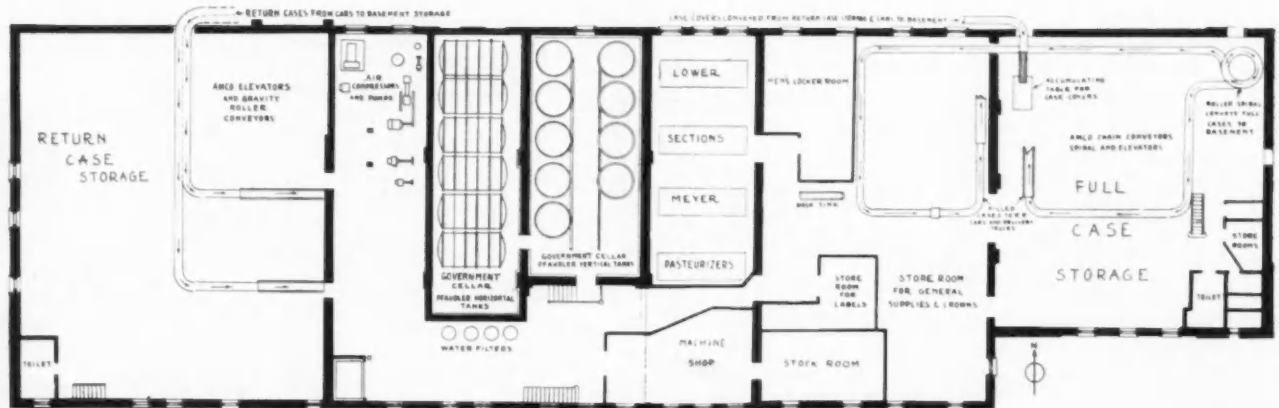
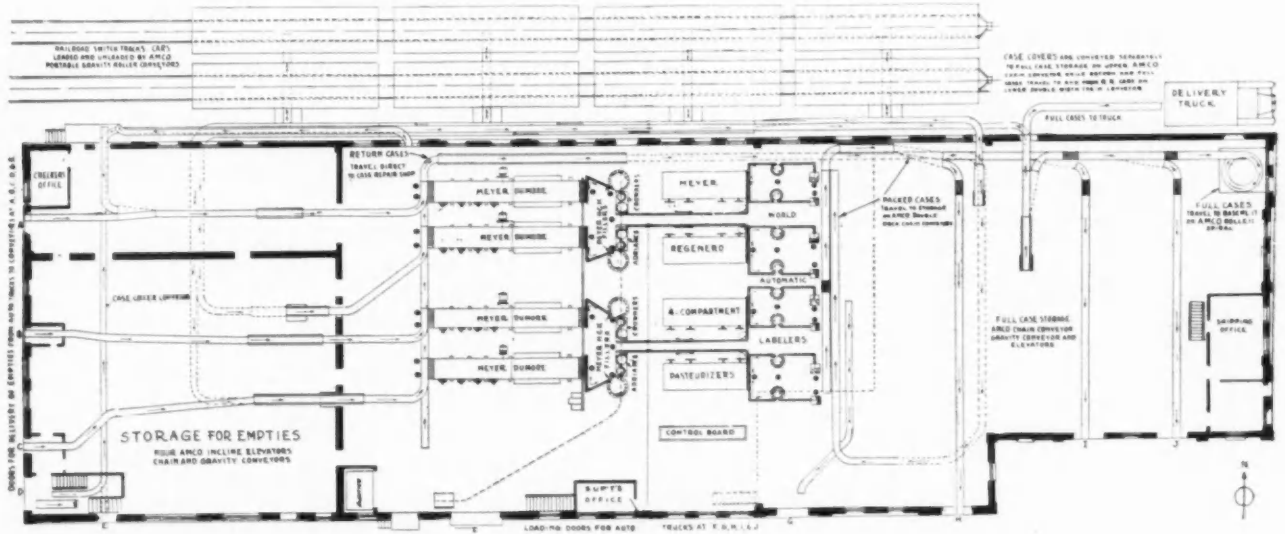
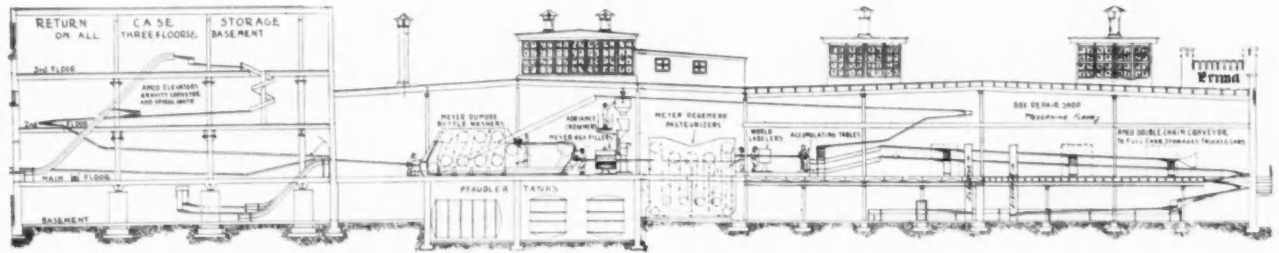
to surface cooler. From there on all operations follow the gravity plan. After the beer is made there is an additional pumping process from the storage tanks to the bottling house. During this operation the beer must pass through the Government cellar.

Sanitation is important not only from pure food standards but also because the slightest contamination will change the quality and taste of the beer.

Because of the development of modern refrigeration, both in the manufacture of beer and in dispensing equipment, the old-time ice house has no place in a modern plant.

The plan (see illustration) of the proposed New Amsterdam Brewery shows the brew house and the stock house as one unit. Even though this is done the stock house must be completely insulated on all sides and top and bottom. The bottling house is shown separated by streets. The garage





Sectional view, and main and basement floors, of the bottling department of the Prima Company in Chicago, showing use of conveyors to speed up production.

is opposite the bottling house. Artesian wells form the general water supply, and a connection to the municipal water system gives an emergency supply. The plant also has direct railroad trackage.

PLANNING DIAGRAM

Brew House

- Malt, corn and rice storage.
- Brewing equipment. (This is determined in consultation with brewer, brewing engineer, and equipment manufacturers.)
- Laboratory.

Hop storage. (This room being refrigerated is often placed in the stock house.)

Stock House

- Coolers.
- Yeast culture room.
- Fermenting tanks.
- Aging tanks and Storage tanks. (These are often grouped together as storage tanks.)
- Government cellar (can be in bottling house).
- Racking room:
 - Cooperage shop.
 - Keg washroom.

Bottling House

Pipe line from Government cellar in stock house.
Washing machines.
Filling machines.
Capping machines.
Pasteurizing machines.
Labeling machines.
Storage. (Empty bottles. Full bottles.)
Box inspection and repair.
Shipping platform.

Boiler Room and Power Plant

Steam generating boilers.
Fuel storage.
Electric generators.
Refrigerating plant.
Miscellaneous. (These items are local.)
Storage space (split up among all departments).
Administration.
Laboratories.
Locker facilities. (These are best located away from the brewing and fermenting rooms for sanitary reasons.)
Garages.
Shops: Carpenter, paint, machines.

Government Cellar

Located in either stock house or bottling house.

REFRIGERATION

Refrigeration in the brewery is applied:

- To the wort coolers.
- To the coils in the fermenting tank.
- To the coolers between the fermenting tanks and the main storage tanks.
(Refrigeration of *equipment* in stock house.)
- To the cellars in which the main storage tanks are located.
(Refrigeration of *rooms* in stock house.)
- To the cooler placed between the filters and the carbonizer (applying to breweries provided with bottling equipment).
(Refrigeration of bottling house.)

Three gas mediums are used today for refrigeration, ammonia, carbon dioxide and sulphur dioxide. Ammonia is most commonly used in breweries, as the water used for condensing can be ordinary supply water. Sulphur dioxide is very seldom used as the efficiency of the machine for commercial purposes is not as high as the other mediums used for this purpose. Carbon dioxide requires water at low temperature, which is generally obtained from wells. Carbon dioxide is produced by fermentation and many breweries are collecting this gas and using it in their refrigerating machines, and also for carbonating the beer. It is preferable if cold water can be obtained.

These gas media apply to an "expanded gas process" of refrigeration. The other process in general use is the "brine" system: a brine solution is cooled to low temperatures without freezing by an ammonia medium, and then circulated through the refrigerating system. This is a much safer process than the "expanded gas." In New York City the use of the "expanded gas process" is restricted to certain portions of the brewery. Because of this requirement and because of the safety factor the "brine system" is more generally used. In many places refrigerating by air conditioning can be used. This practice will probably become more common with improved planning.

U. S. REGULATIONS

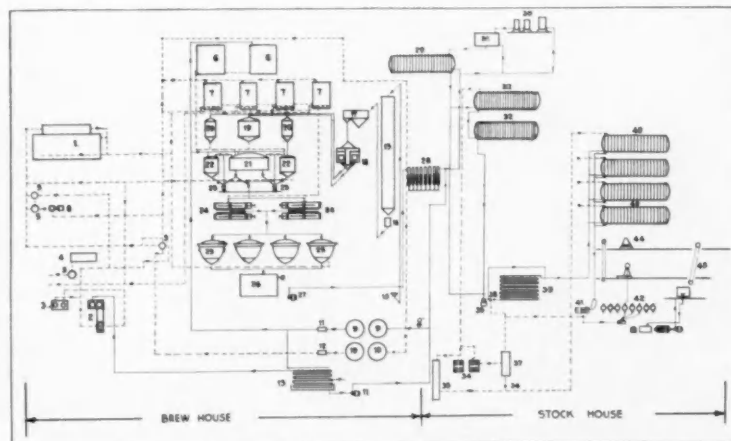
The following paragraphs are a copy of the Laws and Regulations governing the erection of brewery bottling houses before Prohibition. The general opinion is that these regulations will still govern, at least for a few years, the erection of bottling houses after pending Congressional action.

United States Internal Revenue Regulations No. 6. (Rev. June 21, 1913) Digest of Regulations and Instructions concerning the Tax on Fermented Liquors. Office of the Commissioner of Internal Revenue.

Location of Bottling House

"Beer intended for bottling, except when removed by pipe line, must be drawn into stamped packages

Equipment layout in Ruppert Brewery, New York: (1) Steam boiler. (2) Steam engine and refrigerator engine. (6) Hot-water tanks. (13) Water cooler for wort cooling system. (14) Funnel (grain is admitted, leading to grain elevator, to bins). (15) Malt storage (90,000 bushels). (17) Malt cleaning machine. (18) Malt mills. (19) Malt. (20) Rice. (21) Mash tub. (22) Cooker. (24) Mash filters. (25) Brew kettles. (26) Hop press and wort receptacles. (28) Inclosed wort cooler. (29) Starting vessel. (30) Yeast, pure culture. (31) Starting tub. (32) Fermenting tanks. (35) Carbonic acid high-pressure tanks. (37) Low-pressure tank. (38) Carbonating device. (39) Inclosed pipe cooler. (40) Storage tanks. (42) Beer filters. (43) Keg racking apparatus. (44) Keg cleaning machine.



and removed in such packages from the brewery to bottling establishment.

"The attention of collectors is called to the fact that the law does not under any circumstances permit bottling on any part of the premises (Breweries and Warehouses) described in the form 27C.

"The steaming, washing and storage of bottles on a brewery premises are no more permissible than the filling of the same. . . . Bottling premises must be so separated from any brewery that the beer in its passage from the brewery premises to the bottling houses must be carried upon a street or road which is a public highway, and is actually and commonly used as a thoroughfare by the public, (and) . . . the location of the brewery premises . . . with reference to any bottling house must be such that it is a physical impossibility to remove fermented liquor from the former to the latter in the ordinary packages except by carrying it out over the surface of . . . a public highway. . . .

"This rule must be observed, whether a pipe line exists or not, and is also applicable as between a bottling house and any warehouse for the storage for fermented liquor."

Pipe Lines

"Each brewer intending to remove fermented liquor by way of a pipe line or other conduit. . . . must erect, either upon his brewery premises or upon the premises where the bottling is to be performed, for the reception of the liquor thus to be removed, a measuring cistern or cisterns (and attachments) of such shape as to permit the ready measurement, and capable of containing as much liquor as will be removed for bottling for each twenty-four hours . . . with a capacity of at least ten barrels. . . . If impracticable to construct same of sufficient capacity to supply the requirements of the bottling house for a period of twenty-four hours, more than one vessel may be constructed. . . . (The foregoing is termed the Government cellar.) In case the measuring cistern (Government cellar) is erected upon the bottling premises the conduit conveying liquor thereto from the brewery can be placed underground only by running . . . through a tunnel of sufficient size to admit the convenient passage through its entire length of the officer (who inspects). Or in case it is impossible or impracticable to construct such a tunnel, . . . the pipe for conveyance of the liquor may be placed within a conduit, not less than fifteen inches in diameter, made of . . . permanent material . . . and protected either at the bottling end or the brewery end by a solid iron door, or doors . . . provision being made to securely fasten the doors by a seal lock. . . .

"Where a conduit is employed the same must be imbedded in cement or concrete . . . must pursue a straight course from end to end, and provision must be made for lighting it at both ends in such manner that ready examination of the conduit may be made.

"When a tunnel is employed under the above re-

quirements, the pipe line . . . must be so placed therein as to admit the ready examination of same from end to end, and communication through the tunnel, . . . except through the authorized pipes, must be prevented by the erection within the tunnel, or at either end thereof, of a suitable door, secured by a seal lock. . . .

"It is further required that the stopcock controlling the flow of the fermented liquor into the measuring cistern shall be secured by a seal lock, as well as the one controlling the outlet thereof. . . .

"No opening whatever will be permitted in the pipe line . . . throughout its entire length, and if a hot water connection is necessary near one of the pipes for cleaning same, it must be secured by a seal lock. . . . If more than one measuring cistern is required (by the extent of the business) . . . a separate supply pipe for each cistern may be authorized by collector if necessary, in which event . . . construction will be the same as in a single cistern and pipe.

"If the successful prosecution of the business renders it necessary to connect any portion of the apparatus upon the bottling premises with the refrigerating, or with the air pump, upon the brewery premises, the connecting pipes must also be exposed to view for their full length, and subject to ready examination by revenue officers. . . ."

Filing Plans

"Prior to being authorized to remove fermented liquor as herein provided, the brewer must prepare in triplicate an accurate plan and description, showing exact location in detail . . . of pipes, utensils and apparatus, either on the premises of the brewery, the bottling house, or intermediate, used in the transfer of the fermented liquor as above.

"In order to secure construction in such a manner as to comply with law and regulations, it is suggested that the plan and description be submitted to the collector of the district in advance of the construction. . . . The collector will examine same, and if it be found to meet the requirements of the law and regulations he will so certify on each copy of the plans . . . and transmit one copy to this office for approval.

"Such plan must be on good paper or tracing linen, 15 inches by 20 inches in size, and drawn to a scale indicated thereon. The exact capacity of each measuring cistern will be stated on the plan, and the course of the pipe line . . . will be correctly delineated . . . exhibiting the thoroughfares crossed by the pipe line or conduit.

"The plan will also include a diagram plot of the brewery and bottling premises, showing all continuous streets, and doors, windows and other openings, if any, in the walls of the buildings, and correctly indicating by a line inclosing same, the boundary line of the brewery premises . . . and the nature of the business conducted in all buildings located within ten feet of the pipe line or circuit aforesaid. On the margin of the plot the cardinal points of the compass will be indicated."

ELECTRICAL PRODUCTS DEVELOPED IN 1932

By H. D. JAMES, Consulting Engineer
Westinghouse Electric & Manufacturing Company

When a manufacturing company equips a shop for building a particular line of apparatus, the arrangement of the shop and machinery is designed by trained experts to give the most efficient performance and the least cost of manufacture and maintenance. Why should not the house design follow the same procedure? During the past year progress has been made in kitchen layouts; this is the workshop of the house and the best equipment and arrangement should be used. In the majority of households the housewife does her own cooking, so an increase of a few hundred dollars in the cost of the kitchen to provide efficient equipment is money well spent.

Improvements begun in the kitchen can be carried to the rest of the house. Much has already been done to make the bathroom easier to keep clean and more can be done. Other utilitarian divisions of the house should receive close attention from the experienced designer.

Radiant Heat

In England heating elements have long been placed in the walls of the dwelling to warm rooms by radiation. The British Embassy in Washington is heated in this way. When steam or hot water is used for heating, the introduction of pipes in the walls or ceiling is rather cumbersome, but electric heating elements can easily be embedded in the walls or ceiling and a surprisingly small amount of electric power will give adequate heat.

A person sitting in a room radiates heat to the colder walls. If these walls are heated enough to radiate heat back to the person, the room will be much more comfortable and only a small amount of energy may be necessary. The same results can be obtained by screens provided with heating elements which can be placed close to a person. In colder climates this form of electric heating may be too expensive to use as the main source for heat in the house but as an auxiliary it is very useful; in the Spring and Autumn it will take the chill from the room.

Overhead Networks

The old "Edison" system of direct current power supply in congested areas is being superseded by an A-C low voltage network supplied from transformer stations. These distribution systems are placed underground in congested areas. During the past year an overhead network of low voltage power wires which will simplify the distribution of power to buildings and improve the service has been introduced in outlying city districts. The

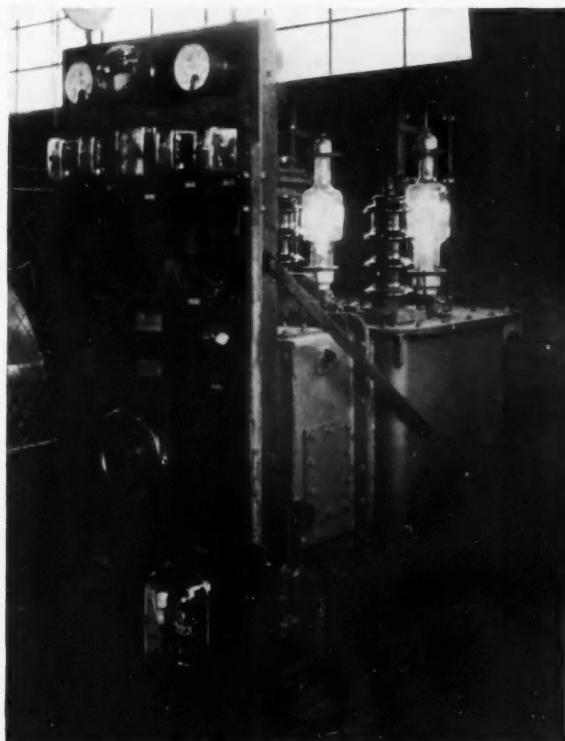
connected load to any particular building on the network is not limited by the size of individual transformers mounted on a pole adjacent to the building and 3-phase power can be obtained readily for driving equipment such as air conditioning machinery.

Transformers

Transformers immersed in a nonflammable liquid instead of oil have recently been placed on the market. These transformers can be used in buildings without an expensive fireproof vault.

Smoke Precipitation

New and practical equipment for converting normal alternating current power supply into high voltage direct current for connection to smoke precipitators is now available. It consists of a switching panel connected to transformers and rectifiers (described in A.I.E.E. paper 32-77). This equipment will be useful where the smoke from public buildings is objectionable and cannot be controlled in some other way. It will permit light manufacturing operations in a congested district where the fumes would otherwise make such operations objectionable.



Rectifier Unit for Smoke Precipitator.

Emergency Lighting and Power Supply

In buildings such as hospitals the failure of electric power for even a few seconds introduces a hazard which increases rapidly with longer time intervals. A demand has developed for emergency equipment to provide the necessary power to operate the lights, fans, elevators and other devices. Recently engine-driven generators as large as 50 Kw. have been made available. They will start automatically within five seconds after the power supply fails.

Improved Furnaces and Boilers

Domestic heating units have been placed on the market during the past year using oil as a fuel and arranged for air conditioning and complete automatic control. In many parts of the country fuel oil is no more expensive than coal and is much more convenient.

Improvements are being made in mechanical stokers for residential heaters. Some good devices are now available for the use of noncoking fuel such as anthracite coal. The automatic regulation of heat in the home is a definitely established demand and requires some form of automatic firing.

For public buildings new mechanical stokers are now available. These stokers are smaller in design than the large stokers used for power house boilers.



Courtesy General Electric Company

New Domestic Oil Furnace with Automatic Heat Control.



No-Fuse Load Center located in an accessible place in the house.

This device replaces electric power panels having ordinary type switches and fuses. It consists of a series of miniature circuit breakers which trip free from the handle and can be opened and closed manually. On an overload they open automatically.

Every one has experienced the inconvenience of having a fuse blow on the panel board, putting out the lights. This often happens after dark and it is necessary to use a candle or flashlight to locate another fuse and replace it in the panel. Often another fuse cannot be found and the householder uses a penny or piece of wire for the replacement. This may result in serious damage or possibly fire.

With a no-fuse-load center it is only necessary to operate the miniature switch handle to close the circuit. If the overload continues, the switch will again open. Often the overload consists of defective equipment such as a washing machine which fails to start, or possibly a vacuum cleaner. The source of trouble can usually be located after one or two trials and disconnected so that the circuit can be re-established.

An Outdoor Substation Unit

A combined switchgear and transformer unit has been designed for mounting in a metal house and complete assembling at the factory. This product simplifies the power service to buildings where low voltage network systems are not available.

600-Ampere Inclosed Circuit Breaker

A new low voltage 600-ampere circuit breaker has recently been placed on the market. It resembles a gigantic snap switch, is totally inclosed and can be mounted on a switch panel or wall. The overload trip rating can be adjusted by installing the proper size of trip unit and sealed up at the factory. This circuit breaker will replace the ordinary open type carbon breaker and is almost flameless in its operation. It is capable of rupturing 10,000 amperes and will carry a 360 Kw. load continuously, and will materially simplify the problem of making power connections to commercial buildings.

Incandescent Lamps

There is a demand for a very small lamp for use in ornaments, small interior designs and in other novel applications. Recently a 3-watt light has been placed on the market suitable for this service. This lamp can be connected to the standard 110-volt lighting service.

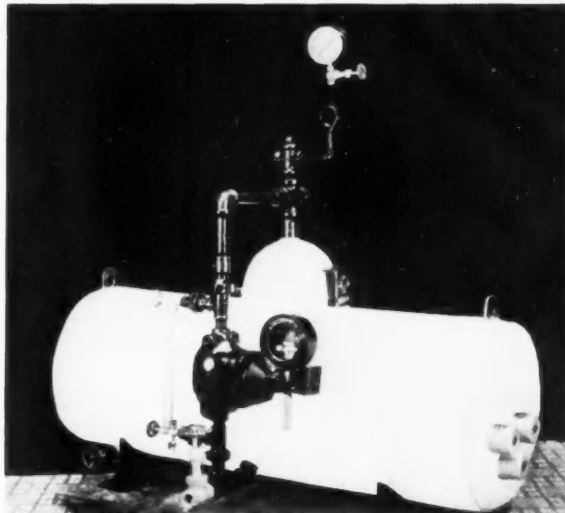
Parking Machine

The demand for parking automobiles in congested areas has led to the development of a number of mechanical devices for this purpose. On April 1, 1932, a parking machine was put into commercial operation on Monroe Street in Chicago just west of State Street. This installation is a two-machine unit having a total capacity of 48 cars, occupying a ground area of 24 by 32 feet and a height of 105 feet. The machine is erected on an open lot and is not provided with an inclosure. It is bolted together so that it can be taken down and moved.

The operation is similar to an elongated Ferris wheel, each cradle being arranged to park one automobile. The automatic control dispatches the desired cradle to the driveway level by the shortest route. The machine has been in continuous operation and is a commercial as well as mechanical success.



Westinghouse Vertical Parking Machine on Monroe Street, Chicago.



Electrically-Heated Steam Boiler for use in cleaning and pressing shops.

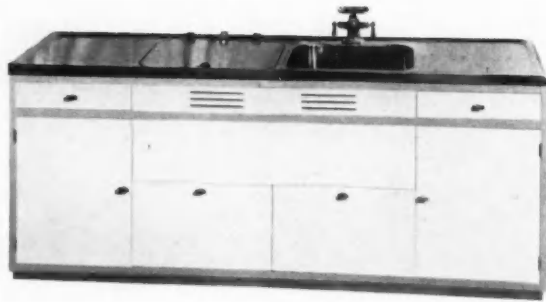
Small quantities of steam are required in cleaning and pressing shops and for various chemical and mechanical processes. When they are located where a steam supply is not available they can make use of recently developed small steam boilers in which the heating is obtained from electric power automatically controlled. These boilers are provided with control equipment to regulate the high and low water level and can be obtained in several sizes.

"Metal-Built" Switch Gear

The switchboard should be built complete in the factory instead of put together on the job. During the past year marked improvements have been made on the totally inclosed switchgear for large buildings. The installation cost is low and its maintenance negligible. This switch gear can be obtained for the main power connections and also for distribution boards. Complete inclosed panel boards fitted with deion circuit breakers were introduced a year ago and are rapidly coming into general use. They represent the smallest of the switchboards of this general type. The new Chicago Post Office uses 145 steel switchboard cubicles having 13,600 units of deion circuit breakers in all sizes.

Electric Wiring

A new finish for the braid surrounding and protecting the insulation of electric wire and cables has been developed. It is both moisture-resisting and flame-retarding. This wire materially reduces the fire hazard in a building and at the same time will resist moisture due to sweating and other causes. It can be obtained in a range of colors for coded cables.



Courtesy General Electric Co.

Dishwasher-Sink, Cabinet Type, illustrating the advantage of combining dishwashing equipment with the kitchen sink.

Very few operations about the house are more distasteful than dishwashing and for a number of years efforts have been made to solve this problem with a motor-operated device.

Dishes washed by hand are not as free from germs as when cleaned with a mechanical dishwasher since the latter can use water at a very high temperature.

Recently, improved dishwashers have become available. One of the most convenient arrangements includes the dishwasher in a cabinet with the kitchen sink, connected permanently to the plumbing and always ready for use.

Electric Clocks

The spring-actuated clock has a cumulative error and the inexpensive clocks require frequent setting due to variations in the time recorded. In the past accurate clocks were expensive and could be had only by a limited few. The electric clock operated by a synchronous motor from central station power places accurate time within the reach of every one. The responsibility for maintaining accurate time from the electric circuit is concentrated in the power plant, where it can be readily taken care of by expert attendants and refined equipment. During the past year an increasing number of good electric clocks at moderate prices have become available.

Clocks can be used for such purposes as turning on or off lights, starting the meal to cook, regulating the temperature, and the like. Every hotel room should be equipped with an electric alarm clock. Persons leaving residences during the day and not returning until late may find it convenient to have some lights turned on at dusk. Lights in a building may be turned off at a definite time during the night. When the house is equipped with an automatic regulating device for heating, it is not necessary to maintain the house at 70° if it is not occupied. Persons leaving the house in the morning could set the regulator at 55° or 60° and have it connected to a clock in such a way that the 70° setting will be restored in advance of their return. This will result in a considerable fuel saving.

Ultra-Violet Rays

Recently a good photograph of a young woman was made in a room so dark that a person could not distinguish objects a few feet away. The photograph was taken by means of ultra-violet rays. This method of photographing may have practical applications for the studio where the usual method of lighting presents difficulties.

This invisible ray may also be used to sweep the interior of a building and send in a burglar alarm if intercepted by an intruder. We may even go further and arrange to take the picture of the burglar, all unknown to him.

Portable Humidifier

Many attempts have been made to provide portable humidifiers which can be placed in rooms to add moisture to the air. One difficulty has been to prevent particles of water leaving the device and causing wet spots on the walls. Motor-operating devices in which the pump and baffles successfully break up the moisture in the air so that no solid particles of water leave the device are now available.

Furniture

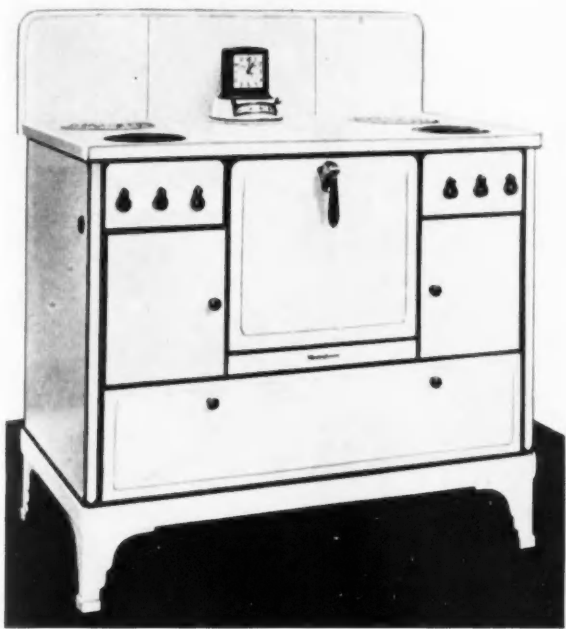
The combination in furniture of devices such as an electric fan or radio adds convenience to their use. Some pieces of furniture may have their own lighting equipment attached. A demand may also be built up to provide the upholstery with low wattage heaters so that the occupant can obtain a slight warmth if the room is chilly. The use of metal and synthetic materials will decrease the fire risk and make it easier to add electrical equipment. Lightweight furniture is desirable.

Micarta has been used for the tops of tables, bureaus, dressers and furniture where there is danger of marring with cigarettes or alcohol.



Mafco

Soda Grill in Observation Tower of Empire State Building, New York City, showing use of Micarta for table tops.



Dual Electric Range—a cabinet-type electric range provided with both "sustained heat control" and "decreasing heat control."

Electric ranges and other cooking equipments are provided with thermostats which can be adjusted to give different fixed temperatures. This is known as the "maintained temperature method." Recently automatic adjustments have been added to these ranges to give a "receding heat method" which is recommended in many cook books. Both methods may be used in combination.

Elevators

The new office building at Radio City in New York will have the fastest passenger elevators in the world. They serve the 69-story tower and operate at a car speed of 1,200 feet per minute. They will make a round trip of 1,554 feet in 91 seconds. This type of elevator was first tested in the Cathedral of Learning in Pittsburgh during the spring of 1932. In this test, speeds of 1,500 feet per minute were successfully obtained. These higher speeds can be used whenever the size of the building justifies the additional expense.

The "electric eye" is coming into general use for elevators. Recently a number of elevators have had their entrance doors protected in this way. The light ray is also being used at Radio City for maintaining the elevators level with the entrance. The light ray is fast in operation and accurate; it is easy to maintain, as the failure of the ray can be easily detected and always renders the installation safe.

Fish Aquariums

Glass aquariums for tropical fish are now on the market. They are electrically heated; some provide special illumination. The electric heat automatically maintains the water at the desired temperature and avoids difficulties which occur in the winter due to changes in room temperature. This is a novelty which appeals to many persons.

Electric Water Cooler

Good designs of electric water coolers have recently been placed on the market, which are acceptable in place of the unsightly water cooler with its sloppy ice compartment. An electric refrigerating machine is provided.

Protection from Moths

We are familiar with small hand-spray devices used to coat clothing, draperies, etc., with a mixture which repels moths. This is a slow and laborious method of applying the mixture if a number of articles are to be treated. An attachment of this kind for use with a vacuum cleaner is now available; it consists of a glass jar and spray nozzle attached to the exhaust side.

Electric Carillon

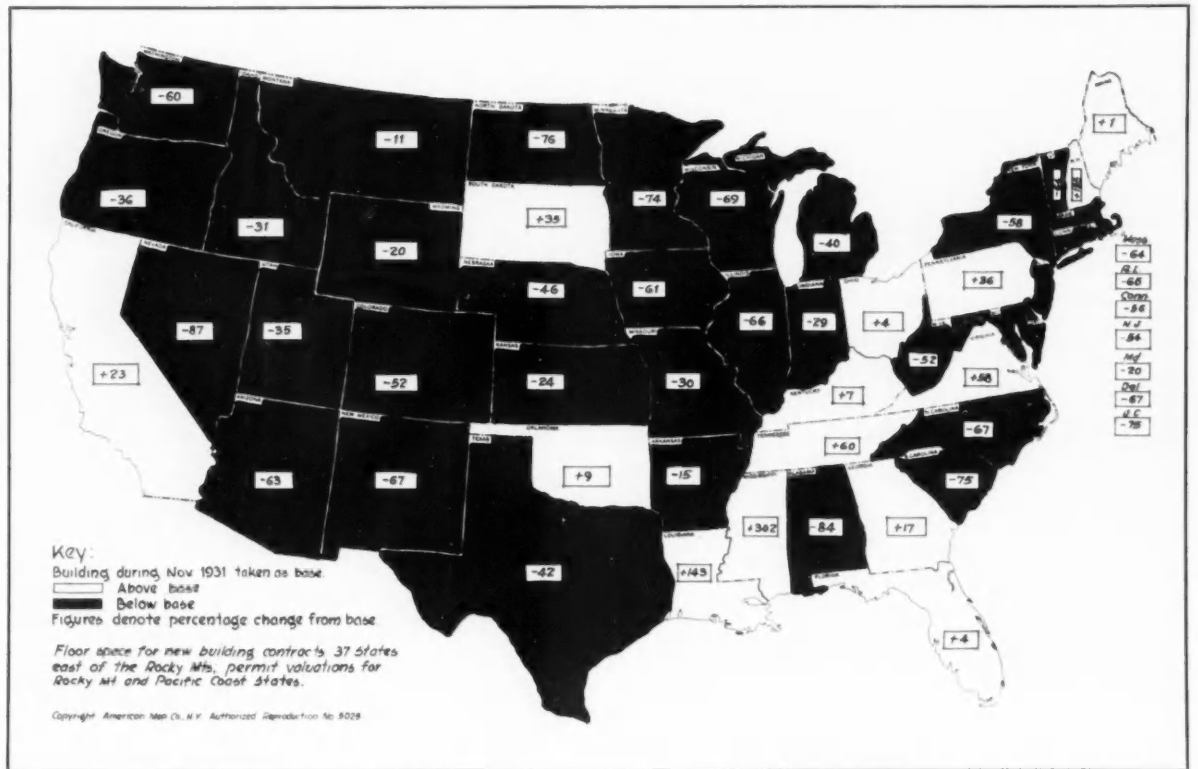
The musician who plays tunes on chimes no longer needs to be an athlete. He can sit at a console similar to an organ and play on keys which strike small reeds manufactured by a special process and tuned so that each reed when struck will vibrate with a fundamental frequency identical to that of the corresponding bell. The harmonics or overtones of the bell are also present in their correct positions. The sound is transmitted electrically to loudspeakers in the carillon tower. Projectors are focused so that the direction of the sound may be limited or broadcast to all points of the compass.

This same equipment can be connected to a roll mechanism for automatic operation of the carillon which is located in the left hand side of the console; on the right side is equipment for playing recorded selections.

The load on the tower is materially less than when standard bells were used; with eight projectors mounted in a single tower the total weight will not exceed one ton.

A monitor speaker in the console makes it possible for the carillonneur to practice in privacy without any sound being transmitted to the projectors in the tower.

A master clock can be connected to the equipment to strike the hours and fraction of the hours during the day. This clock can also start the automatic role mechanism to give a concert at a predetermined time of the day.



BUILDING TRENDS AND OUTLOOK

By L. SETH SCHNITMAN

The November building map made the most creditable showing in many months; thirteen states in the territory east of the Rocky Mountains reported larger floor space totals for new contracts than were shown for November, 1931. Of interest is the fact that the white area on the map, indicative of betterment as contrasted with November, 1931, is more largely contiguous and centered than has been the case in three years.

It is of course too early to attach much significance to this condition; nonetheless the current map focuses attention upon an improved situation that bears close watching. It must be remembered that during 1931 and 1932 the trend of building contracts was continuously downward and that for this reason the improvement that has shown up in the individual states represents gains from very low bases.

Over the next few months it is likely that several of the states that have figured in the current betterment will continue to record improvement when contrasted with their respective contract totals a year earlier. In its cumulative effect continuation of improvement would be important as a signal of impending general betterment. Much depends, however, upon the underlying forces of business and the extent to which further needed readjustments will have been carried in the nearby future.

MATERIAL PRICE MEASURING ROD*

The prices in this tabulation enable one to visualize at a glance the main trend of the material market.

Their significance does not extend beyond that point, and the explanation under them should be read carefully.

F. W. Dodge Corporation Composite Prices as Indicated in Explanation—

Material	This Month	Month Ago	Year Ago
Portland Cement	\$2.05	\$2.03	\$1.91
Common Brick	11.75	11.75	11.93
Structural Steel	1.60	1.60	1.55
Lumber	15.50	15.50	16.50

Prices given in this comparison are composite and do not in all cases refer to one item. For instance, the price of structural steel is the composite of prices of shapes and plates f.o.b. Pittsburgh; the price of lumber is a composite of five items of Southern pine and five items of Douglas fir f.o.b. mill; the price of cement is a composite of prices in fourteen different cities per barrel, carload lots, to contractors; price of brick is composite in fourteen cities per M, delivered on the job.

*As previously published in *General Building Contractor*.



How 26 of New York's biggest and finest cut cleaning costs . . .

Here they are—
26 of New York's foremost skyscrapers—all equipped with Spencer Central Cleaning!

	STORIES
Empire State	85
Chrysler	77
Woolworth	55
City Bank-Farmer's Trust	59
1 Wall Street	51
New York Life	41
Waldorf-Astoria Hotel	47
Municipal	33
Sherry Netherland	38
Equitable Trust Company	42
Bankers Trust	39
Downtown Athletic Club	31
Bank of New York Trust	32
Hotel Pierre	41
Chase National Bank	38
New York Telephone	31
444 Madison Avenue	43
19 Rector Street	36
Hotel New Yorker	43
News	36
National City Company	33
Savoy Plaza	33
Hotel Shelton	34
Hotel Governor Clinton	31
Hotel Lexington	30
Hotel Lincoln	30

* This list does not include the many Spencer equipped buildings under 30 stories high.

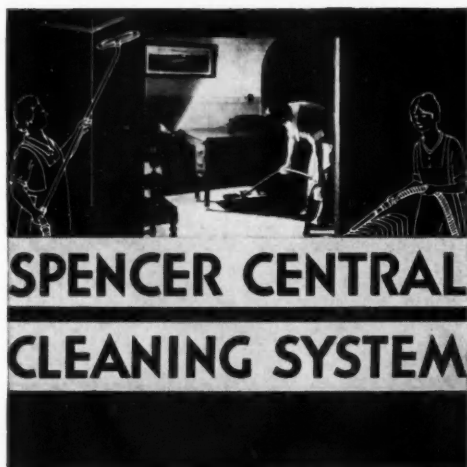
REVENUE . . . the demand for increased return on building investments . . . has dictated the constant changes in New York's skyline.

And the same demand for increased profit on building investments has dictated the selection of the Spencer Central Cleaning System for 26 of New York's biggest and finest buildings to cut cleaning and maintenance costs.

The Spencer System reduces cleaning costs because any floor area is cleaned faster . . . because the work is made lighter . . . because the powerful suction carries all dirt to a container in the basement, leaving no dust to

settle on desks, walls and furnishings, thus greatly reducing building upkeep and maintenance.

The facts on over 10,000 Spencer Cleaned office buildings, theatres, hotels, schools, etc., are yours for the asking. Special bulletins for architects, building owners and managers. Write.

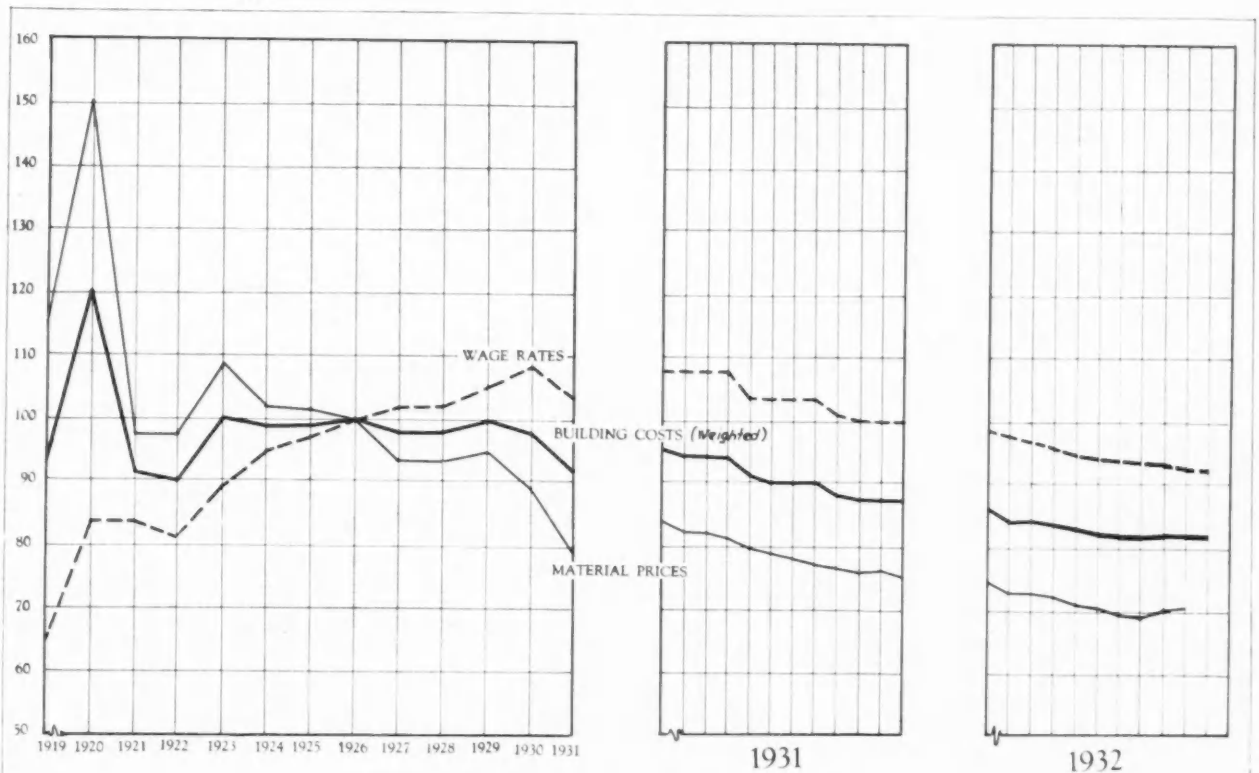


**SPENCER CENTRAL
CLEANING SYSTEM**

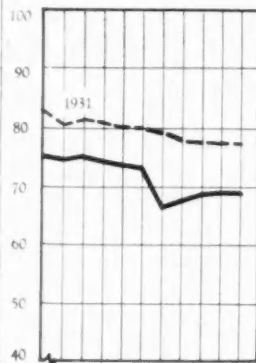
SPENCER TURBINE CO.
HARTFORD, CONNECTICUT

MATERIAL PRICES, BUILDING WAGE RATES AND BUILDING COSTS COMPARED

1926 Monthly Average — 100

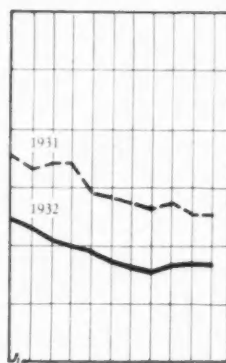


WHOLESALE PRICE INDEXES



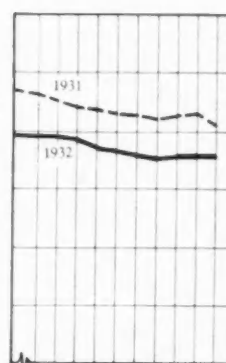
PAINT MATERIALS

The improvement in prices has probably spent its force. The next few weeks should severely test current levels.



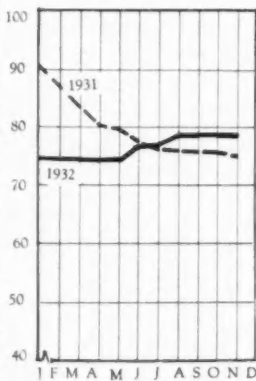
LUMBER

Price declines will probably set in during next few weeks unless the building outlook alters for the better.



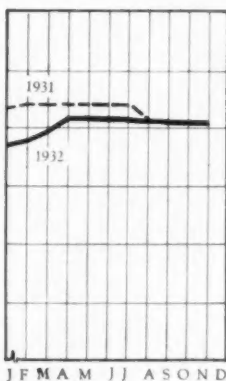
BRICK AND TILE

Present apparent stability should not be construed as a signal for rising prices; the next two or three months hold the key.



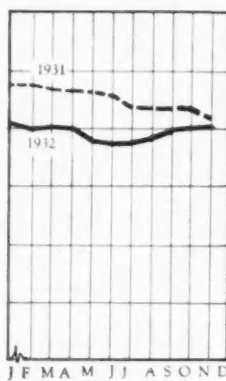
CEMENT

Present price structure cannot be long maintained without further assurance of a sustained program of highway construction.



STEEL

Current levels mirror quotations rather than realized prices; unless improvement in heavy construction comes soon, the nearby months should show steel price declines.



OTHER MATERIALS

The future course of material prices rests largely upon the building outlook; at the moment, prospects are not bright.

CONSTRUCTED OF COPPER AND BRONZE THROUGHOUT

Select the pump that suits the particular conditions
Don't try to suit the conditions to a particular pump

PENBERTHY PRODUCTS

PENBERTHY SUMP PUMPS

PENBERTHY INJECTOR COMPANY - DETROIT

Established in 1886
Canadian Plant Windsor, Ont.

Model	List Price	Max. Sump Depth
NO. 1K	\$65 LIST	2 ft.
NO. 2K	\$85 LIST	3 ft.
NO. 3K	\$100 LIST	4 ft.
NO. 4K	\$125 LIST	6½ ft.
NO. 5K	\$150 LIST	8½ ft.

WINDOW GLASS

that is true to the view beyond it

Windows glazed with Pennvernon Glass tell the truth. Through Pennvernon, the view appears as it really is. Its beauties are invited into the home clearly, in fine detail, without distortion. Furthermore, the full natural colors of outdoor scenes are faithfully transmitted by Pennvernon. And this important power of color transmission is permanent—time has no appreciable effect upon it.

Pennvernon — the window glass that is true to the view — is manufactured by an exclusive process of flat-drawing that ensures unusual clearness and transparency, and consequently, unusually good visional qualities.

But the special Pennvernon manufacturing process makes Pennvernon Glass superior in other ways, too. It gives the glass more luster and more brilliance of finish on both sides of the sheet, which means that Pennvernon's reflective qualities are second only to those of fine plate glass. And it makes the surfaces of Pennvernon smoother and denser



in structure, with the result that Pennvernon resists the effects of wear and abrasion longer than ordinary window glass.

We invite you, as an architect interested in fine window glass, to investigate Pennvernon. We shall be glad to send you samples upon

request. Pennvernon is available in single or double strength, and in thicknesses of $\frac{3}{16}$ " and $\frac{7}{32}$ ", at the warehouses of the Pittsburgh Plate Glass Company in all principal cities, through progressive glass jobbers and leading sash and door manufacturers. When you write for samples, ask for our Pennvernon booklet. Pittsburgh Plate Glass Co., Grant Building, Pittsburgh, Penna.

**PENNVERNON
WINDOW GLASS**



CORRESPONDENCE FROM ARCHITECTS

THE "BASE BID" METHOD OF BIDDING

By ROBERT R. GRAHAM, Architect

Middletown, New York

Our work has been almost exclusively school work. We have found that the most effective method to take care of bid-shopping is to use what we call the base bid method of bidding.

Throughout our specification we call for one specific article for the base bid and take alternate figures on several other manufacturers' products. This permits us to accept the alternates which are most desirable to our client from price standpoint as well as quality and, what is most important, taking it out of the hands of contractors who play these sub-bidders against each other.

In addition to this we request a complete list of subcontractors in our bid sheet with a statement that the contractor has used their sub-bid in making

up his figures and an agreement to sign the contract on that basis.

This also stops shopping around after the contracts are signed with the ultimate result of some one taking the work at too low a cost. It also results in the lowest reasonable bid, since the subcontractor realizes that his bid must be low at the night of bidding to be considered.

In other words when our contracts are signed, we are through with all discussions as to whether this article may be substituted for that one, and the like. We have tried this method on three school jobs and find that our bidding is better standardized and that subcontractors, and contractors too, are pretty generally in favor of the plan.

ARCHITECTURAL ACTIVITIES

FRENCH MEDAL TO HARVARD

The Harvard School of Architecture has received again the medal awarded to universities of the American group of the Société des Architectes Diplômés par le Gouvernement Français. The School received the medal also in 1929.

The medal is awarded to the school which has shown the best record of accomplishment in the teaching of architecture along the lines followed by the Ecole des Beaux-Arts in Paris.

MAINE ARCHITECTURAL SOCIETY

Until recently there has been no organization of architects within the State of Maine. Realizing the need of such an organization, a number of the architects of Maine have formed the Maine Architectural Society. This organization has adopted a Constitution and By-Laws which conform to those suggested by the American Institute of Architects for use by its chapters. In addition, it has adopted the Principles of Professional Practice recommended by the A. I. A.

The Society has three classes of membership: Members, Associates, and Affiliates. The Affiliated Membership is composed of men whose occupations or interests are in some way allied to architecture.

The officers of the Society are: President, John Calvin Stevens, F.A.I.A.; Vice President, John P. Thomas, A.I.A.; Secretary-Treasurer, Royal Boston, Jr. The remaining members are: Harry S. Coombs; C. Parker Crowell, A.I.A.; Alonzo J. Harriman; E. Leander Higgins; Walter S. Lancaster, A.I.A.; George I. Mansur; Henry Richards; John Howard Stevens, A.I.A.; Josiah T. Yubby,

A.I.A.; and Philip S. Wadsworth. Associates: John Allen; Donald H. Lovejoy; and Henry W. Stevens. Affiliated: Alexander Bower, A.I.A.; Harry H. Cochrane; William J. Dougherty; Albert C. Hobbs; John H. Huddilston; Lucien P. Libby; and Kark vonRydingsvard.

Office of the Secretary is Room 413, Clapp Memorial Building, Portland, Maine.

ARCHITECTURAL LEAGUE SHOW TO RAISE UNEMPLOYMENT RELIEF FUNDS

The forty-eighth annual exhibition of the Architectural League of New York will be held from February 18 to March 11 in the Fine Arts Building, 215 West 57th Street, according to an announcement by Arthur Loomis Harmon, chairman of the exhibition committee. Despite the depression, and in fact, because of it, the members of the League state that they are uniting to make a selective and representative showing of architecture and its kindred arts. Any profits resulting from the show will go to the Architects' Emergency Committee unemployment fund. Several concerts by well-known musicians will be held in the galleries of the exhibition to aid the fund.

Exhibits will include works of contemporary architecture, sculpture, landscape architecture, decorative painting, and works of the native arts and crafts produced within the last year. All exhibits to be eligible to the show must pass the juries of selection in their respective fields. Settings for exhibits will be made under the direction of Joseph Urban who will have charge of the general decorative scheme.

Because men, women, and children prefer different kinds of showers . . . normal, needle or flood. **EVERY** shower should have the

SPEAKMAN ANYSTREAM SELF-CLEANING SHOWER HEAD



K-3395—SPEAKMAN Anystream Self-Cleaning Shower Head. For residences and general installation. $\frac{1}{2}$ " I. P. female inlet. (Pat. Jan 2, 1923 and Nov. 3, 1931)



K-3396—SPEAKMAN Anystream Self-Cleaning Shower Head with $\frac{1}{2}$ " I. P. female inlet and lock-shield arranged to operate by a key.



K-3399—For school and hospital use. Operated from center by $\frac{5}{16}$ " hexagon wrench which is furnished. $\frac{1}{2}$ " I. P. female inlet.



K-2601-M—SPEAKMAN Metaline Built-in Mixometer Shower. Size $\frac{1}{2}$ ". Mixometer with metal wall plate and metal handle. Bent arm with metal escutcheon, ball joint and Anystream Self-Cleaning Shower Head.

HALF a turn of the lever handle at the side of the head gives any degree of shower force or volume.

But whether the plungers in the head are set for a needle or a flood shower the sprays always retain their full unbroken round character.

Another big, and very much appreciated feature of the Speakman Anystream head is that

It will never stop up!

Pipe scale, dirt, and sediment are flushed out instantly by a single turn of the lever handle.

Speakman Anystream Self-Cleaning Shower Heads are furnished when specified on any type of Speakman Shower. Various types have been designed for installation in residences, hospitals, institutions of all sorts, golf and country clubs. These are all described and illustrated in a 16-page bulletin which you will find convenient to have in your files. It will be sent promptly.

SPEAKMAN COMPANY
Wilmington, Delaware

Refer to Sweet's
Architectural Catalogs,
pages D-270-71-72



K-3416—SPEAKMAN Anystream Self-Cleaning Unit Control Triple-Cluster Shower Head with 1" I. P. female inlet (patented). For use where a large amount of water is desired. Because of the large size of the head it should be braced to the ceiling.

SPEAKMAN SHOWERS & FIXTURES
Speakman Company, Wilmington, Delaware
Please send me your bulletin on Speakman Showers and Shower Heads.

*Seloc Glass Blackboard
will never need recoloring or refinishing.
Bonded for 40 years
New York Silicate Book Slate Co.
20 Vesey St. New York, N. Y.*

The usual annual competitive awards will be made for contemporary work exhibited in architecture and its allied arts.

The membership of the Exhibition committee in charge of the Annual Exhibition is as follows:

A. L. Harmon, Chairman; Archibald M. Brown, D. Putnam Brinley, Noel Chamberlin, G. A. Holmes, Philip L. Goodwin, Harvey W. Corbett, Otto W. Heinigke, Ernest W. Keyser, Julian Clarence Levi, Irwin L. Scott, Joseph Urban, and R. T. Walker.

The following committees have charge of the various divisions of the forthcoming exhibition and will serve as the juries of selection.

Committee on Architecture: A. L. Harmon, Chairman; Archibald M. Brown, Roger H. Bullard, G. A. Holmes, William Muschenheim, Irwin L. Scott and R. T. Walker.

Committee on Decorative Painting: D. Putnam Brinley, Chairman; Francis Bradford, Jr., Arthur Covey, Salvatore Lascari, J. Mortimer Lichtenauer and Edward Trumbull.

Committee on Sculpture: Ernest W. Keyser, Chairman; Gaetano Cecere, Ulric H. Ellerhusen; James E. Fraser; Charles Keck; Albert T. Stewart and A. A. Weinman.

Committee on Crafts: Otto W. Heinigke, Chairman; Richard F. Beck, Lee Simonson, Eugene Schoen, Giles Whiting and Oscar Widman.

Committee on Landscape Architecture: Noel Chamberlin, Chairman; Armistead Fitzhugh and Robert L. Fowler, Jr.

STEEDMAN FELLOWSHIP IN ARCHITECTURE

The Governing Committee of the James Harrison Steedman Memorial Fellowship in Architecture announces the eighth competition for this Fellowship. The value of this fellowship is represented by an annual award of \$1,500 to assist well-qualified architectural graduates to benefit by a year in travel and the study of architecture in foreign countries, as determined by the Committee and under the guidance and control of the School of Architecture of Washington University.

The fellowship is open on equal terms to all graduates in architecture of recognized architectural schools of the United States. Such candidates must be American citizens of good moral character,

and shall have had at least one year of practical work in the office of an architect practicing in St. Louis, Mo., before being entitled to assume the benefits of the fellowship. All candidates shall be between 21 and 31 years of age at the time of appointment.

Application blanks for registration can be obtained at any time upon written request addressed to the head of the School of Architecture of Washington University, St. Louis, Mo., to whom application blanks properly filled out must be returned not later than January 20. Any requests for supplementary information relative to the rules and regulations governing the competition shall be made at the same time.

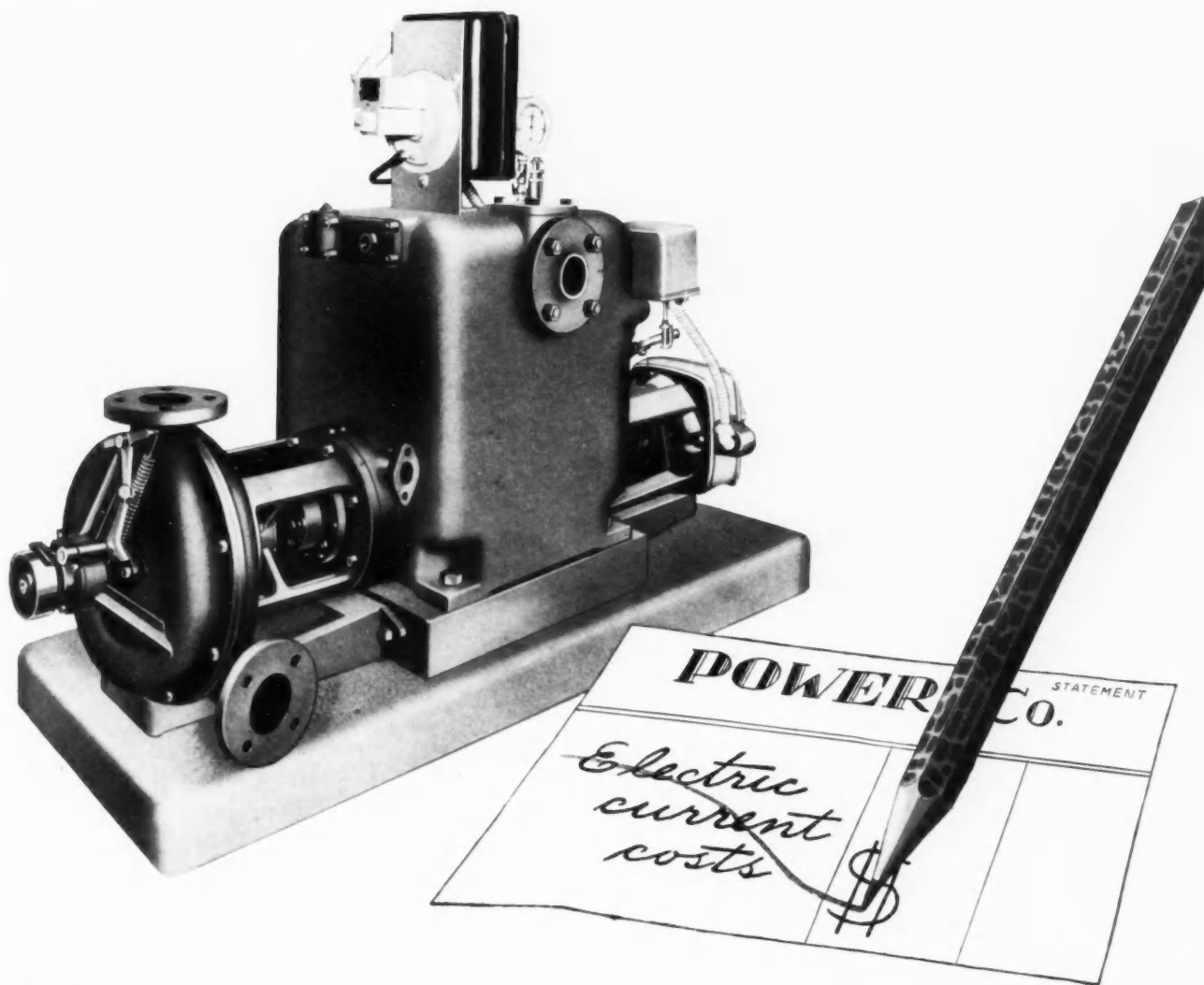
BROOKLYN BUILDING AWARDS COMPETITION

For the third successive year the Brooklyn Chamber of Commerce announces its annual building awards competition for structures most outstanding in design, workmanship and practicability erected during the year in the Borough of Brooklyn, according to a statement by Webster J. Caye, Chairman of the Building Awards Committee.

The following seven classes of buildings are subject to awards: industrial structures, business and investment structures, business and residential (combined), apartment buildings, residence buildings, residential groups, and institutional buildings (Federal, State and Municipal structures excepted).

All buildings completed from December 1, 1931, to December 31, 1932, are entitled to entry in the present competition. Entries are invited from owners, architects or builders. Entrants should write a letter to the Building Awards Committee, Brooklyn Chamber of Commerce, 66 Court Street, Brooklyn, N. Y., giving the names of the owner, architect and builder and giving in not more than 200 words such general information regarding the structure as should interest the committee. Accompanying each entry there should be two unframed photographs, preferably 8" by 10", of exterior views.

Entries must be received by the committee not later than January 15, 1933. The presentation of the awards will be made thereafter at the earliest possible moment.



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Why not eliminate the one largest cost item in the operation of a return line heating pump, the electric current? The Jennings Vapor Turbine operates on steam directly from your heating mains, and returns that steam to the heating system with little heat loss.

This remarkable pump is driven by a newly developed vapor turbine which functions on a differential of only 5" of mercury, and on any type of vacuum heating system, regardless of type of steam control. It is equally efficient on low pressure steam, high pressure steam thru reducing valve, or on street steam. It makes no difference whether the system is run above or below atmosphere, because the turbine functions on the difference between the supply and the inlet, not on a given pressure above atmosphere.

But this saving in operating cost is not the only advantage offered by the new Vapor Turbine Jennings Heating Pump. This equipment gives you safety in your heating system. It is independent of possible current failures. It functions as long as there is steam in the heating system, assuring constant and reliable vacuum and boiler return.

Further, the fact that its operation is continuous means that the system is kept at the maximum of its operating efficiency at all times.

There are other points about this pump that it will pay you to investigate. They are covered in Bulletin 203. We need only your name and address to send you a copy.

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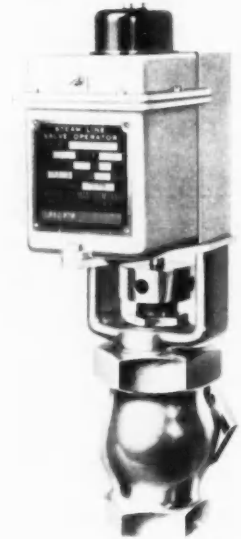
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NEW PRODUCTS and EQUIPMENT

ELECTRIC THROTTLING VALVES

The Barber-Colman Electric System of Temperature Control now includes a line of small electric-motor-operated throttling valves. These have been designed for service in those applications where the conditions require graduated valve action. They are especially useful on small blast systems and air conditioning systems where throttling valves smaller than the 2" size are required. Unit heaters and unit ventilators which require a throttling control can also make good use of them. These systems are available in packed or packless models, high pressure or low pressure types, in sizes from 1/2" to 2".



The illustration shows the general construction. The motor-operator used is a small size Barber-Colman Reversing Damper Controller. In this application it is mounted on a special bonnet which is fitted to the same type of body, disc, plunger, and packing gland assembly as is used for corresponding positive acting valves. The motor-operator turns a cam which imparts a positive longitudinal motion to the plunger sleeve that fits over the valve stem. Since a "reversing" type operator is used, it can be stopped, restarted in the same direction, or reversed at any position between the points where the valve is fully open or fully closed. The speed is conveniently adjustable after installation, and consequently can be changed to meet varying requirements. Auxiliary "trailing" switches are incorporated in the motor-operator and from these switches it is possible to actuate other apparatus such as the subsequent valves on a blast system.

G-E AIR CONDITIONER

The General Electric Company's air conditioner is now on the market. It is designed to operate in conjunction with the oil furnace for application to warm-air heating systems. Steam from the boiler is supplied to an extended heat transfer surface in the air conditioner, to supply heat to the circulated air. As the air is circulated, it is filtered and properly humidified. The necessary pressure to



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This product is recognized as standard for concrete reinforcement as its definite factors of safety, its great strength and permanency have won the enthusiastic endorsement of leading architects, engineers and contractors.

1831



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force the air through the duct system is also supplied by the air conditioner.

The air conditioner and oil furnace used together as a system are designed and coordinated to produce a warm-air heating system offering precise temperature control and efficient operation. The combination is applicable to all domestic warm-air heating systems. In the case of existing plants, the combination supplants the old furnace, and a new basement leader layout is connected to the existing wall stacks.

In operation, the air conditioner blowers draw air from the basement through two filters and discharge it upward through a heat exchanger which is kept hot by steam from the oil furnace. The air then passes through humidifying screens and out into the duct system. The warm air from the registers enters the rooms and is cooled to room temperature, returning to the basement through grilles in the first floor.

The amount of air handled by the blowers is sufficient to permit recirculation of the entire volume of air in the home from 5 to 10 times an hour during continuous operation.

The temperature of the air leaving the conditioner is approximately 145° F., resulting in register temperatures of 125° to 135° F., depending on the length of the supply ducts to the registers.

The humidifier has ample evaporating capacity to provide proper moisture content in the air.

The air conditioner is built in a square, sectionalized, vertical cabinet. The upper section, which may be detached from the lower and turned to face in any one of four directions, contains the heat exchanger, the humidifier and the outlet manifolds for connection to the basement leader system.

The lower section is mounted on four pipe legs by which the conditioner is elevated to within a very small distance of the ceiling to allow direct connection of the leaders without requiring the use of elbows or angle fittings. The main body of the lower section contains the blowers, the motor, the filters, and the control box.

FIRE TESTS ON ACOUSTIC TILE

The development of motion pictures with sound reproduction during the last few years has confronted architects and theater owners with some difficult acoustic problems. Many theaters and auditoriums which were satisfactory for the needs of the silent picture were found to be wholly unsuited to sound transmission. Correction was sought by covering walls and ceilings with sound absorptive materials but, while this was generally successful from the acoustic standpoint, it developed that many such surfaces constituted a serious fire hazard.

Underwriters' Laboratories' tests have now developed a noncombustible acoustic tile that can be confidently recommended as being both effective and safe. Information concerning such material can be obtained by addressing the Laboratories at 207 East Ohio Street, Chicago, or 109 Leonard Street, New York.

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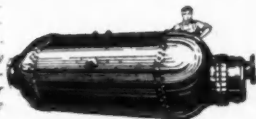
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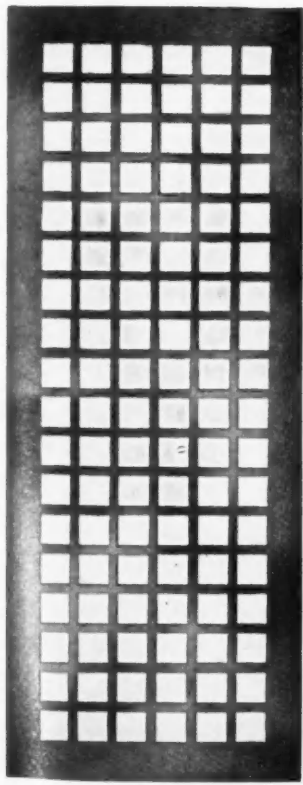
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"Vanishing
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WARDROBE

Class J

equipped with either "Floor" type (as illustrated) or "Jamb" type hinges. This is Class D wardrobe if made with flush doors.

CLASSROOM WARDROBES
High in Quality—Low in Cost

This type occupies a recess flush with the wall. Plaster back and ends. No partitions, but with mullions between pairs of doors. Wire mesh ceiling. Blackboards if required.

The "Vanishing Door" hinges on which the doors are hung are made with double pivoted arms and swing the doors back into the wardrobe entirely out of the way. Simple—trouble-proof—and last as long as the building.

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We make many other types of school wardrobes, fully illustrated and described in 1933 Sweet's, Volume C, pages 774-781.

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RIGID CONDUIT



A NEW LOW PRICED OVERHEAD OPERATING DOOR

The Kinnear Manufacturing Company of Columbus, Ohio, announces their "Economy" Model Rol-Top Door. It is a substantially built door which can be easily installed in old or new buildings and is reasonably priced.

It is a sectional wood door hinged together and operating on a steel track, permitting it to be raised into the overhead position. Spring counter-balanced, it rolls up easily and rapidly the year around, not being impeded by snow, ice or rain. When closed it is weathertight and can be securely locked. It is built only in the more commonly used sizes (8'0" x 8'0" — 8'0" x 7'6" — 8'0" x 7'0") and on a production basis.

The Rol-Top Door is also built in Standard and DeLuxe Models embodying various refinements in door construction.

MONEL KITCHEN CABINET SINKS

The use of cabinet sinks in large as well as small kitchens has resulted in the development of a line of Monel metal models in ten different double drainboard and one single drainboard sizes by the International Nickel Company.

The new cabinet sinks are similar to the "Strait-line" self-supporting sink models announced by the company several months ago. They are made of the same gauge metal and are reinforced with heavy plate under the drainboards. Under portions, including bowl and drainboards, are backed up further with sound deadening material.

Sizes of the double drainboard models range from 60 inches to 117 inches in length. The single drainboard models are 48 inches in length but are furnished in right and left-hand drainboard types. All models are 25 inches wide, a width sufficient to allow for a slight overhang that permits the person working around them to stand close without bending as would be the case if cabinet and sink

PIONEERS

The Present Day

Nurses' Silent Call System
Doctors' Silent Paging System
Lamp Type In & Out Register

Were originated by Holtzer-Cabot



EVERY Holtzer-Cabot installation is the result of the accumulated experience of the oldest and largest manufacturer of hospital signaling systems—the pioneer.

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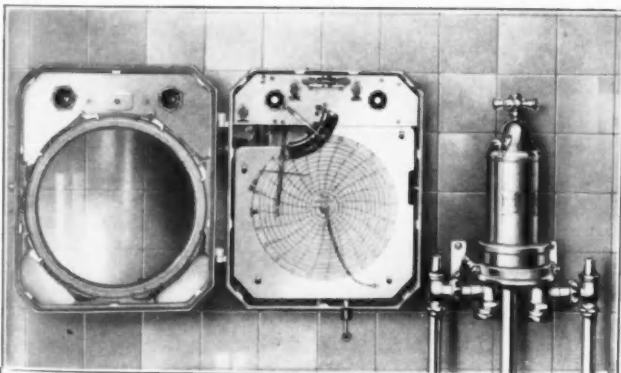


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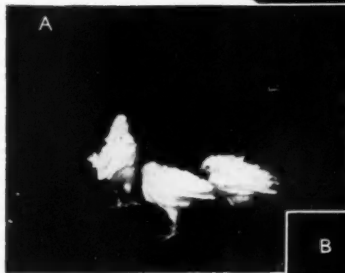
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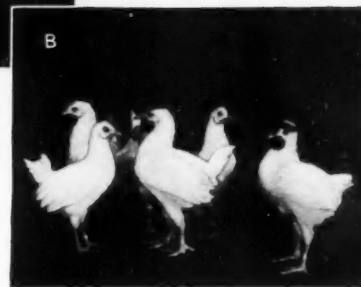
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Would
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A. Six weeks old—sick, weak, and victims of rickets . . . because they were raised under ordinary glass . . . Four of the original seven died.



B. Six weeks old . . . all seven alive and normal, healthy, strong, and entirely free from rickets . . . because they were raised under Lustraglass.

Carefully controlled experiments by an authority on poultry husbandry definitely prove the biological benefits of sunlight transmitted by Lustraglass. The chicks raised under ordinary window glass were deprived of the ultra-violet rays which produce Vitamin D and prevent rickets. The chicks raised under Lustraglass received plenty of ultra-violet rays and were free of any rachitic symptoms. The photographs above show the remarkable difference.

The results of these experiments are confirmation of the fact that Lustraglass transmits a substantial volume of ultra-violet rays of sunlight . . . Because it transmits these valuable rays and because it is a clearer, whiter, flatter, more lustrous glass, and because it costs no more than any good window glass, architects and builders everywhere are specifying Lustraglass for every type of building. Send for the Lustraglass booklets A-430 and P-332. The latter contains an interesting report on the experiment with chicks.



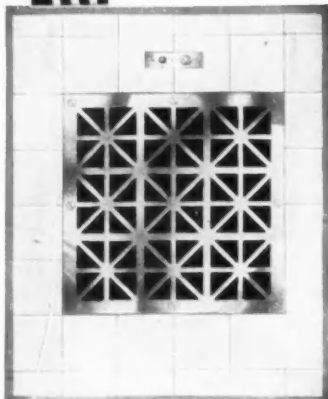
Look for this label on every light of genuine Lustraglass.

LUSTRAGLASS
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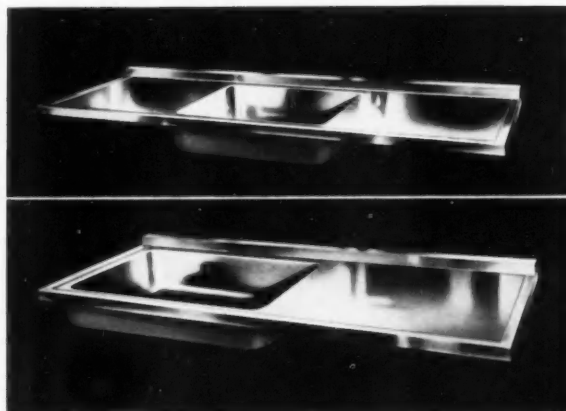
No building is *modern* unless *every* room is equipped with a

PROMETHEUS Electric Heater

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MONEL METAL CABINET SINKS

were flush. Bowls are of solid one-piece construction. The drainboards are without flutes to provide the maximum working surfaces and have an integral back splash 1½ inches high. End and front rims protect the floor from water splash. In addition an optional back splash is provided that forms a sanitary overlapping joint when bolted to the integral back splash.

Finish of the cabinet sinks is of silvery satin. The one-piece bowl is welded to the adjacent drainboards for strength with matching solder on the inside flange for sanitary purposes. All welds are solid, invisible, and finish entirely smooth.

Announcement of the new models follows closely upon the placing on the market of all electric kitchens by electrical manufacturers. Many of these kitchens included Monel metal sink with built-in dishwashers mounted in cabinets. Plans for these kitchens in most cases permit the use of cabinet sinks without the built-in dishwashers, where this equipment is not desired.

ULTRA-VIOLET LAMP BOOKLET

A new booklet on ultra-violet lamps issued by engineers of the Westinghouse Lamp Company contains a comprehensive story on the technical aspects of these radiations and their application to various industrial and commercial uses.

Beginning with a definition of ultra-violet, it discusses the effects and conditions of its use. Theory of operation and electrical characteristics are also taken up. Such problems as current limiting devices, reflector equipment, and fixture design are explained in detailed form.

Limited copies of this booklet, "Westinghouse Ultra-violet Lamps," may be obtained from the Commercial Engineering Department, Westinghouse Lamp Company, Bloomfield, N. J.

GRANDSTAND CONSTRUCTION

The description of a new type of all-steel grandstand perfected by the Ingalls Iron Works Company of Birmingham, Alabama, which appeared in the December, 1932, issue, neglected to state that this construction is protected by patents.

THE MODERN IN DESIGN

NO. 2446
RECESSED
WALL TYPE



WITH
GLASS
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THE modern trend in design, now so prevalent in many of our schools and skyscrapers, finds expression in Halsey Taylor Drinking Fountains, too. Here is a recess type, designed to harmonize with interior modern treatment—a design as modern as the distinctive features of the fountains themselves, such as practical automatic stream control and two-stream projector.

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SMALLER HOUSES AND GARDENS OF VERSAILLES, from 1680 to 1815—by Leigh H. French, Jr. and Harold Donaldson Eberlein; more than 200 pages, 9 x 12 inches, with over 250 photographs, plans and measured details.
Price \$4.00 (instead of \$6.00).

PRINCIPLES OF CITY LAND VALUES, Fourth Edition—by Richard M. Hurd; 146 illustrations, including early pictures of Paris and of other foreign and 50 American cities; the principles it sets forth are sound and informative, and apply to changing conditions in all American cities.
Price \$2.00 (instead of \$3.50).

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| <input type="checkbox"/> <i>Principles of City Land Values</i> | 2.00 |

GIVING INFORMATION TO DODGE

THE OFFICE OF ROBERT D. KOHN, CHARLES BUTLER AND CLARENCE S. STEIN, ARCHITECTS ASSOCIATED, believes it to their interest and helpful to the construction industry to give news of work on the boards to the Dodge reporter when he calls. Mr. J. J. Knight, Mr. F. E. Vitoio and Mr. Henry Wright of this firm feel the same way about it. The reason is given in the statement on the facing page.

The prominent architects composing this distinguished firm have, individually or in association, designed and built many notable structures. These commissions include.

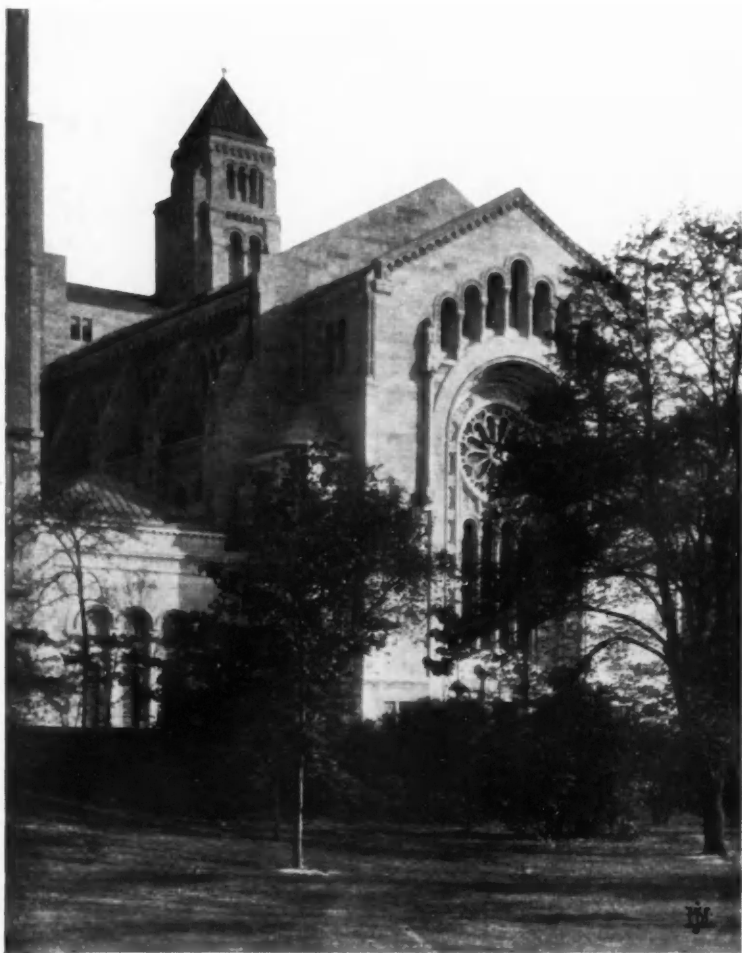
Temple Emanu-El, 65th Street and Fifth Avenue, New York City, which is pictured below and on the opposite page; the Montefiore Country Sanatorium at Bedford Hills, N. Y.; the Potts Memorial Tuberculosis Colony at Livingston, N. Y.; department stores for A. I. Namm in Brooklyn, and L. M. Blumstein on West 125th Street in New York; the Nurses Home and the Semi-Private Pavilion for Mount Sinai Hospital; the Fieldston School and the Fieldston Lower School at Riverdale; and many buildings in New York and elsewhere for R. H. Macy & Co.

In addition, Mr. Kohn designed the Meeting House for the Society for Ethical Culture, 64th Street and Central Park West. Mr. Butler designed the Department of Interior building in Washington, D. C., and the American Memorial Hospital at Rheims, France. Mr. Stein was the architect for the housing development at Sunnyside and the Phipps Garden Apartments, New York City.

and in association with Henry Wright developed the town plan of Radburn, New Jersey.

Mr. Kohn graduated from the Architectural Department of Columbia University, completed his studies in the Ecole des Beaux Arts, and is a Fellow and a Past President of the American Institute of Architects. He was the recipient last year of Columbia University Class of 1889 Gold Medal awarded to him for eminent attainment in his profession. Mr. Butler is also a graduate of Columbia and the Ecole des Beaux Arts, and a Fellow of the American Institute of Architects. Columbia University in 1930 conferred upon him the Honorary degree of Doctor of Letters; and in June of last year Rensselaer Polytechnic Institute of Troy conferred upon him the degree of Doctor of Science. Mr. Stein, A. I. A., studied both at Columbia and at the Ecole des Beaux Arts; and was the Chairman of the New York State Commission of Housing and Regional Planning.

Dodge Report Service welcomes this opportunity to recognize the firm of Robert D. Kohn, Charles Butler, Clarence S. Stein, Architects Associated, and to thank the firm members individually for their statement. Dodge Reports is committed to the policy of service to Architects. The Dodge reporter, Dodge Inquiry Service, Dodge Plan Rooms and Dodge Reports promote construction and help create business by lowering costs, at the same time serving architects and engineers by making planning, specifying and contract-letting easier. We urge you to cooperate with the Dodge reporter so that you may gain full advantage of Dodge service.



TEMPLE EMANU-EL, 65th Street and Fifth Avenue, New York City, a recent commission executed by Robert D. Kohn, Charles Butler, Clarence S. Stein, Architects Associated. The photograph on the facing page is an interior view of Temple Emanu-El.

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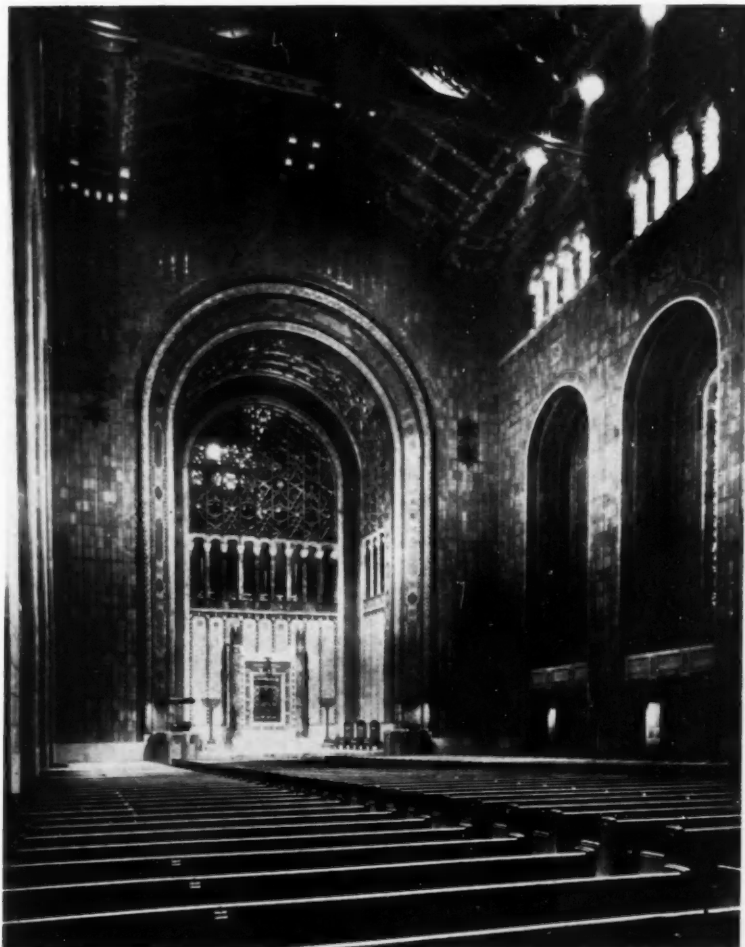
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INDEX TO ADVERTISEMENTS

The italic lines appearing under the following manufacturers' names give the volume and catalogue page numbers of their catalogues filed in the 1933 Edition of SWEET'S ARCHITECTURAL CATALOGUES

A		M	
A. P. W. PAPER CO.	30	MacBETH-EVANS GLASS CO.	2
<i>D 346</i>		<i>D 647</i>	
AMERICAN SHEET & TIN PLATE CO.	32	METROPOLITAN PAVING BRICK CO.	9
AMERICAN STEEL & WIRE CO.	31	<i>A 315</i>	
<i>A 152, B 537, D 592, D 862</i>		MINNEAPOLIS-HONEYWELL REGULATOR CO.	
AMERICAN WINDOW GLASS CO.	35	<i>D 361</i>	3rd COVER
<i>C 260</i>			
ARCHITECTURAL RECORD	37		
		N	
B		NASH ENGINEERING COMPANY	29
BOOK REVIEWS	12-14	<i>D 238</i>	
		NATIONAL RADIATOR CORP.	3
C		<i>D 419, D 519, D 526</i>	
CAREY, PHILIP COMPANY	15	NEW YORK SILICATE BOOK SLATE CO.	28
<i>A 509, B 584, B 808</i>		<i>C 800</i>	
CUTLER MAIL CHUTE CO.	32	NORTON COMPANY	6
<i>C 882</i>		<i>B 828</i>	
		O	
D		OTIS ELEVATOR CO.	19
DAHLQUIST MFG. CO.	33	<i>D 812</i>	
<i>D 195</i>		P	
DIAMOND POWER SPECIALTY CORP.	7	PENBERTHY INJECTOR COMPANY	23
DODGE REPORTS	38-39	<i>D 240</i>	
<i>A 111</i>		PITTSBURGH PLATE GLASS CO.	25
DURIRON CO., INC.	33	<i>C 207</i>	
<i>D 144</i>		PROMETHEUS ELECTRIC CORP.	36
		<i>C 877</i>	
E		PUBLISHER'S PAGES	16-18
ERDLER PERFORATING COMPANY	33		
EVANS, W. L.	34	R	
<i>C 774</i>		READING IRON COMPANY	5
		<i>D 104</i>	
F		REVERE COPPER & BRASS, INC.	11
FLETCHER, H. E., CO.	20	<i>A 629, A 850, D 137, D426</i>	
<i>A 353</i>			
FRETZ-MOON TUBE CO., INC.	34	S	
<i>D 604</i>		SPEAKMAN COMPANY	27
		<i>D 270</i>	
H		SPENCER TURBINE CO.	21
HOLTZER-CABOT ELECTRIC CO.	35	<i>C 645</i>	
<i>D 714</i>		SWEET'S CATALOGUE SERVICE	Following Page
I		T	
INLAND STEEL COMPANY	13	TAYLOR HALSEY CO.	36
		<i>D 252</i>	
		U	
J		UNDERWOOD ELLIOTT FISHER COMPANY	10
JONES & LAUGHLIN STEEL CORP.	2nd COVER		
<i>A 160, A 716, A 767, D 106</i>		V	
		VERMONT MARBLE CO.	8
L		<i>A 376</i>	
LEONARD-ROOKE CO.	35	VITROLITE COMPANY	4
<i>D 266</i>		<i>C 131</i>	
LIBBEY OWENS FORD GLASS CO.	17		
<i>C 263</i>		W	
		WESTINGHOUSE ELECTRIC ELEVATOR CO.	4th COVER