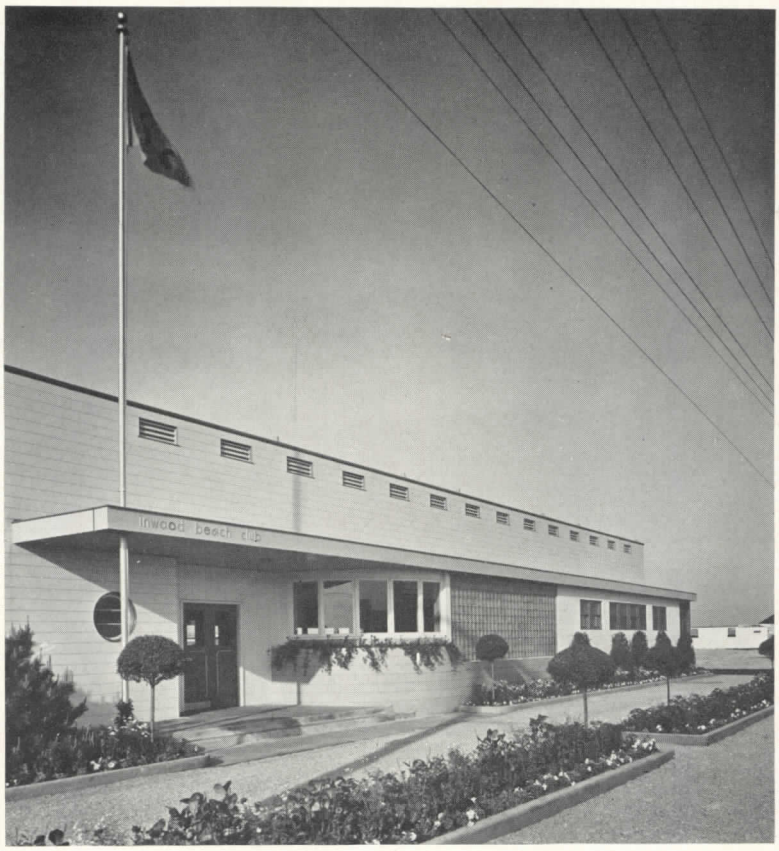
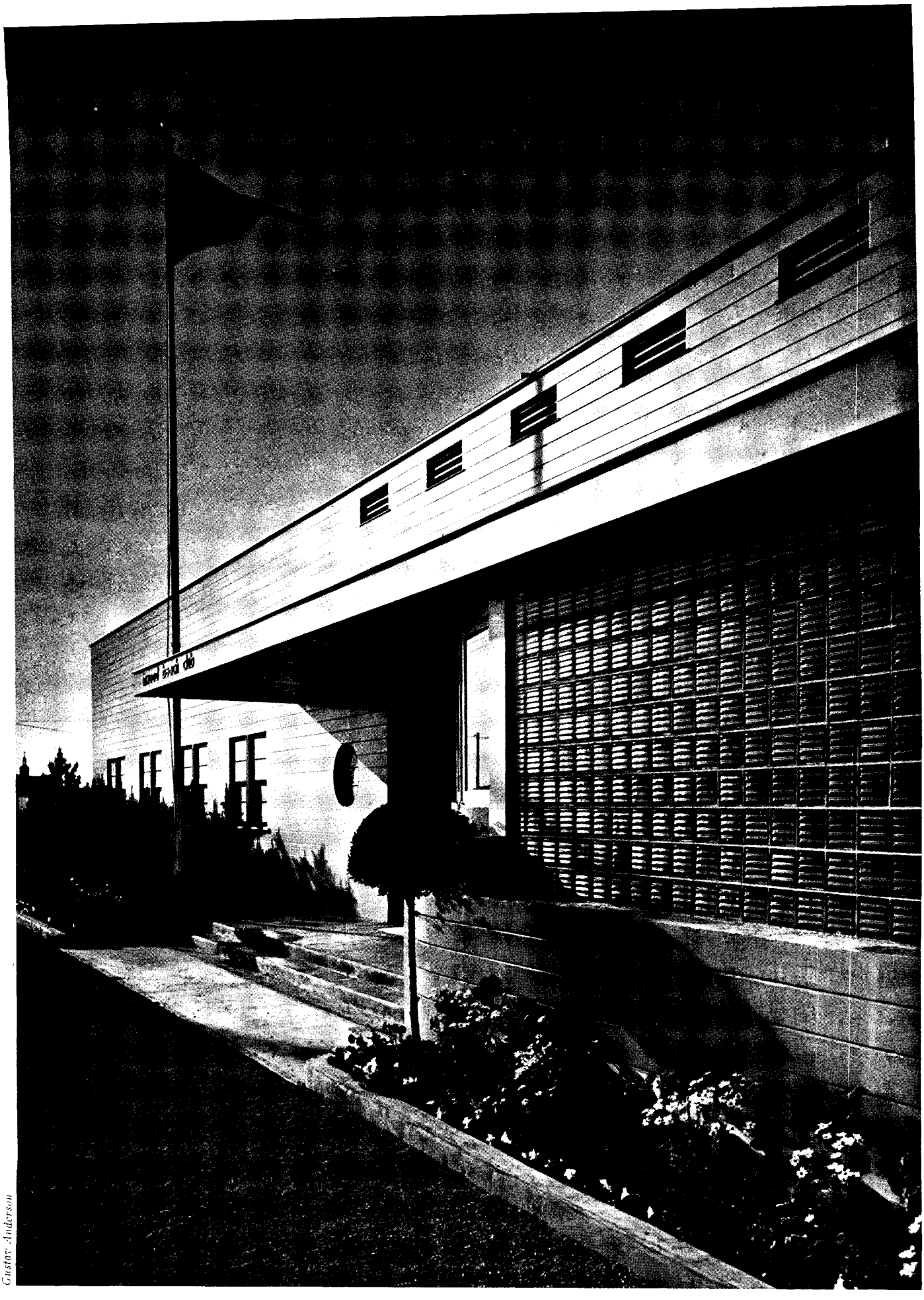
BUILDING NEWS



Gustav Anderson

Atlantic Beach: Woman architect does man-size club . . .

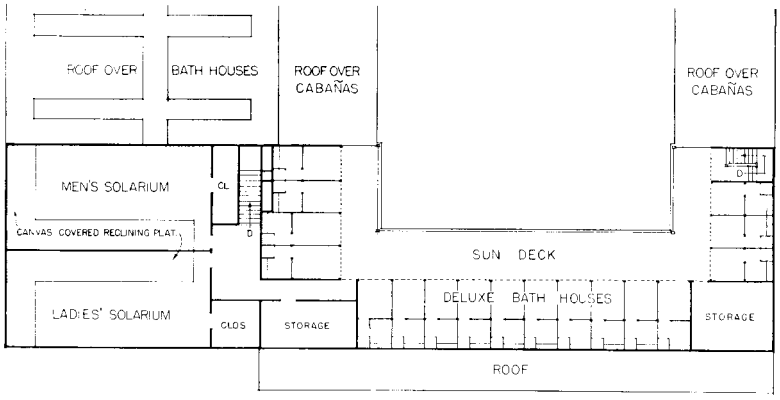
ARCHITECTURAL
RECORD
COMBINED WITH
AMERICAN ARCHITECT AND ARCHITECTURE



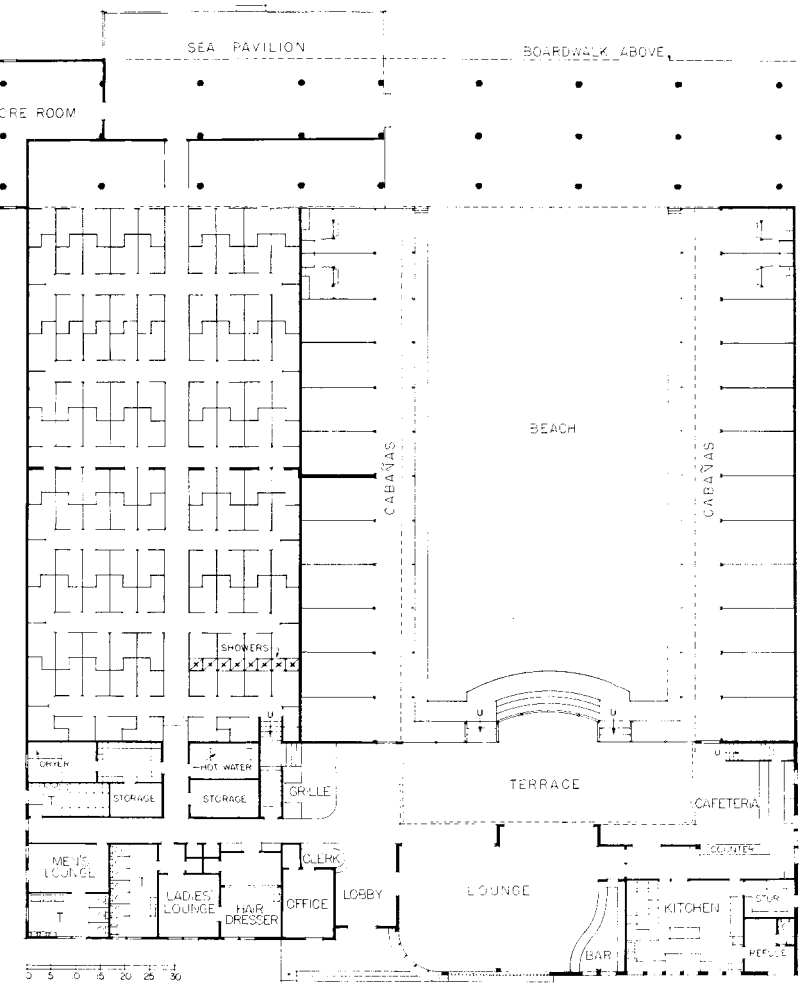
Gustav Anderson

SOLARIA, CAFETERIA, BEAUTY SHOP INCLUDED IN NEW BEACH CLUB

OLIVE TJADEN
Architect



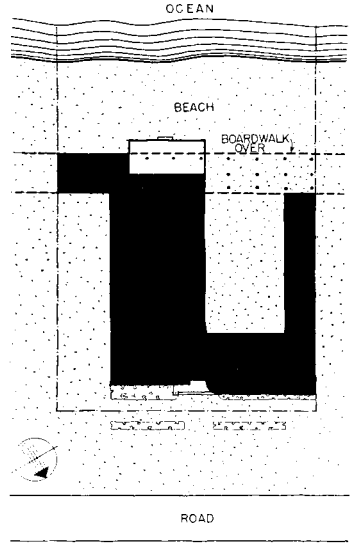
Mezzanine: The bathhouse corridors (upper left) are open to the sky, but are wooden floored.



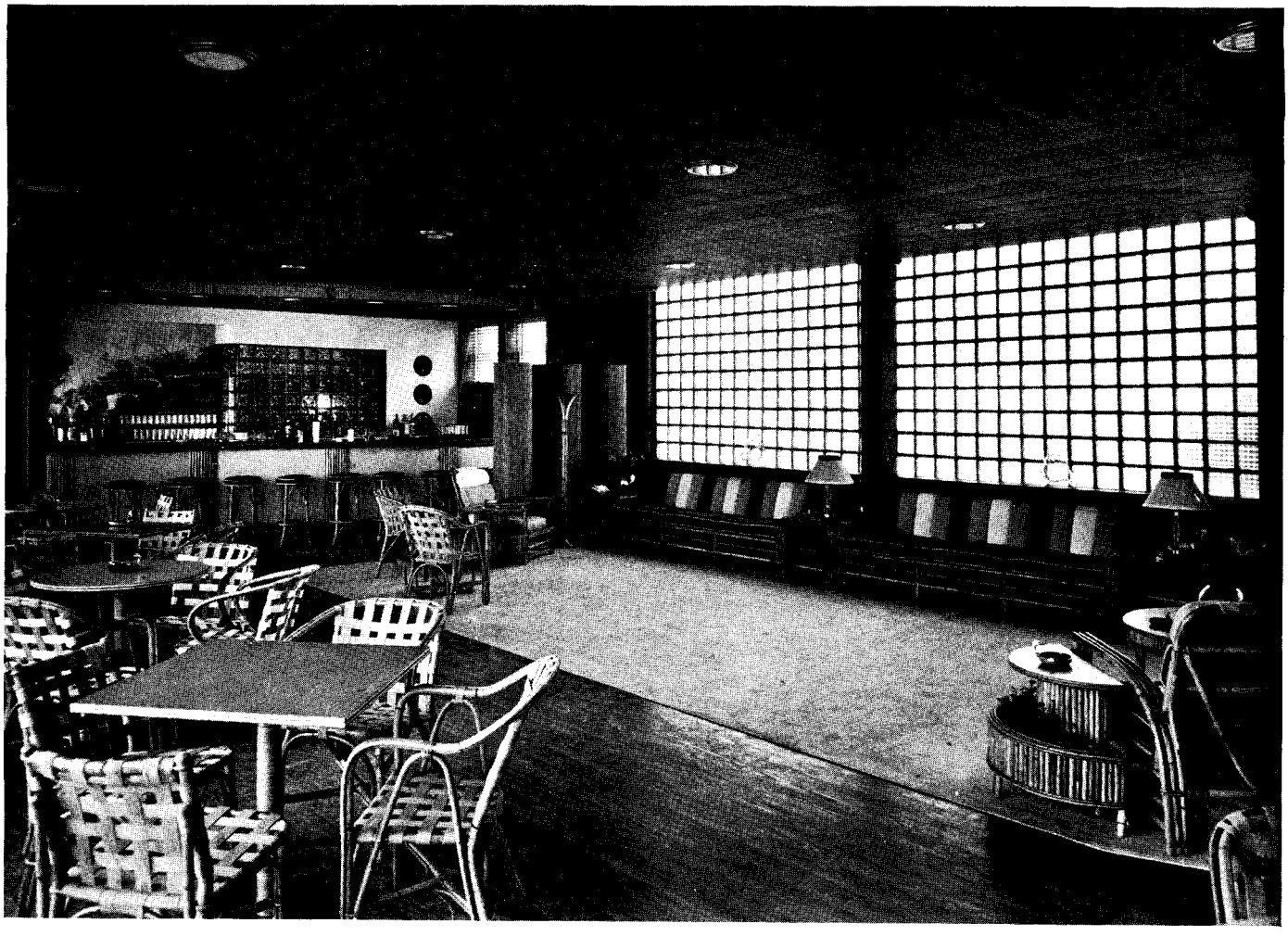
Ground floor

DESIGNED BY ONE of America's few women architects, the Inwood Beach Club at Atlantic Beach, N. Y., incorporates varied accommodations necessary to a medium-sized club in an inexpensive, weathertight structure. The open plan is especially appropriate for a building whose use is limited to the summer months. Lobby, lounge, and cafeteria have folding doors which open the entire south front of the building to the ocean. The two-story portion of the building along the highway contains the public rooms and all services—shop, hairdresser, kitchen, etc.; the ocean front is given over to three types of dressing rooms—cabanas, de luxe bathhouses, and bathhouses. Cleverly included as part of the design is the existing boardwalk, which acts as a roof for the sea pavilion. In order that the supporting piles might not obtrude on the view, they have been given an octagonal sheathing, painted gray-blue.

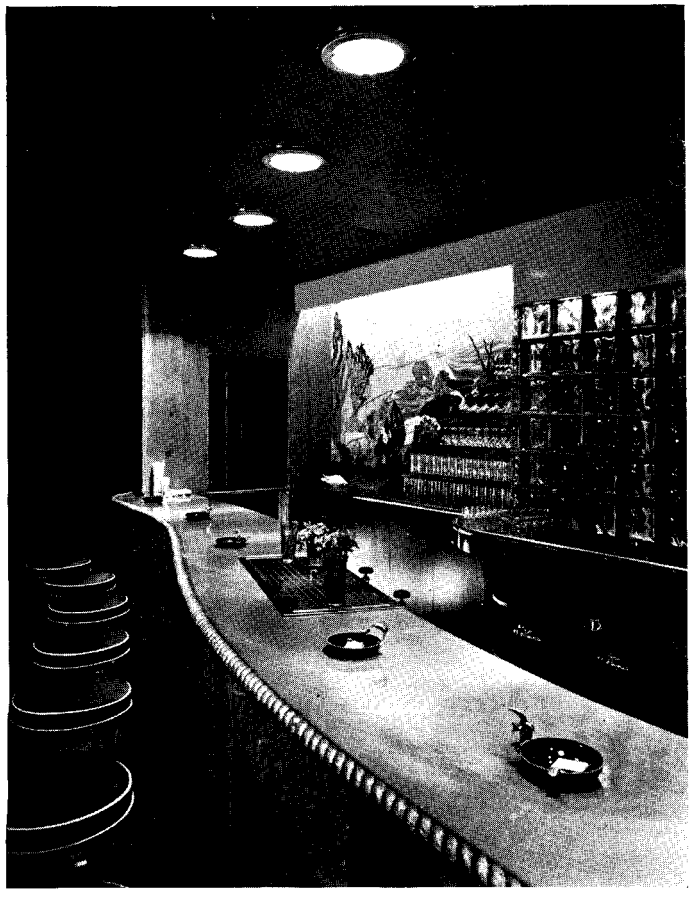
The building rests on piling and is constructed of a number of materials. The major portion is wood-framed, with a special grooved siding; bay windows and glass-brick panel rest on a concrete substructure scored with concave round joints to match the wood; kitchen wing has an exterior finish of cinder block. Louvers, for ventilating de luxe bathhouses on the mezzanine, are of wood. The exterior is painted white, with the exception of the coping and entrance doors, which are marine blue, and the soffit of the canopy, which is yellow.



Plot plan



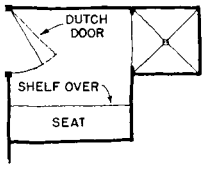
Photos by Gustav Anderson

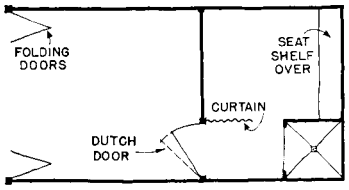


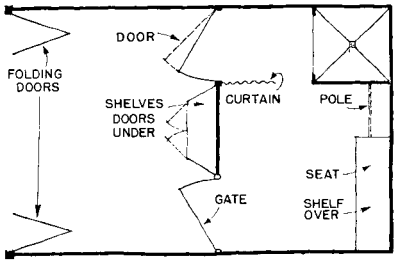
2

Vivid colors and use of nautical detail create an atmosphere of informality and gaiety essential to this type of building. The lounge (1), used for dancing and dining, is finished in knotty pine, stained; ceiling is of insulating board painted coral; red oak floor is stained to match walls. Cornice and trim around doors are real hemp rope. Focal point of the room is the bar (2) which features a mural painting and an illuminated glass-block panel. The counter is of coral linoleum with rope nosing; bar front is yellow Regal board, with wood reeded pilasters. Cabanas, flanking the side of the court (3) have a sheltering roof cantilevered so as to eliminate view-obstructing posts; separating the cabanas are hemp ropes, spliced and fitted over conventionalized capstans. Cabana doors are painted alternately blue, yellow, green, and red. Deck flooring is gray. The terrace (4) adjoins lounge and cafeteria. Chairs are white with blue or yellow backs and seats.

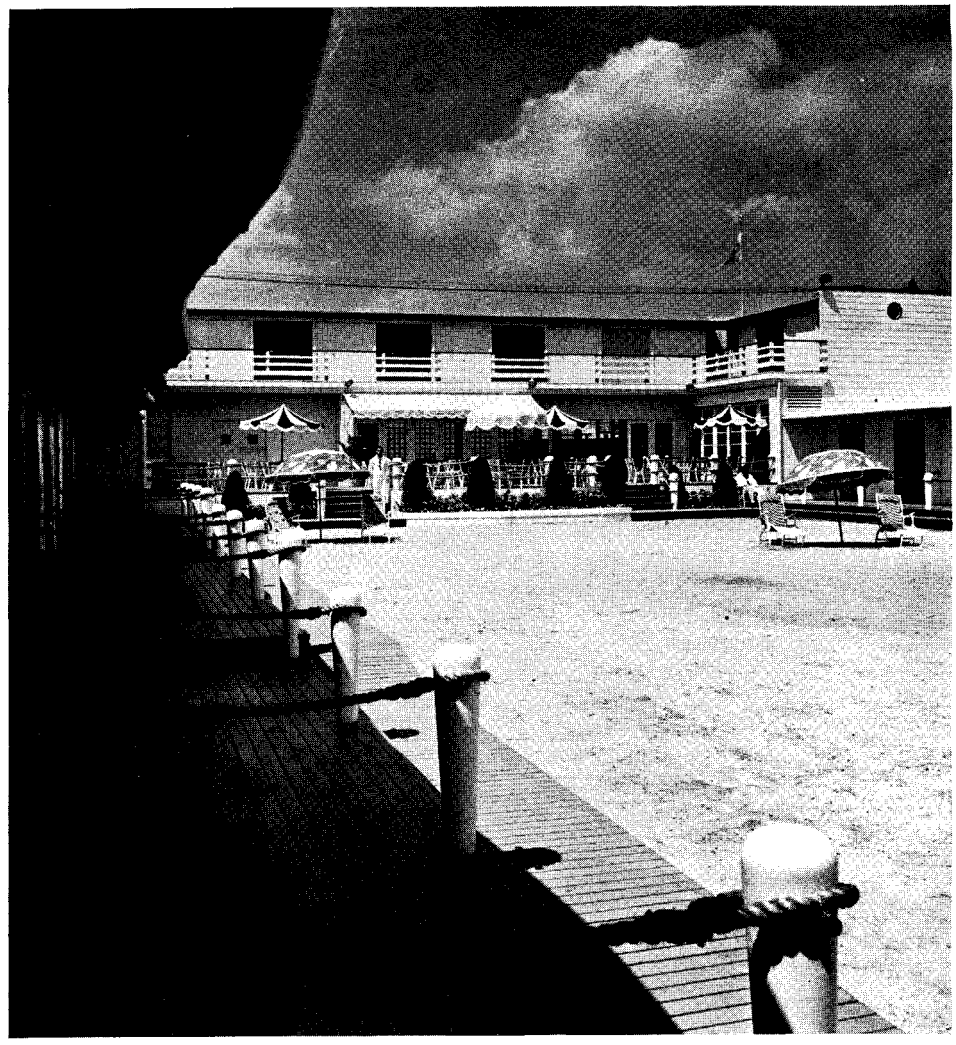
INWOOD BEACH CLUB







Accommodations for swimmers vary, but each compartment has its private shower. Cabanas (bottom) and de luxe bathhouses (center) include lounging space, whereas bathhouses (top) are intended for dressing only.



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4

Photo Werner Blaser

CONCRETE TRUSS SUPPLANTS PIERS IN NAVE OF ST. WENCESLAS

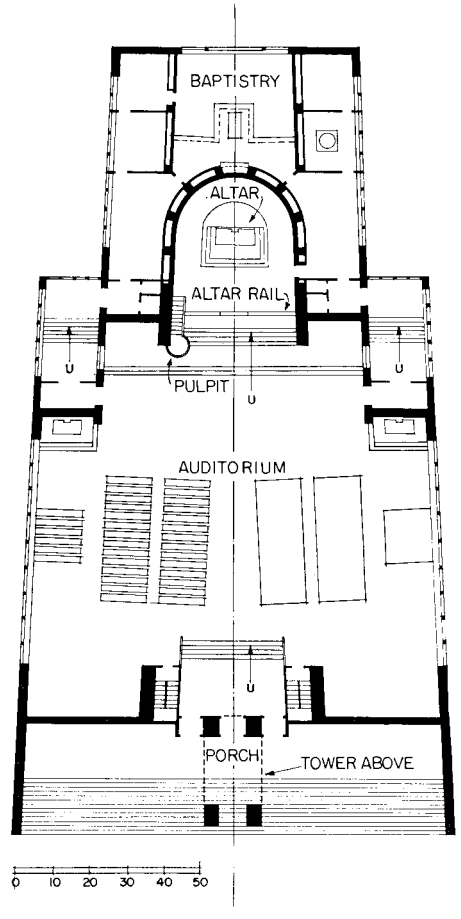
JOSEF GOCAR

Architect

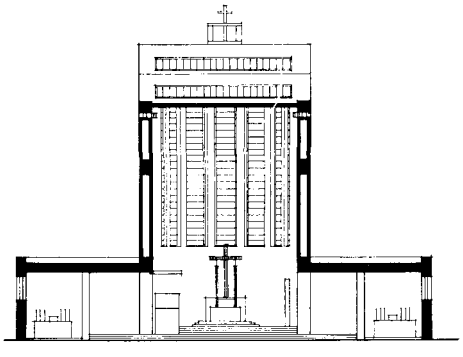
"A CONSISTENT AND APPARENT REALITY" was the starting point for the architect in his design for the Church of St. Wenceslas in Prague, Czechoslovakia. With a congregation desiring a "structure which, first of all, had to express the function of the church truthfully and without ornamentation," the architect was impelled toward a non-traditional solution. This, in turn, implied use of a modern structural system, which immediately made possible a new form. Externally, the church dramatically exploits a hillside location, the tower serving as a focal point for the converging avenues below it and the auditorium (nave) rising with the grade in 4 set-back clerestories. However, the silhouette of the auditorium is incidental, since its form is largely determined by internal requirements. Here Mr. Gocar's design problem is not new—"a spatially, lineally and luminously accented sanctuary, a full view of the divine services and the center of all the liturgical orders of the church"—but his solution is decidedly a novel one.

In terms of planning, the building is simple. Utilizing the rising terrain, the approach to the altar is a rising one; and the convergent walls serve at the same time to increase its apparent length. By placing the choir and organ loft over the entrance, the architect takes full advantage of the horn-shaped auditorium section, so that both sound and light flood the congregation from above and behind.

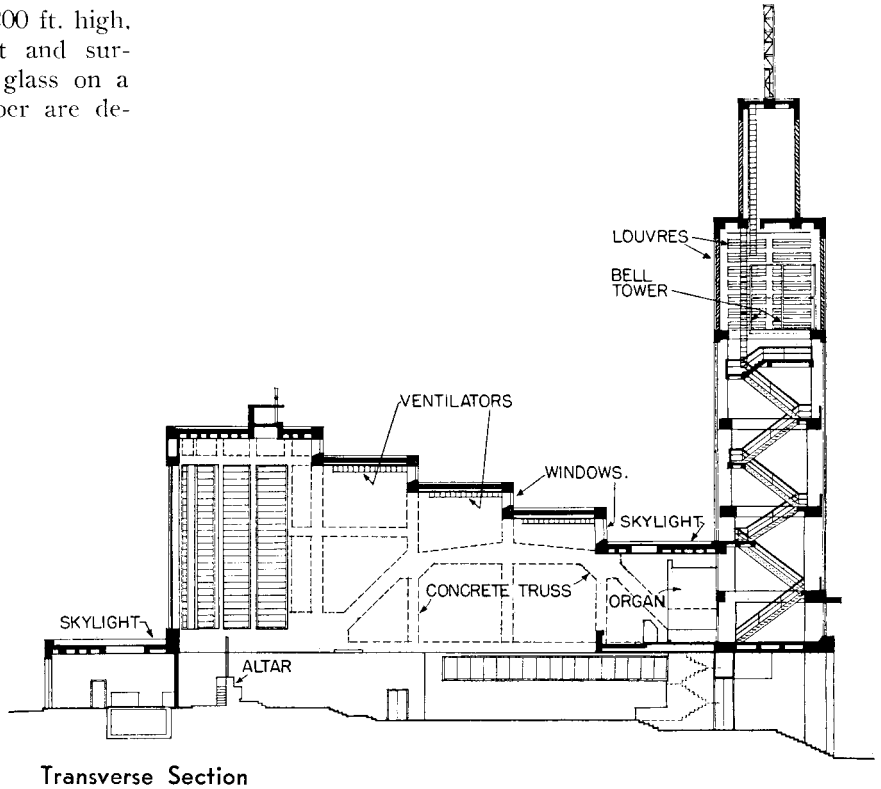
The structural skeleton of the entire building is of reinforced concrete with masonry curtain walls. Of this skeleton, most novel feature are the concrete trusses in the framing of the auditorium walls (below, right), which eliminate the necessity for columns between aisles and auditorium proper. The tower is some 200 ft. high, with glass-brick panels running full height and surmounted by a huge cross in golden-yellow glass on a steel frame. The louvers of the bell chamber are designed to deflect the sound out and down.



Plan



Longitudinal Section



Transverse Section

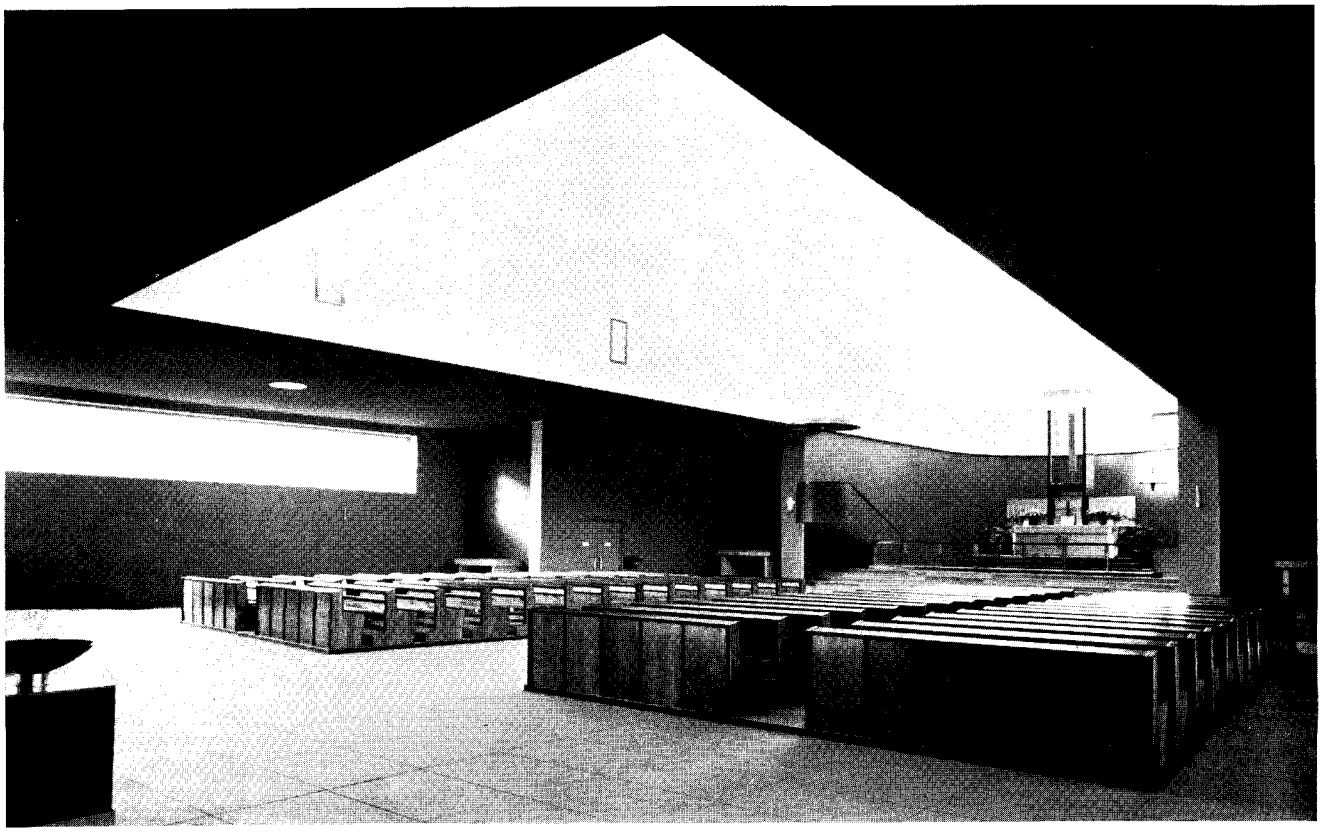
CHURCH OF ST. WENCESLAS

M. Chalupnicek

Instead of the usual side wall fenestration, the architect has employed a series of transverse clerestories in the roof. Thus, he has not only made seeing easier for the congregation—by diffusing all daylight except in the apse—but also concentrated all attention on the sanctuary by removing all distracting detail from the side walls. Both materials and colors are modern: the windows of the apse are steel, glazed with both stained and painted glass; the sanctuary cross, rails, and trim are in stainless steel; the pews are of wood in natural finish; floors are concrete, with marble inserts, trim, and steps. The lower walls of the apse are in a red fabricoid, those of the nave in brown; the upper walls throughout are beige, the ceiling gray-green.

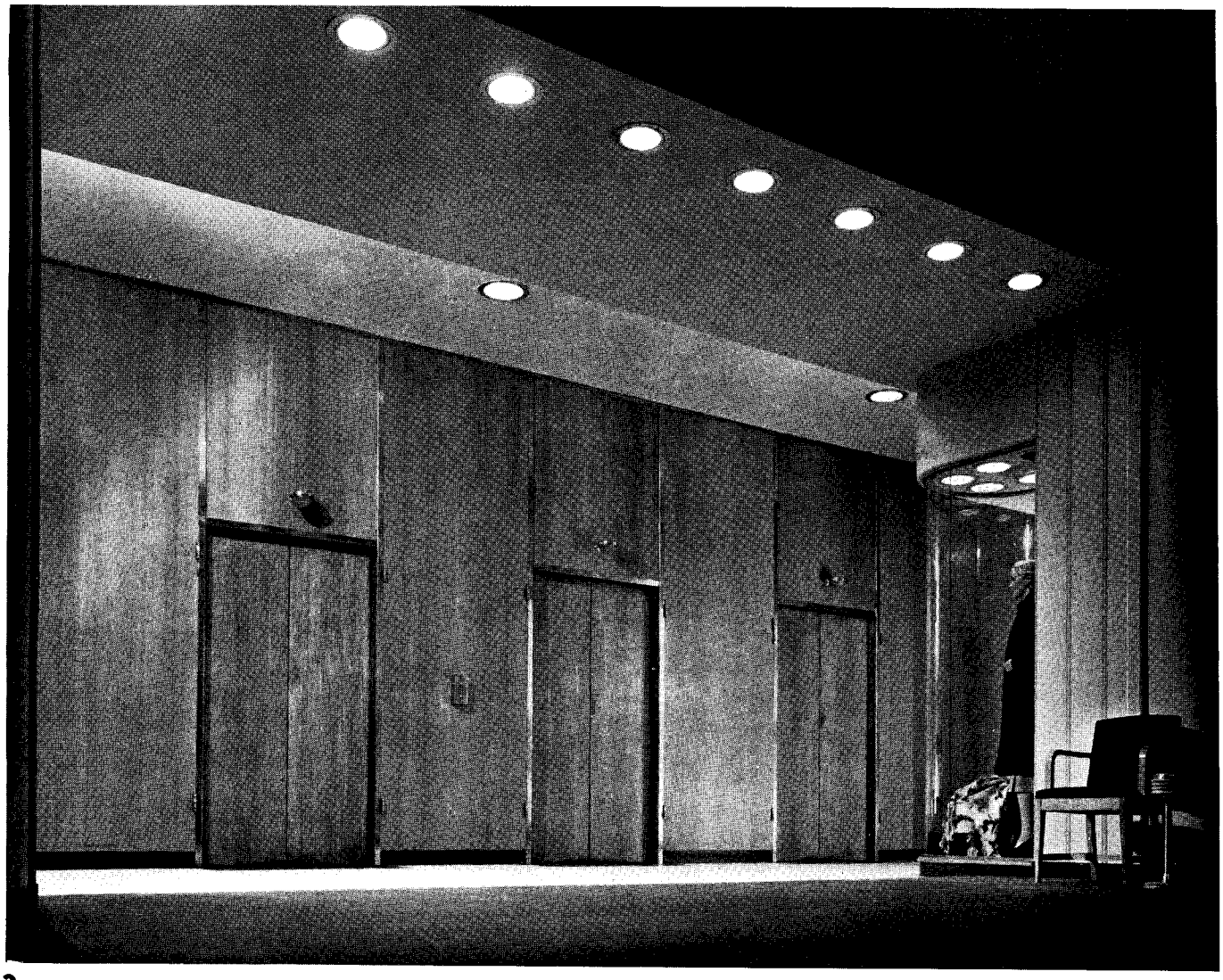
Grafoto

Auditorium, looking toward choir and organ loft



Grafoto

Auditorium, looking toward pulpit and altar



Hedrich-Blessing

2

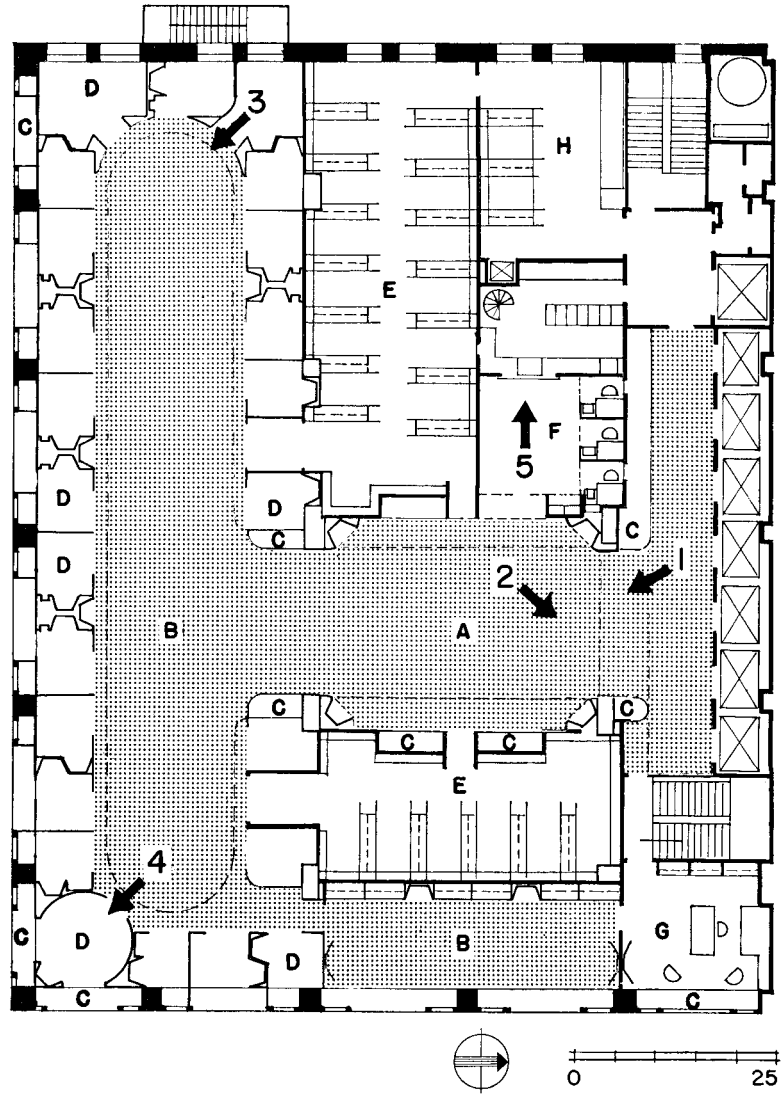
Elevator lobby at sales floor; others are similar

CHICAGO: FURS SOLD, STORED, FABRICATED IN NEW 3-LEVEL PLANT

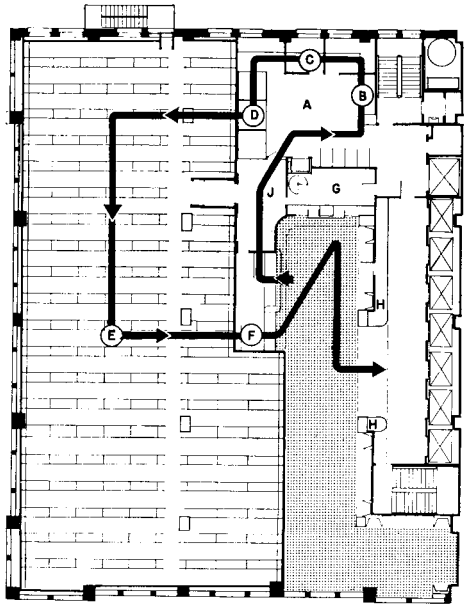
DUBIN & DUBIN
Architects

IN REMODELING THREE FLOORS of Chicago's 19-story North American Building for the Evans Fur Company, the architects faced this design problem: "to provide *selling facilities* for 50 salespeople, *storage facilities* for 25,000 coats, *factory* employing 125 people, *offices* for a force of 50 people, and the necessary appurtenances—integrated for ease of handling merchandise, rapidity of sales and service, and positive control." Controlling factors were two aspects of the space itself—30,000 sq. ft. divided into 3 floors of 10,000 sq. ft. each, and a battery of 2 stairways, 1 freight and 7 passenger elevators along the north wall. The first dictated the housing of the company's three functional divisions—sales, storage, and manufacturing—one to each floor. Remained, therefore, the central task of internal organization of each floor for maximum efficiency (see facing page).

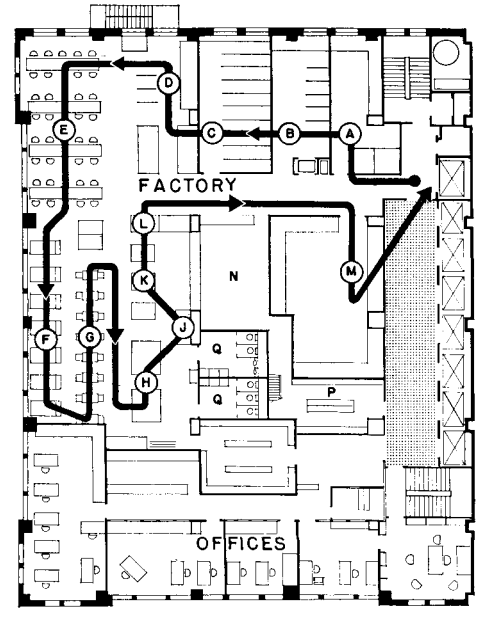
The designer's job was not made easier by a number of specialized requirements. For example, the entire job had not only to be air-conditioned but to maintain different standards on different floors (for human comfort in the sales and factory areas, for preservative purposes in the vaults). Similarly with lighting, both natural and artificial. In addition, all equipment for sterilization, cleaning, pressing, etc., had to be efficiently incorporated into the master plans. Finally, the entire job had to be fire- and burglarproof.



SALES (third floor): Aside from providing an appropriate background for sale of a luxury product, the problem of lighting determined the plan of this floor; for, while artificial light is adequate for display, natural light is essential to fitting rooms "D." The same windows "C" are cleverly used for street display.



STORAGE (fourth floor): Although relatively simple, the flow lines on this floor provide maximum control over merchandise traffic with a minimum of lost motion. Only entrance to storage vault "E" is through vault office "J." Note also that cashier's office "G" is directly above that on the third floor and connected by a spiral stair.

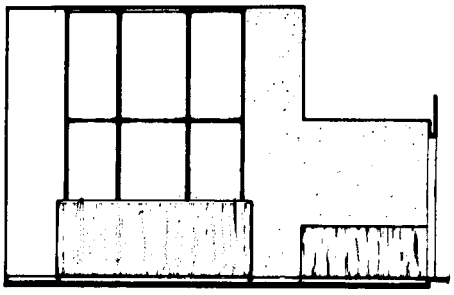


FACTORY (fifth floor): The factory is organized for "straight line" production from receipt of raw fur at "A" to shipping of finished product at "M." Daylight is supplemented by artificial illumination. General offices, lockers, and toilets ("P" and "Q") occupy the front portion of this floor: the factory office is centrally located at "N."

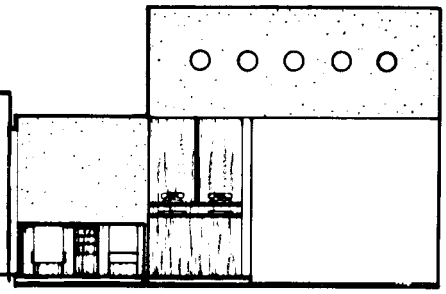
Photos by Hedrich-Blessing

RECEPTION ROOM (above): Serving on the one hand to connect elevator lobby and salesroom, it also gives privacy to the customers who are being fitted. Walls are smooth plaster, trim in stainless steel, floors carpeted with linoleum base. SALESROOM (right) provides adequate room for a large number of customers and salespeople. Finishes are the same as above, furniture in bleached mahogany and leather.

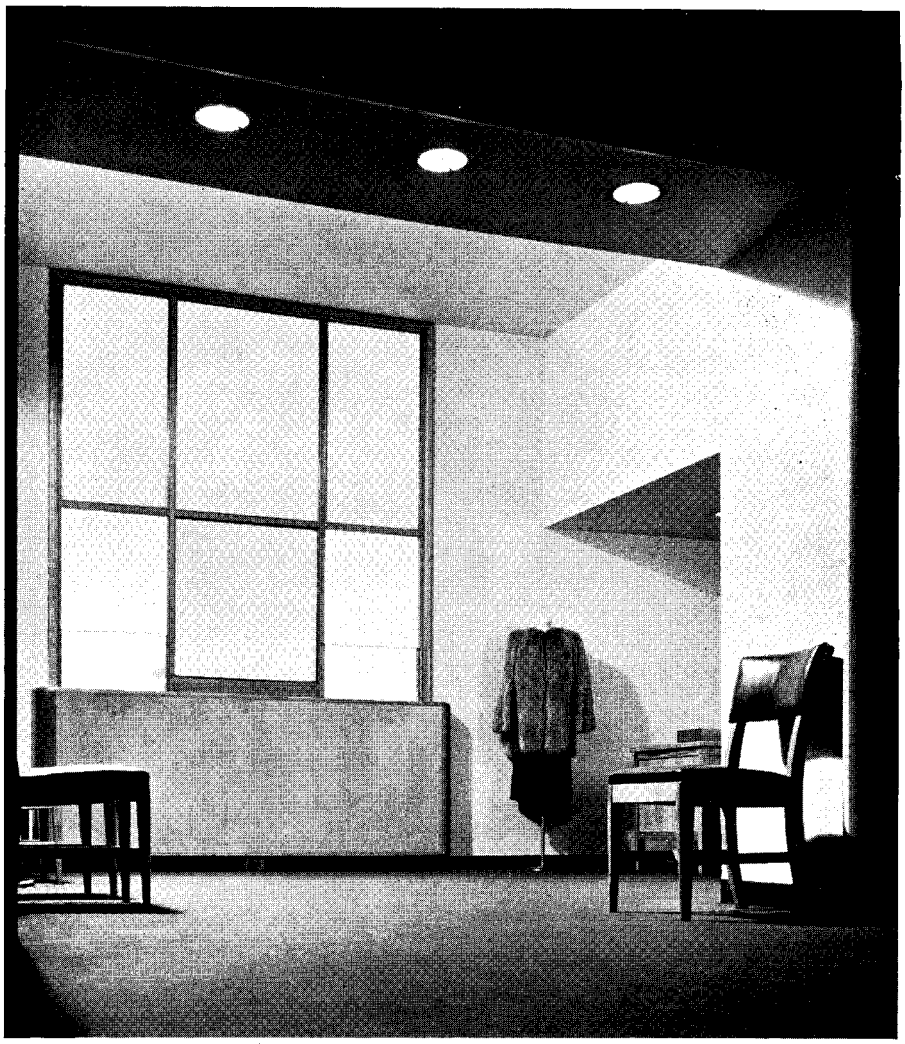
EVANS FUR CO.



Cashier's wicket



Credit booths and telephones



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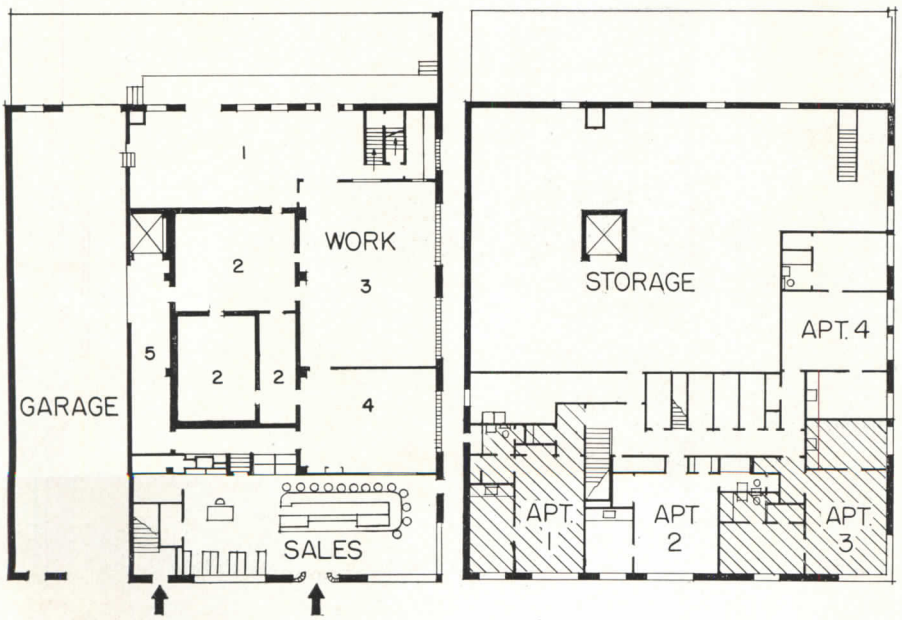
CASHIER'S WICKET (above): Handled as an architectural feature, the usual barred wickets have been replaced by an illuminated panel of stainless steel and opaque glass with a bleached mahogany counter. FITTING ROOM (right) shows emphasis placed on lighting. Finishes and furniture in both are similar to that used elsewhere on sales floor.

4

North Elevation

AMES, IOWA: SMALL DAIRY BUILDING FEATURES MULTIPLE USE

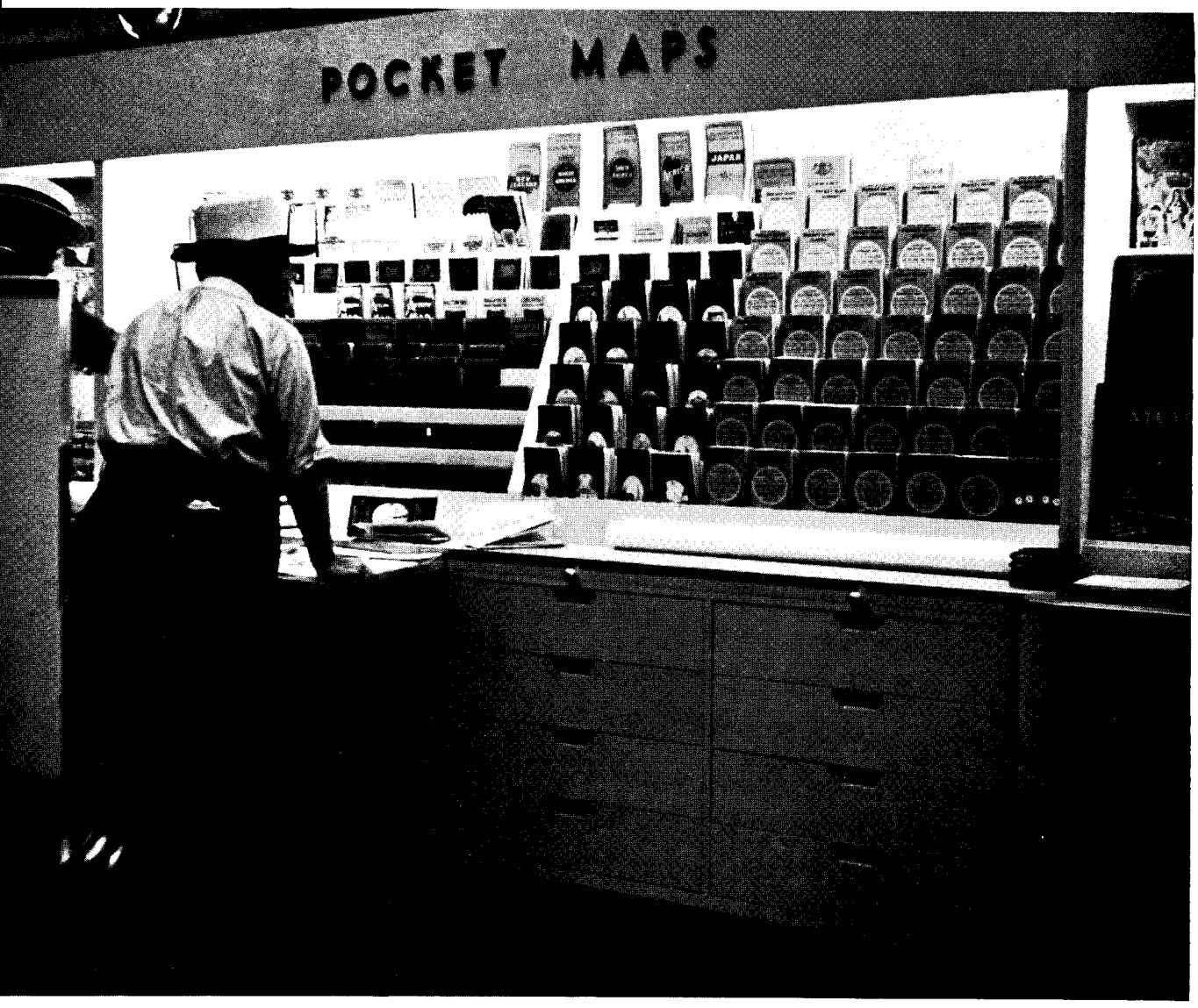
TINSLEY, McBROOM & HIGGINS
Architects



First Floor Second Floor

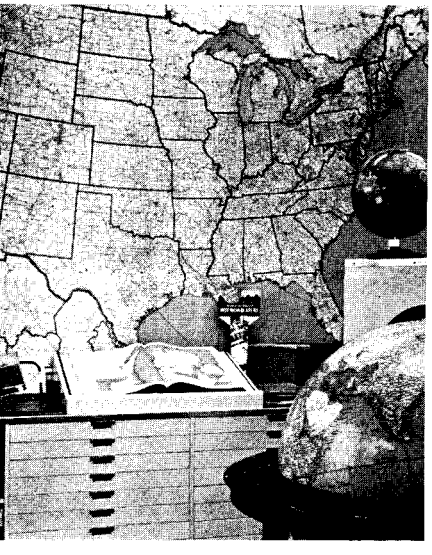
INCORPORATED IN the plan for the Moore Bros. Dairy, Ames, Iowa, are all necessary provisions for a medium-sized dairy business—including a retail store for over-the-counter sales and fountain service—and four revenue-producing apartments. Compact planning makes possible a multiple-use building and at the same time provides for almost complete isolation of living from manufacturing areas.

The ground floor, devoted entirely to the dairy, is organized principally to facilitate receiving and shipping. Opening off the loading platform is the receiving room (1), where milk is weighed, and sent either to cold storage rooms (2) or to the milk room (3) for bottling. The ice-cream room (4) adjoins the salesroom, from which its equipment can be easily inspected by the customers: this salesroom also serves as business office. In the basement are locker rooms, high-pressure boiler, refrigerating machinery, and blowers for the heating plant.

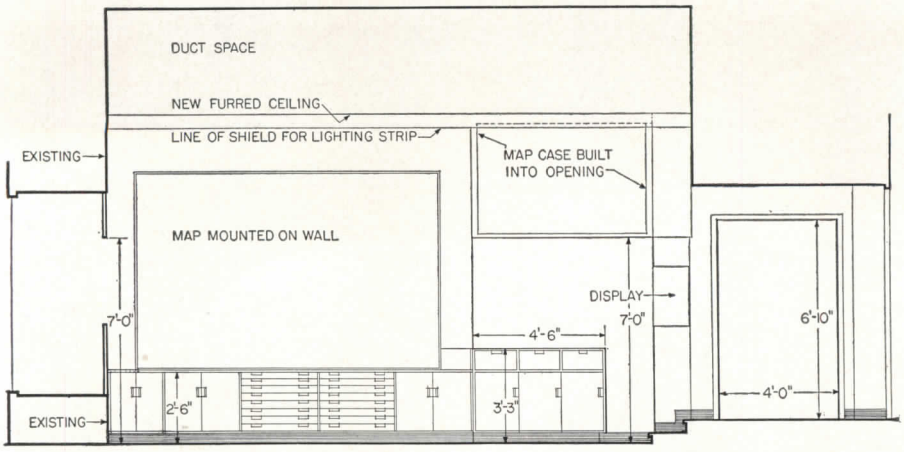


REMODELED MAP SHOP HOUSES LARGE STOCK IN SMALL AREA

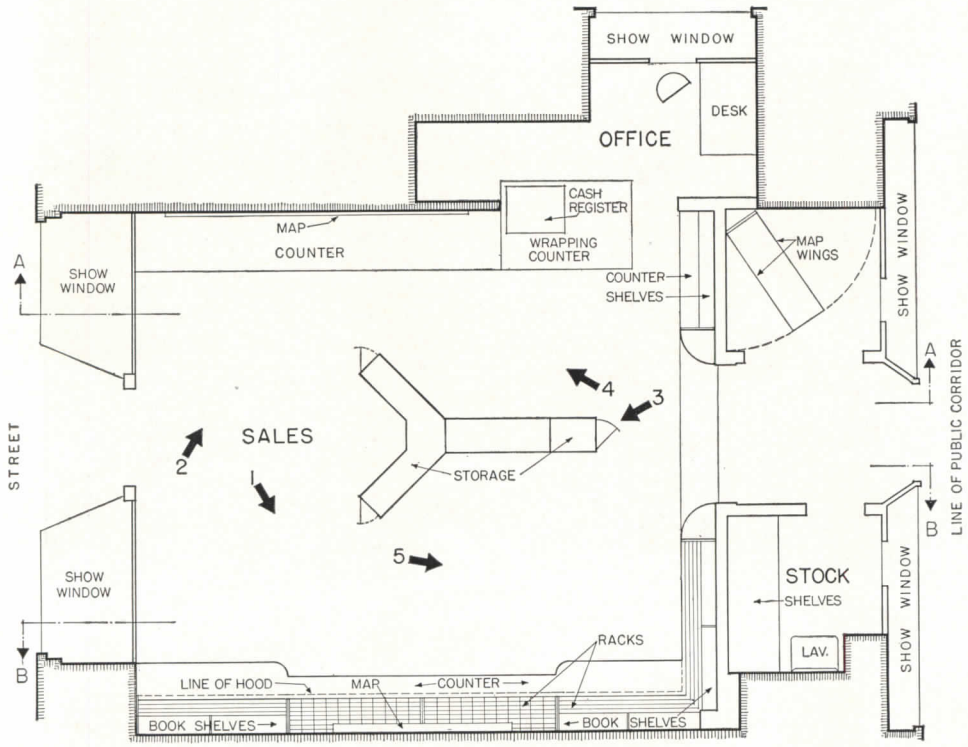
DAWSON & OLIVER
Architects



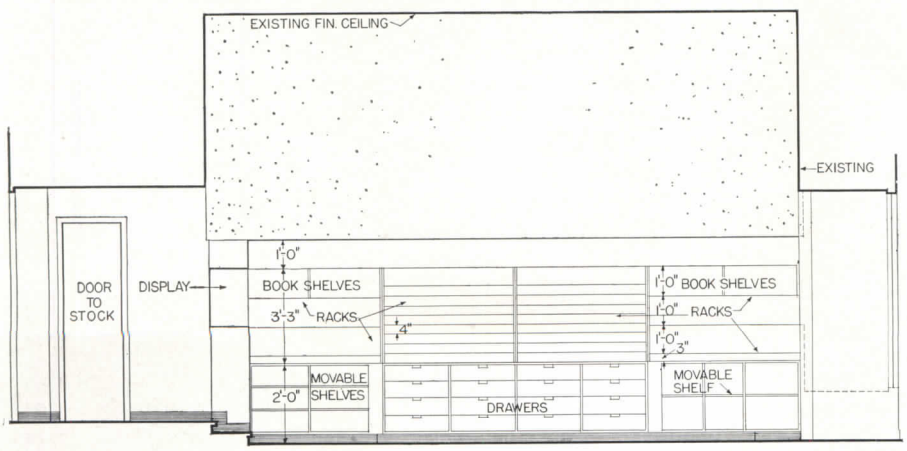
TRANSFORMED FROM a beauty parlor, this map shop for Rand McNally, in Rockefeller Center, New York, neatly solves the complex problem of displaying and storing in a small area a large assortment of maps, books, and globes. By removing the existing mezzanine, stairs, and partitions, recessing radiators under show windows, and arranging displays against the walls, the architects were able to accommodate the shop's normal stock which includes: 40,000 flat maps, ranging in size from 8½ x 11 in. to 6½ x 10 ft.; 2,400 folded maps, 4 x 9 in.; 200 rolled maps 3 ft. to 5½ ft. long; 24 globes, 8 in. to 2½ ft. in diameter; and 4,200 books, 5 x 7 in. (juvenile) to 21 x 33 in. (open atlas). In view of the fact that the store runs through from street to public corridor of the building, and therefore has two entrances, its capacity is the more remarkable. Specially designed cabinets, in light-colored woodwork, arranged along two walls, and judiciously placed in the open sales area, are the means by which this is possible. Merchandise is displayed in book racks which are integral with the cabinets. For decoration the shop relies on large maps hung on the walls (2) and globes placed on shelves (3). Removal of show window backs makes the shop's well-lighted interior visible from the street —a valuable advertising asset.



Section through A-A



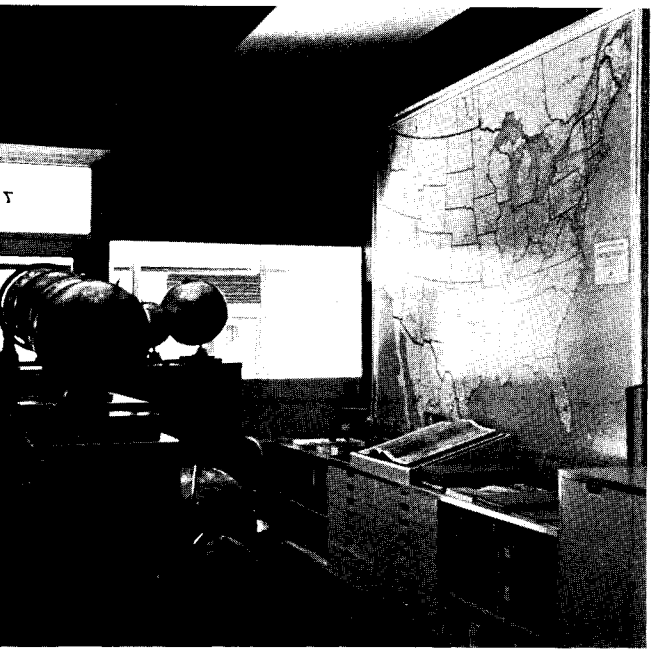
Plan



Section through B-B

Walls are painted dark brown to reduce the apparent ceiling height and to contrast with the brilliantly lighted displays and light-colored *cabinet* work. Lighting is of two types: general and specific. The first consists of suspended luminaires and recessed ceiling units, the second of concealed lighting above display cases.

Photos by Frederic Arden Pawley



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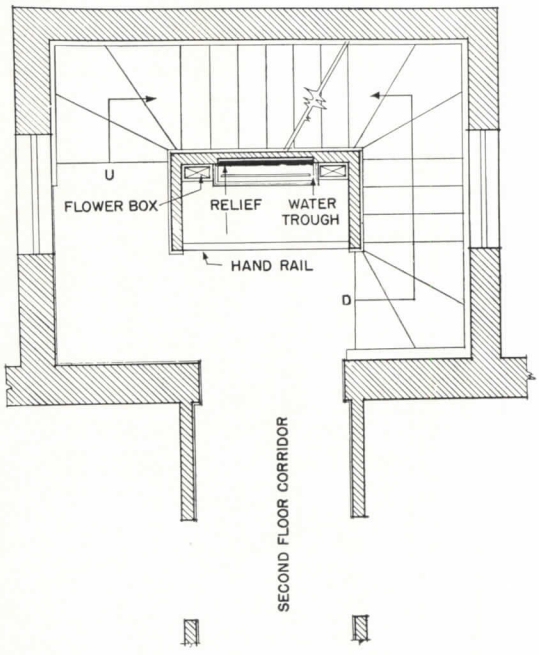
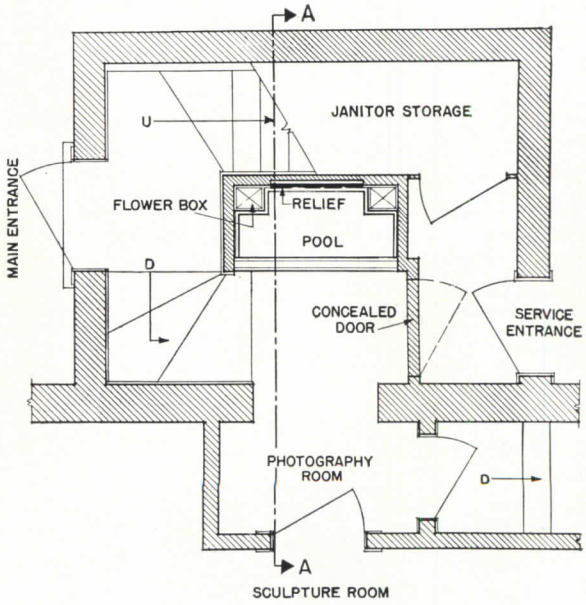
WILLIAMSBURG, VA.:

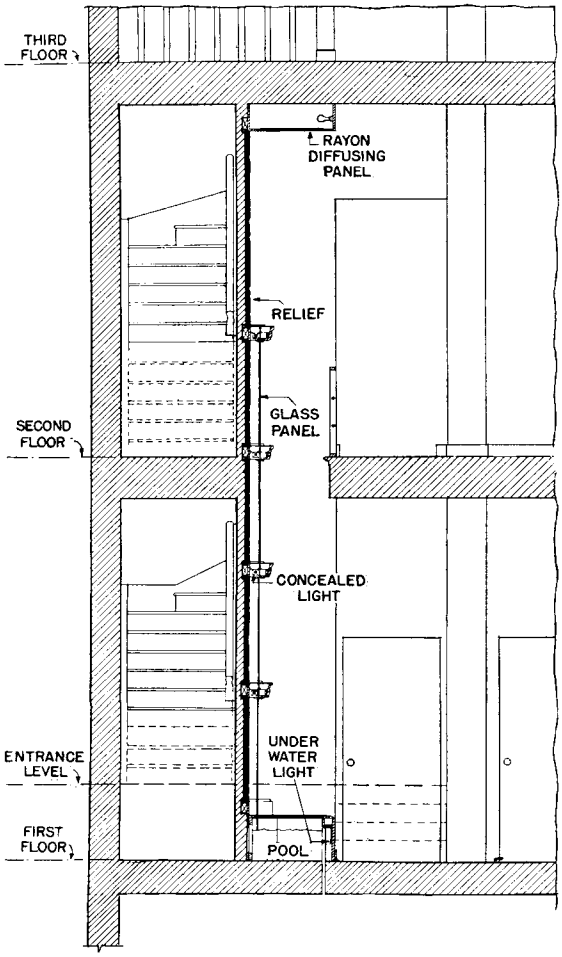


Second floor

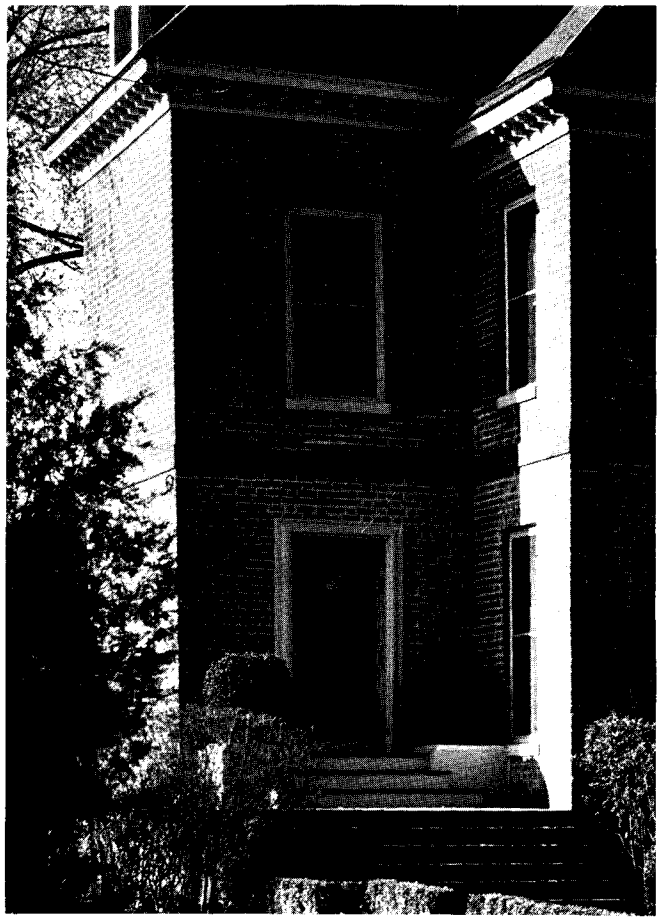


First floor

REMODELED VICTORIAN BUILDING GETS MODERN INTERIOR



Section



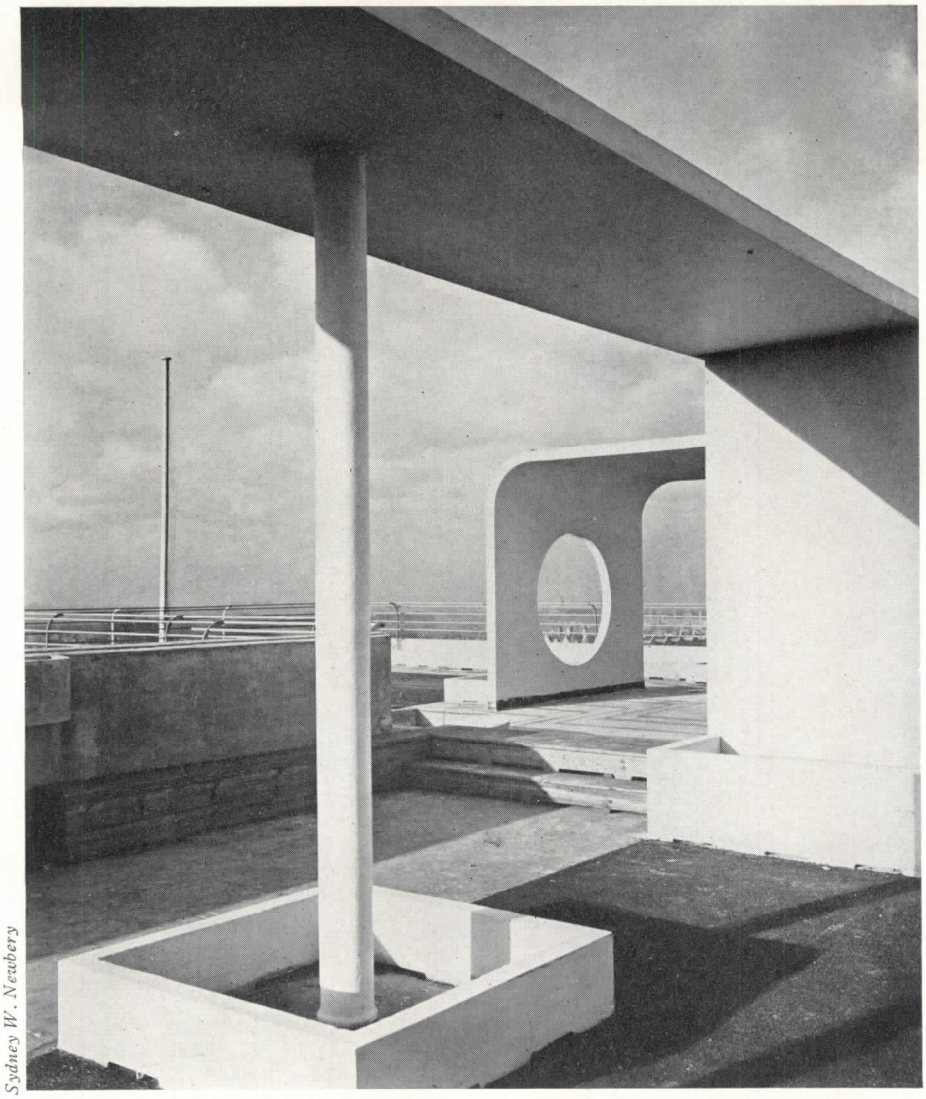
Main entrance and exterior of stair hall

LESLIE CHEEK, JR., Architect
EDWIN C. RUST, Sculptor

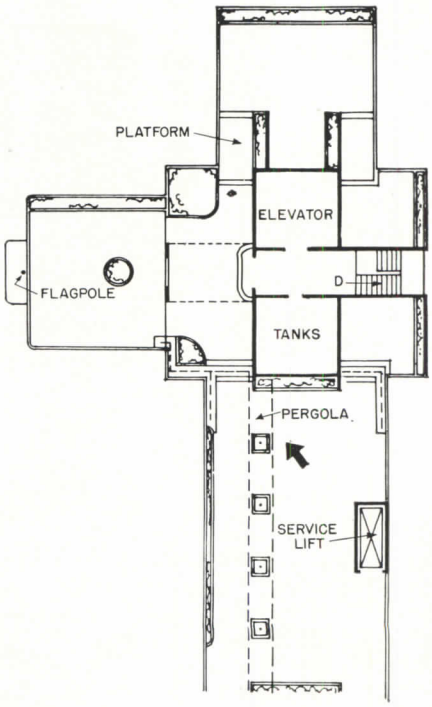
RECENTLY REDESIGNED and modernized, Taliaferro Hall was, before its rejuvenation, the only Victorian building left on the campus of William and Mary College, Williamsburg, Va. Last year it was decided to tear down this misfit; but the Department of Fine Arts volunteered to remodel the old building to house its various departments. Under the direction of Leslie Cheek, Jr., head of the Department, the work was accomplished. The exterior is Georgian enough to conform with other structures on the campus, but the interior is completely modern.

Incorporated in the building is this two-story wall fountain directly opposite the main entrance. It occupies an existing narrow stair well, which has been closed on three sides; the back wall is treated with a sculptured panel running the full height of the fountain. To protect this plaster sculpture from splashing, glass panels were placed against the wall between the water troughs. Water flowing from the top trough along the glass panels falls through the next trough, and so on down to a mirror-lined fish pool at the bottom. Plants and vines at either end of the troughs are in removable boxes.

In selecting a design for the fountain, the sculptor was confronted with the problem of unifying, in idea and design, the five separate panels into which these horizontal water troughs divided the wall; in addition, it was necessary to make each of the two major divisions (first floor and second floor) complete in itself. The familiar "Ars longa, vita brevis" was chosen as appropriate to the purposes of the building. "I garbled mythology," says Mr. Rust, "to the extent of showing Aphrodite rising from the sea and bringing to life the three arts of architecture, sculpture, and painting, represented as children holding their appropriate symbols." The sculptured panels are indirectly illuminated by lights concealed under the troughs; in addition, further light is provided by means of a rayon diffusing panel above the fountain.



Sydney W. Newbery

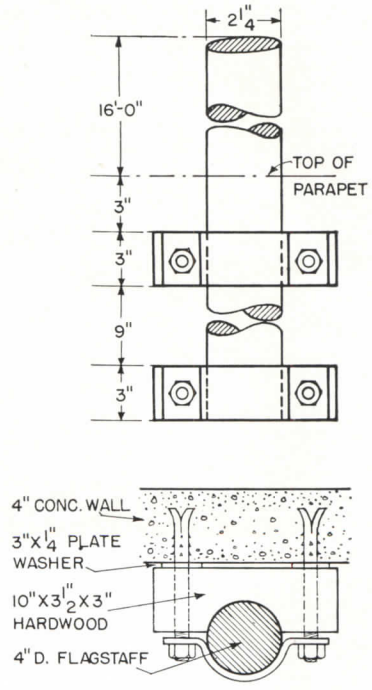


One-half plan of roof

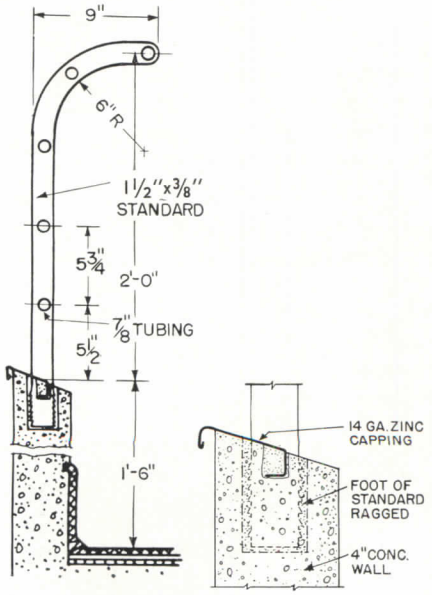
British Architect Exploits a Roof

FREDERICK GIBBERD
Architect

To TAKE FULL advantage of a view of the surrounding country, the roof of this seven-story apartment building at Pullman Court, Streatham, England, was designed as a garden; concrete flower beds, pergola, and shelters were included as part of the construction work. In the wall of the shelter is a round opening intended to frame the view as one emerges on to the roof; for minimum obstruction of the view the parapet around this portion of the roof is of tubular metal; elsewhere it is of concrete. The details (right) indicate the care and attention with which the architect has approached the problem of making the roof into a useful recreational area.



Details of flag mast



Details of parapet

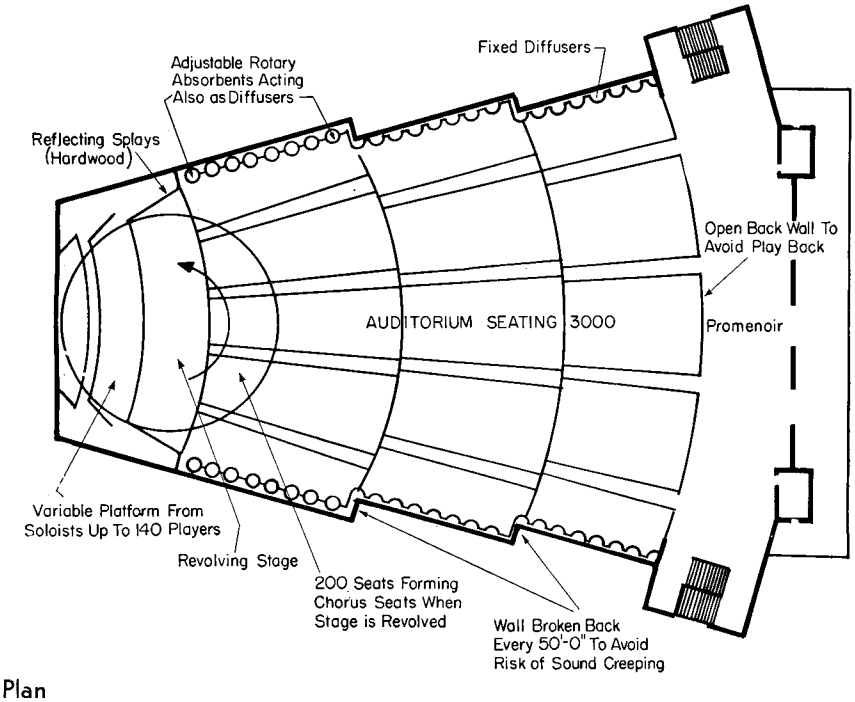
PROPOSED BUILDINGS

Mobile Walls, Ceilings Make "Precision Instrument" of Theater

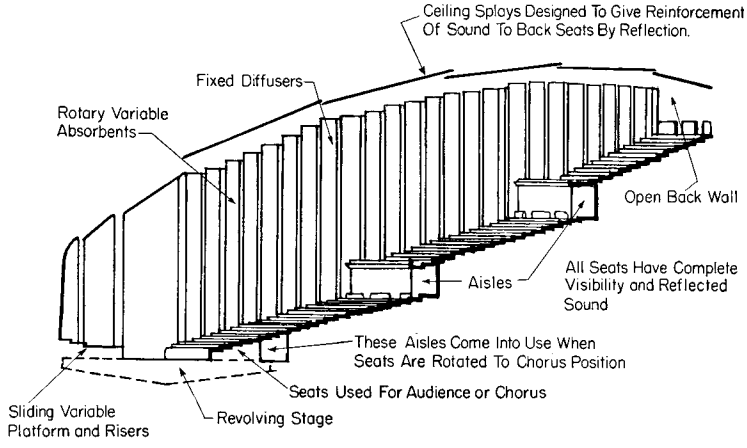
G. S. INGLEFIELD and S. MOHILEVER, Designers

FOR COMPLETE acoustical control in auditoriums with a wide range of program (vocalist to symphony), maximum flexibility is required. Seldom, however, is control so complete or so flexible as in the design of this proposed auditorium. Involved in the project is the use of a variety of ingenious wall treatments which depend as much on form as on material for effect. The most flexible of these derives from the use of vertical columns, faced with absorbent material of varying efficiency, which can be rotated, and of fixed semicircular cylindrical diffusers. The rotating columns are finished with absorbent material of 20% efficiency on one side, and of 60% efficiency on the other. Thus, not only an infinite variety of absorbent control but an exactitude hitherto not possible can be obtained by rotating the columns to different positions. Further control comes from the use of the semicircular diffusers (faced with 20% absorbent material) which break up and distribute the sound throughout the auditorium.

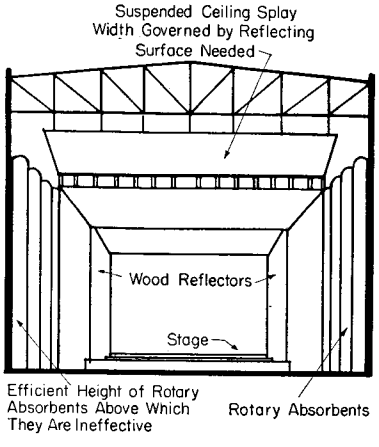
Beside the wall treatment, the project provides a flexible ceiling in the form of suspended splays whose width is governed by the necessary reflecting surface. The back wall is left open to act as a sound absorbent; side walls are broken back every 50 ft. to prevent sound creeping. The stage is in itself an interesting example of flexibility: a variable platform at the rear can accommodate, by means of sliding units, a soloist or as many as 140 players; in front of this is a revolving stage, and beyond are 5 rows of seats which can be used as chorus seats when the stage is revolved.



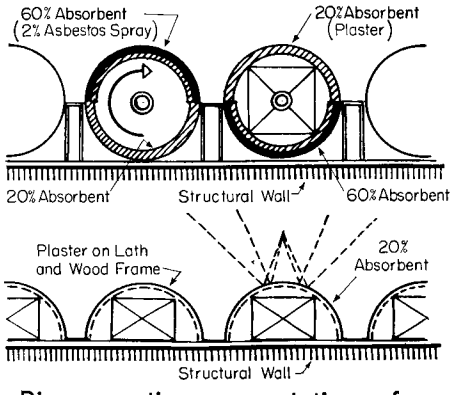
Plan



Section



Cross Section

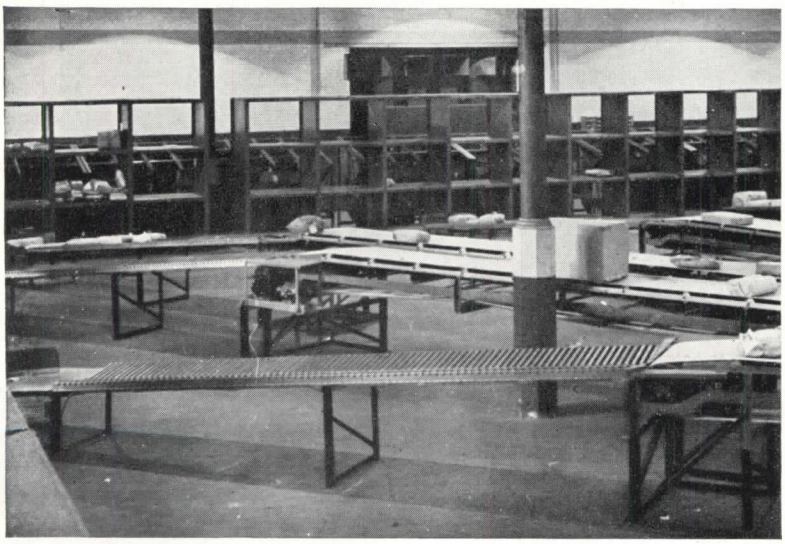


Diagrammatic representation of arrangement of cylinders with variable diffusion absorbents (above) and with fixed diffusers (below)

Courtesy L'Ossature Métallique

1. All incoming parcels are placed on a continuously moving conveyer . . .

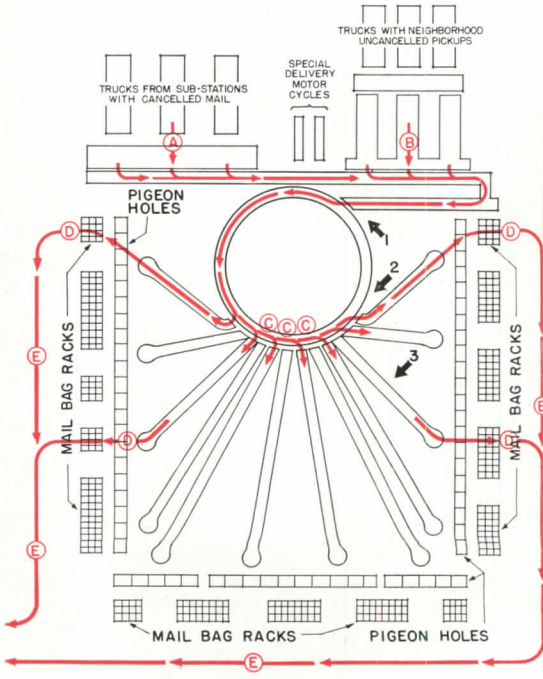
2. . . . which carries them to central distributing ring where clerks sort them onto radial conveyers.



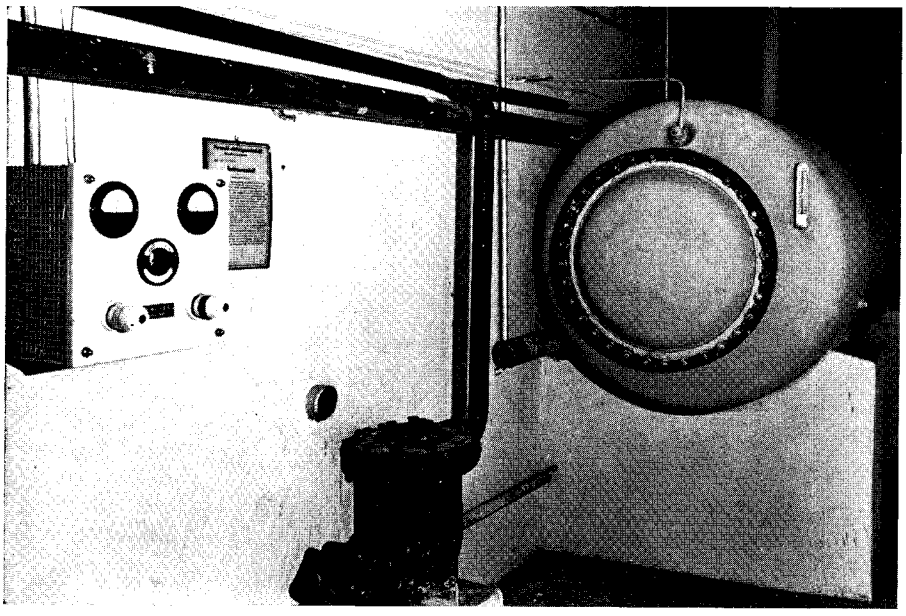
3. On these belts, parcels travel to pigeonholes for storage until time for entrainment.

Belgian Post Office Speeds up Distribution with "Flow Lines"

THE INSTALLATION of a system of continuously moving conveyers increased the daily capacity o the South Brussels postal clearing house fron 5,000 to 20,000 parcels. This system, employ ing equipment well enough known in America solved the complex distribution problem o quickly canceling, sorting, and dispatching th parcels of a city of 200,000 population. Sinc both organization of parcel post service an transportation of parcels are under control of th National Society of Belgian Railroads, this clear ing house is logically located in the South Brus sels railroad station. Thus, truckage of package subsequent to their arrival at the South Brus sels station is unnecessary. The diagram (be low) shows the flow-line installation. Truck with packages from substations deposit their load at "A"; trucks with packages picked up at resi dences (a service similar to that of the America Express Company in this country) are unloade at "B." Since the latter have not previousl been canceled, or marked for destination— special speed-up feature of the Belgian postal sys tem—the installation at "A" is designed to allo for this operation. From the unloading table at "A" and "B" packages proceed via conveye belts to the central ring with its moving belt Sorting clerks, stationed at "C", send the pack ages on radiating belts to the classified ring o pigeonholes according to their destination. Her parcels, segregated into districts, remain unti time to place them in mail bags, when they ar delivered to trains on hand carts.



Flow Diagram



Globe Photo

With this equipment, water in the boiler is given a slight electrolysis to produce a state of chemical-physical equilibrium in which there is no corrosion or formation of boiler scale.

Electrolytic action prevents corrosion on hot-water plants

A NEW MEANS of preventing corrosion and boiler scale on hot-water plants, based on a slight electrolysis of water in the boiler by a low-voltage direct current, has recently been tested and found satisfactory, according to reports from Germany. Previous methods, based on the addition of chemicals, involved the use of complicated and expensive equipment to regulate the amount of chemicals according to consumption of water. The new process, in which the electric current is passed through the water at the point where it reaches its highest temperature, gives the heated water a chemical-physical state of equilibrium which corresponds with the maximum temperature to which the water is heated. As the electrolysis is carried out at the point of maximum temperature, the conversion takes place very rapidly—15 to 20 minutes after turning on the current—and neither corrosion nor deposits of boiler scale are discernible.

This state of chemical-physical equilibrium, produced by the electrolysis, exists in cold water, and is destroyed only by heating. In the case of soft water in which only a slight amount of boiler scale is formed, such a large amount of oxygen is released that it has a destructive effect on the boiler, piping, etc. In contrast to this, slight corrosion occurs in hard water, owing to the oxygen, and this constitutes the first condition for the formation of boiler scale. This is then followed by the continuous precipitation of carbonic acid salts, so that the layer of boiler scale grows quickly throughout the entire hot-water plant. The electrolysis will prevent the separation of lime in the form of stone. In addition to this, hydrogen is generated which wanders to the cathode, that is, to the walls of the boiler and piping, and thus prevents the oxygen, freed by the heating of the water, from attacking and destroying the boiler and pipes.

Essential component parts of the electric protective equipment are a source of DC voltage, yielding six volts and about one ampere continuously, and a positive electrode, composed of aluminum, which is insulated and placed in the boiler. The negative electrode is formed by the boiler itself. In the case of water which contains chlorine, the positive electrode is slowly used up, because chlorine attacks the anode metal; hence, the anode must be replaced after twelve months' service.

Running charges on the electric protective plant are extremely low, as the power consumption amounts to about 10 watts. Where AC network is available, a rectifier of suitable output (dry rectifier) serves as a source of direct current; a rotating converter is used with a DC network.

Fireplace unit heats, pipes water to radiators

COMBINATION FIREPLACE and hot-water heater, the BAB fireplace unit heats water in its surrounding shell and pipes it through a regular hot-water system to radiators in adjoining rooms. Because of its simple construction, installation is easy in either new or existing fireplaces, according to the manufacturers, BAB Heating Co., Inc., Gloucester, Va. Open system of installation is recommended in all cases, new or existing, to avoid excess pressure; an expansion tank in the loft and an overflow tank running either to roof, or, preferably, to sewerage system, are further requisites. For heat conservation and allowance for contraction or expansion caused by extreme changes in temperature, insulation of asbestos paste 1 in. thick is advised.

The unit itself is of open-hearth, copper-bearing, welded sheet steel; an inner shell provides a jacketing of water 2 3/16 in. thick at top, bottom, and three sides of the opening. Outlets for connection of supply and return pipes are at top and bottom of the shell sides. Heat from the fire is absorbed by the steel shell and transmitted to the water it contains; as the heat increases, the hot water rises, and the suction created pulls cold water from the bottom of radiators into lower portion of the fireplace shell. According to the manufacturers, radiators begin to give off heat in less than 25 minutes after lighting of fire. A damper attached to the unit controls consumption of fuel and degree of heat.

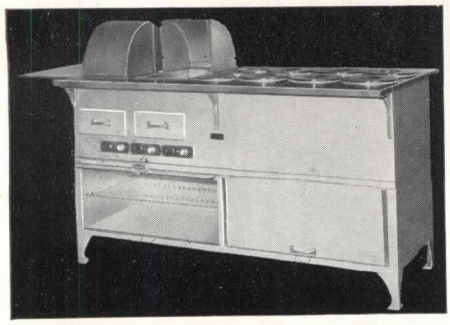
Advantages claimed for the BAB fireplace are that it is, by reason of its construction, smokeless; economical to install and to operate, since it uses coal, coke, or wood; long-lived because it contains no cast-iron sections which might burn out or crack.

Inexpensive dehumidifier features calcium-chloride filter

MOISTURE REDUCTION by means of Caloride, a calcium-chloride and carbon compound, is the feature of a new portable air dehumidifier, Arid-Fuser, manufactured by Aerofuser Products, Inc., Chrysler Building, New York, N. Y. Room air is drawn in at sides of the unit, and passes through the Caloride and a spun-glass filter. Filtered and dehumidified air is ejected from the top of the unit by a fan. The unit is capable of circulating between 20 and 150 c. f. m. through Caloride; total discharge of dehumidified and room air is 500 c.f.m. Arid-Fuser, priced at $119.50, f. o. b., Elmsford, N. Y., entails no installation cost, since it operates simply by plugging into an AC electrical outlet. Only maintenance cost is replacement of Caloride, which retails at $0.05 per lb.

(*Continued on page* 58)

NEW EQUIPMENT



Diet kitchen unit generates no steam

A WATERLESS diet kitchen unit for use in hospitals, restaurants, clubs, cafeterias, etc., has been developed by Prometheus Electric Corp., 25 Ninth Avenue, New York, N. Y. The unit is heated electrically, and, because it requires no water, generates no steam. Each food container is heated by an individual heating unit. This product is equipped with the Automatic Economizer, a device which automatically reduces the amount of current as soon as the desired temperature is reached. Adjustable controls on the front of the body permit regulation of each section, according to temperature desired. The unit is available in six base models, in stainless steel or Monel-metal finish.

Phone booths for noisy spots have acoustical lining

FOR USE in moderately noisy locations where space is limited, acoustic phone booths have been developed by Burgess Battery Co., Chicago, Ill. A special lining of perforated metal backed by a soft sound absorbent prevents sound from interfering with the telephone user. The wall-type unit has a built-in electric light and shelf. Both types are built of steel and require no servicing.

Voice vibrations operate new batteryless phone

A BATTERYLESS telephone which depends solely on voice vibrations to move an armature in a permanent magnetic field as a current generator has been developed by engineers of the Bell Telephone Co. Design of the instrument follows that of the early telephone, which used no outside current source, but utilizes increased knowledge of highly magnetic materials and structure. Because of its independence of batteries and other external power sources, the instrument is portable, and hence of considerable use in such places as construction camps. In addition, it is light in weight, one model weighing less than two pounds. Portable units can be used as receivers or transmitters, but wall units contain separate receivers and transmitters.

Microphone-loudspeaker system protects from intruders

A SYSTEM of communication between indoors and outdoors which reproduces in recognizable manner the voices of the users is announced by Dictograph Products Co., Inc., 580 Fifth Avenue, New York, N. Y. Intended primarily as a means of protection against unwanted intruders, the system—similar but not identical to the telephone system—is adaptable also for interroom communication. The basic Doormaster system consists of a combination microphone-loudspeaker unit set flush in the door jamb and covered with a brass plate in which are louvered openings, and a hand-set or wall-type telephone set inside the house. Variations of this system offer front- and back-door stations, and as many as three inside connections.

Fund established at MIT to study solar energy

TO DISCOVER practical means of utilizing solar energy, research will be carried on at Massachusetts Institute of Technology with a fund established last month by Dr. Godfrey L. Cabot. Already under investigation are the means of increasing the rate at which solar energy is stored to produce wood in a tree or grain in a plant. The new grant will be for research in three major fields: solar engines; conversion of solar energy into electricity by vacuum tubes, photoelectric cells, thermophiles, and copper-oxide cells; and chemical conversion of solar energy into work.

Instrument measures moisture content in *walls*

ACCURATE and quick indication of actual moisture content *in plaster, brick* and concrete walls is possible by means of the Mars Moisture Detector, developed by William J. Delmhorst, 90 West Street, New York, N. Y. This instrument, simple to operate, requires no electric circuit connection as it is battery-equipped. It consists of a direct reading meter of extreme sensitivity, and two pins connected by wire to the meter. A press button near the meter sets the mechanism in operation; when pins are applied to wall the meter registers the moisture content. Since the Mars Detector indicates subsurface moisture it is also useful for showing the extent and course of leaks, as well as their point of origin. For the various materials to be tested there are specific pins. The device retails for $18.50.

New bolt head does not weaken beams

A MEANS for making quick attachments to beams or girders, the Safety Hook Bolt Head was recently introduced in this country. The product, in use for two years in England, can be used alone on a standard bolt or in combination with a deep washer, or two hook bolt heads may be used with a deep washer for fastening two I-beams together. This device is simple to use, and does not weaken beams, according to the holders of American and Canadian rights, The Fanner Manufacturing Co., Cleveland, Ohio.

High-pressure process produces steel at lower cost

A PROCESS which permits use of higher pressures on pig-iron blast furnaces is expected to affect materially the cost of steel, according to its inventor, Julian M. Avery of the research laboratories of Arthur D. Little, Inc., Cambridge, Mass. Higher pressure will reduce the ore and smelt it to pig iron and slag without the losses occurring with present methods. With Mr. Avery's process, the steel industry will be able in normal times to use only its most efficient furnaces; less efficient furnaces can thus be held as stand-by equipment. By means of pressure operation, says Mr. Avery, a saving of $1 to $2 per ton will ultimately be possible; since pig-iron production in this country averages 35,000,000 tons per year, the new process represents considerable annual savings to the industry.

Aluminum is new material for hand-wrought sculpture

Sculptured in aluminum without the use of molds or castings, this statue of St. John the Baptist for the Queen of the Holy Rosary Cathedral, Toledo, Ohio, is said to be the first hand-wrought statue of this material. Hammers, anvil, and chasing tools were the only means used for fashioning the three-foot statue, made at the Wendell August Forge, Grove City, Pa.

Methacrylate base produces lacquer for chrome protection

A TRANSPARENT lacquer for protection of chromium and other metals from corrosion and rust is the most recent development from the new methyl methacrylate plastic. Unique because of its methacrylate base, Chrome Lacquer, a product of E. I. du Pont de Nemours & Co., Wilmington, Del., is characterized by its adherence to metals, quick-drying properties, and durability. It is colorless, will not chip or peel, does not affect the color or gloss of the metal, and is resistant to sunlight. The lacquer is expected to be of particular use on automobiles and boats, but can be applied to building hardware, store fixtures, and decorative objects. Tests conducted in Florida showed that protected panels of various metals were free from rust or corrosion in spite of eight months' exposure to salt air, and that the lacquer film was unbroken.

Asbestos fiber protects girders and cables from fire

A NEW MATERIAL, molded asbestos, for protection of steel girders and electric cables from fire, has been developed by Newall's Insulation Co., Washington Station, Durham, England. This material consists of a white asbestos fiber capable of withstanding heat up to 2500° F., mixed with a binder, and molded to fit any girder section or built up in sheets with a special refractory adhesive on the joints. It also comes in suitable forms to protect electric cables singly or in groups. One inch of molded asbestos applied to structural steel will prevent its collapse for more than an hour, and two inches will preserve it for more than two hours. In a recent demonstration at the Barking electric power generating station, two unprotected girders collapsed in 12 minutes at a temperature of 1100° F., while the temperature of two protected girders had reached only 200° F. In another test a steel stanchion protected with 3-in. molded asbestos was subjected to temperatures which rose from 1450° F. to 2100° F. over a period of 4½ hours. At the end of this time the temperature of the stanchion was 850° F.

Raw materials now available from lignin

LIGNIN, waste product of forests, can now be converted into a number of valuable raw materials, according to the U. S. Forests Products Laboratory. Among the yield products are wood alcohol, a lacquer solvent which also has possibilities as a wood preservative, two compounds of possible use as thickening and toughening agents for varnish, and a clear glossy resin which has potentialities as a plastic material. The process by which this conversion is possible is hydrogenation: hydrogen atoms are added to the lignin solution by means of heat and pressure, and the dissolved lignin is thus changed from a dark brown to a transparent color. Different compounds can be created by this method and are removed by distillation.

Flexible wrapping film derived from bentonite

A NEW TRANSPARENT wrapping film, said to be essentially fireproof, has been produced from bentonite, a clayey material sometimes used in construction for plugging holes because it swells when wet. The new film has shown itself in laboratory tests to be strong and tough but flexible, resistant to water, acids, alkalis, and oils, and to have properties of electrical resistance, according to a report made by Prof. Ernst A. Hanser of Massachusetts Institute of Technology and Miss D. S. le Beau of the Dewey & Almy Chemical Company. Like Cellophane, its nearest counterpart, the new film can be printed on. Application for a patent on the film has been filed.

Low-cost linoleum underlay adds life to floor covering

FOR USE UNDER linoleum and other resilient floor or wall coverings, an underlay made of birchwood and kraft paper bonded to both its surfaces with asphalt felt, has been developed by the St. Croix Lumber Co., Lakeport, N. H. The product, known as Tekwood underlay, comes in stock 4 x 4 ft. panels, and in two weights, standard and heavy duty. The latter is intended for use where the subflooring is particularly rough or contains gaps or cups; the former is for ordinary use. Since Tekwood must be laid with its grain at right angles to floor joints, each panel is stamped with an arrow indicating the direction of its grain. Installation is simple as the underlay can easily be cut. Cost is approximately $0.05 per sq. ft.

Rubber found suitable substitute for metal in bearings

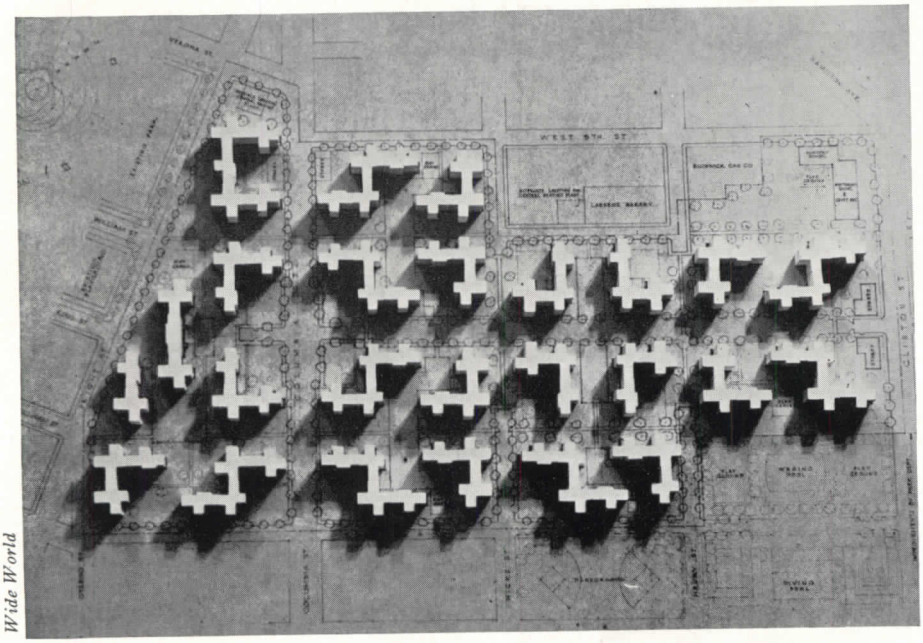
Where relatively low frictional resistance is required, rubber is a suitable material for bearings, according to a paper presented by S. A. Brazier and W. H. Bowyer at the Institution of Mechanical Engineers, London, England. Rubber bearings are especially adaptable to use on pumping systems for drinking water, washing machines, domestic and industrial liquid-handling equipment, centrifugal pumps, etc. Bearings made of this material are water-lubricated; because rubber is flexible and deformable, it accommodates itself to surface irregularities without destroying the continuity of this lubricating film. The advantage of rubber bearings is more apparent when water containing grit is the lubricant. Particles do not become lodged in the bearings; because of its resilience and the ease with which it is displaced they are depressed into the rubber without cutting, and are then rolled by rotation of the shaft into adjacent grooves and so washed away. By reason of this deformation the unit load on these particles approximates that on the surrounding rubber.

For successful operation the bearings should be made of a resilient, tough rubber, resistant to cutting or wet abrasion, with a low permanent set; the size of the bore must be accurate and allow enough clearance for an easy fit; the flow of cool lubricating water should be continual; lubricating grooves must be placed close together.

ON THE HOUSING FRONT

Wide World

Work on Red Hook Houses officially gets under way with New York's Mayor La Guardia, Senator Robert F. Wagner, and USHA's Nathan Straus at the steam shovel.



Wide World

Site plan of complete development for Queensbridge-Red Hook Houses

New York first to use USHA funds, sign with FAECT

GROUND WAS BROKEN late last month in Brooklyn, N. Y., for Red Hook Houses, the nation's largest slum-clearance project to date. The occasion marked not only the beginning of the first slum-clearance project to be built under the USHA, but the first agreement between the architects of such a project and the FAECT, a CIO affiliate. The contract specifies the FAECT as sole bargaining agent for the technical employees, provides for time-and-a-half for overtime work, full seniority rights, suitable grievance machinery, etc.

Red Hook Houses will consist of 25 buildings, in which there will be 2,562 apartments of various sizes. These will provide dwellings for 9,270 persons. Alfred Easton Poor is chief architect for the project; associated with him are William F. Dominick, William F. Hohauser, Electus D. Litchfield, W. L. McCarthy, Jacob Moscowitz, and Edwin J. Robin.

Year-old USHA paves way for much-needed housing

IN ITS ONE YEAR of existence, the United States Housing Authority has earmarked all of its original $500,000,000 appropriation for slum clearance, received an additional $300,000,000, brought about the establishment of local housing authorities and the enactment of legislation necessary under the Wagner-Steagall Act (see AR, 9/37, p. 38), and begun construction of its largest project.

That so definite and widespread a program is a driving necessity is forcefully shown in statistics gathered by a recent U. S. Public Health Service survey. According to this report, which canvassed 703,000 households in the nation's principal geographic areas, small cities suffer as much from overcrowding as larger cities, though in different ratio. This is particularly true of the South, where 31% of families in cities under 25,000 reported more than one person per room. In general, says the report, the percentage of families with more persons than rooms rises as the size of the city decreases, in all areas except the East. For the country as a whole, the survey shows that 16% of the households visited had more than one person per room; 6% had more than one-and-a-half times as many persons as rooms; 4% had twice as many persons as rooms; and 14% had no inside "flush" toilet, or, if such a facility was available, used it jointly with other families.

Meanwhile, the New York City Citizens' Housing Council has been preparing reports and recommendations for a minimum building program on a 20- or 30-year basis. A survey conducted by the Council indicates that with 600,000 families badly housed, New York City will have to build with government aid 29,000 new apartment or dwelling units per year (and 55,000 without government aid) over a 20-year period, or 19,000 units over a 30-year period. This is the minimum possible amount of building to eradicate slums, provide adequate homes, and check deterioration of large areas of the city. For such a program the Council finds that a combination of Federal, state, municipal and private funds would be required, and is now engaged in a study of methods of procuring these funds. New public building, the Council feels, will in no way conflict with the effective demand for private building if the former is carefully restricted in occupancy to the low-income group.

DESIGN TRENDS

Aero Express

Apartment-house tenants speak their minds . . .

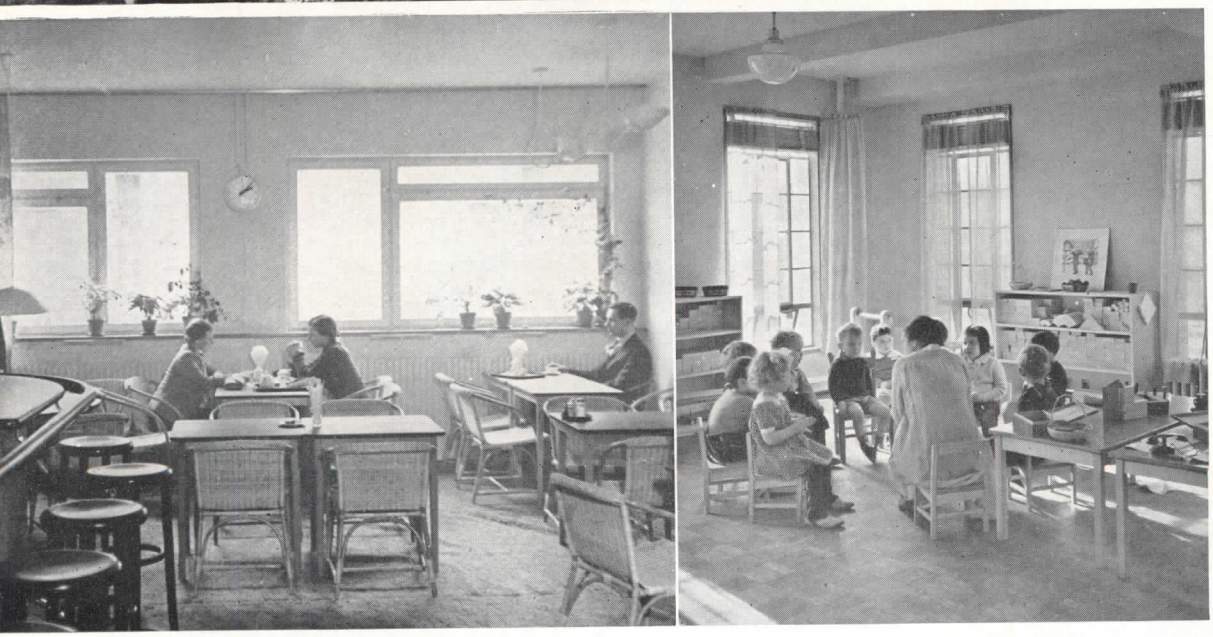
ARCHITECTURAL
RECORD
COMBINED WITH
AMERICAN ARCHITECT AND ARCHITECTURE

Fairchild Aerial Surveys

. . . low buildings placed to assure abundance of sunlight and fresh air with spaces adequate for gardens or parks.

Aero Express

. . . proximity to transportation facilities but near a park or the edge of the city to assure freedom from noise, odor, and smoke.



Left, Atelié Wahling; Right, Gottscho

. . . recreational areas and management services that offer greater opportunity than usually exists for community social activities.

What Tenants Want in Apartments

By **THYRSA W. AMOS,** Dean of Women, University of Pittsburgh

Do existing apartment buildings adequately meet the needs of tenants? In general the answer is "No", according to results of a recent questionnaire on the subject. Reported here are tenants' own suggestions for improvement. Next month the RECORD will include in the Building Types section a reference study on apartment-house planning and development standards.

"As a tenant, what improvements do you suggest for making apartment-house living more satisfactory?" This was the question recently put to 120 tenants of 25 apartment buildings in Boston, New York, Philadelphia, and Pittsburgh, ranging in size from the "largest in the world" to a 4-family house. A questionnaire on the location and arrangement of the building, on floor plans of individual units, on equipment and services, and on management was sent to these tenants, of whom there were four general types: (a) married and without children, (b) married with children, (c) spinsters and widows, and (d) bachelors and widowers. All were business or professional persons living in apartments ranging from one to eight rooms in size.

The letter accompanying the questionnaire and the questionnaire itself stressed the value of the opportunity to make constructive suggestions for better apartment-house living. Fifty-eight percent (70) of the questionnaires were returned with suggestions. Ten recipients of questionnaires substituted letters, each giving good suggestions. The total number of persons represented in the replies was 105.

Without exception, these tenants want apartment buildings near good street-car and bus service, and at the same time far from city smoke, odor, and noise. They also want to be far enough from other buildings for adequate light and air and freedom from noise, odor, and smoke. Unanimously they ask that buildings be located advantageously for sunlight and prevailing winds, avoiding valleys and depressions. More than 85% asked specifically for buildings at the edge of the city, or near a park.

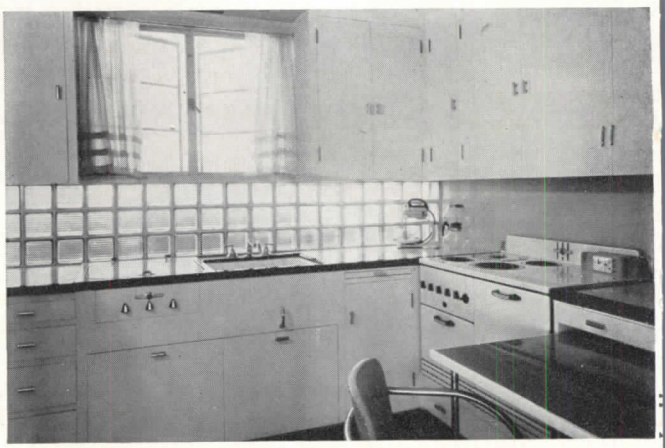
In general, the group prefers lower buildings, suggesting, in place of one large building, several separate units of five- or six-family capacity, spaced so that grass plots, flower beds, shrubbery, trees, and fountains may be provided. They deplore equally such eccentric designs as a series of apartments built in concentric circles in imitation of the pueblos of New Mexico. Many suggest that the single building be U-shaped only if the U is very wide and low, and faces the sun some part of the day. Many propose an L-shaped building properly set with regard to the sun. A few suggest apartments "lined or staggered to give sunlight to all apartments, thus providing on the building lot itself some garden or park space." Fifty percent stress the point that most single apartment buildings are too deep and too high, making too many apartments sunless and airless. All urge that buildings be planned from the inside out. The insistent demand for some aspect of outdoor living would be met partially for some 30 tenants of the group if balconies were provided; for 40 others, by roof-gardens.

Service and public spaces

Not one of the group wants to live on the first floor or in the basement. The first floor, in their opinion, should be given over to foyers, halls, office, game rooms, children's rooms, isolation rooms "for persons ill of common cold", attractive social rooms with kitchenettes and wood-burning fireplaces, kitchens where competent persons can cook and deliver meals to apartments, and small drugstores. Only three want stores or shops on the first floor. All others emphatically say that these detract from the dignity of an apartment house. In the basement they want swimming pools and gymnasiums, canned-fruit cellars with compartments for rent, large dustproof lockers for each apartment, trunk rooms with foolproof checking services, supply rooms where tenants can buy such things as soap and light bulbs, laundries, garages attached to the buildings, and covered unloading rooms near elevators.

The suggestions for socializing the first floor and the basement show a trend away from the isolation desired by tenants when the popularity of apartment-house living was at its height 10 years ago. Apartment-house living has been found too unsocial, too perfect in its freedom from human contact and omission of neighborhood and community life. Fifty percent of the replies stressed the need for humanizing apartment houses both through provision of recreational and social rooms and through management services.

Foyers come in for unique and constructive comment. Ninety percent of the tenants reporting want small semiprivate entrances. Realizing that this is not always possible, they insist on small, well-furnished, dignified foyers. Almost as many ask for revolving doors. Large entrance halls are costly, not only in additional rental charge to the tenant and upkeep expense to the owner, but also in their effect on the social spirit of the building. Too frequently, one



KITCHENS: A large floor area, work-saving layout according to scientifically established standards, and a wide range of mechanized equipment are wanted by the majority of tenants.

BATHROOMS: As in the kitchen, most tenants want high efficiency in layout and equipment, simplicity in finish and accessories. Both areas are susceptible to improvement over most current examples.

tenant says, large and comfortably furnished foyers become gathering places for persons who like to gossip and watch the comings and goings of other tenants. "This is particularly trying to the tired business men and women residents of the building . . . especially when they run this gamut night after night." This is probably an isolated case, but it touches on what a great many emphasize, the need for the foyer to serve only as an entrance hall.

In suggesting improvements for halls on upper floors, all want them wide and well-ventilated. They want good lighting here, and say "carpeted halls at best are unhygienic", and at worst "dust bins, moth resorts and odor preservatives." Halls, they think, should be colorful, hospitable, and sanitary, not "decadent, with dingy walls, faded carpets, or ugly doors." Elevators are classed with halls. Only three persons desire manned elevators; all others want the automatic lift because "if it works well, it gives quick 24-hour service." It also gives more privacy and is "less costly to tenant and owner." Every tenant wants elevator interiors as cheerful as the halls. Many stress the satisfaction it gives a tenant to see "the state elevator inspector's recently dated 'OK' hanging in the elevator."

Size and layout of units

All want better arrangement of rooms, and larger rooms. All want them soundproofed and air-conditioned in summer and winter. Ninety percent want a two-floor arrangement even for a four-room apartment. These persons are "grievously offended by the bathroom-door complex" of the architect who places it either just off the living room, or in the living room in plain view. They suggest placing the bath upstairs with the two bedrooms where the "sleeping, bathing, and dressing privacy of the tenant can be assured." The two-floor plans "ought to give more sunlight and air." All want cross-ventilation in sleeping rooms. The living room and kitchen should constitute the first floor. "Unless the foyer can be sizable enough to receive guests, to contain a coat closet and a small closet for toilet and lavatory, it is best omitted and the space used for an attractive half-enclosed stairway in the center or at one end of the living room," to quote one who says well what another ten suggest.

Dinettes seem out of favor with most of the tenants reporting. They point out that they are usually ugly, too small, and, moreover, are waste space for most of the 24 hours. "Eating breakfast and lunch in the kitchen, and using the end of the living room next to the kitchen for dinner is preferable to any form of dinette service I've seen," declares one tenant.

All tenants reporting want larger living rooms, 16 x 24 ft. being the usual request, with plenty of wall space and good window arrangement. The need for a view is stressed. The group wants fireplaces burning wood, coal, or gas. Artificial grates and log arrangements are held "cheap, tawdry, meaningless." Most of the tenants want radiators removed from under windows, yet know what a factor that placement is in heating a room. A few would like floor lights in bedrooms to avoid stumbling and waking others sleeping.

Kitchens

Far more suggestions were made for the kitchen and the bathroom. Sixty percent deplore the small kitchen. One housewife makes a common criticism: "We have the last word in modern, perfectly equipped kitchens, yet no space to work. I have to put the dirty dishes on the floor under the electric stove, the refrigerator, and the sink." The kitchen, as many explain it, uses more separate articles at the same time than any other room. It must be scientifically planned, lighted and heated, and equipped with ample cupboard

ace for dishes, pots, and pans; oled storage space for potatoes, ions, and other food not kept in the frigerator; a cupboard for ironing ard and iron, adjusted to cut off rrent when closed; large sinks, with o under drainboard; cabinets for ctric towel driers, food mixers, rbage crushers, and other electrical uipment; built-in dustproof bread xes having drop-down door with eadboard, knife rack and sharpner, and gas stoves.

All tenants reporting want quick rbage disposal either through inerators in the building or, preferly, electric crushers which permit sposal through kitchen sinks. Arngement of kitchen equipment is ost important, the U-shape being eferred, and in this order of hanng food: receiving, storing, preparg, cleansing, cooking, and serving. uch emphasis was laid on lack of ace for soiled dishes and their washg. All want a small serving pantry tween the kitchen and the place of ting. All emphasize proper ventilaon and deodorization of kitchens. ll prefer diffused lighting wherever can be used, particularly over the nk, and would rather have several ffused lights than one bright overead light. No one in the group wants gh coloring in the kitchen, preferng to introduce that in the accesries. Many suggest glass walls, and bber or cork floors for comfort and nitation. All want sunshine in the tchen.

athrooms

The bathroom is equally important this group. Here, too, the emnasis is on simplicity, spotlessness, nd good equipment. None of the roup wants bright coloring on walls nd woodwork. Fifty percent want ree walls of glass tile, and an outde wall of architectural glass. The rge majority want shower stalls, uilt-in clothes hampers, and footush water closets.

If the group is representative, the edicine cabinet must move from its ace over the lavatory and give way a long mirror with diffused lights n each side. The medicine chest, ith an inside light, should be on a all readily accessible, and should be w enough so that the top shelf is eached easily. Ninety percent of ose wanting shower stalls ask for naller tubs having one side bowed ut to provide a seat. Many ask for cabinets on each side of the lavatory for linens, soaps, and other toilet supplies. Nonslip towel racks are the most frequently requested small item.

Management

There is no doubt that these tenants believe management the most important factor in apartment living. All agree that the chief business of the manager is to keep tenants contented. Many of these tenants know something of management and personnel work, a fact which owners should keep in mind when employing managers to deal with the business and professional class of tenants. This group wants managers who are not only pleasing in appearance, unfailing in courtesy, intelligent, sympathetic, and understanding in dealing with people, but also trained in management and personnel supervision.

These tenants appear to know well the general responsibilities of a manager. Given in order of the times mentioned, a good manager knows how to keep people contented, how to build a co-operative and appreciative spirit among tenants, how to "keep house", how to keep records, how to show and rent apartments, and how to select and train employees.

Service

Many suggestions were made for improvement in services, such as more alert doormen, more careful telephone operators, more care in announcement of guests, better delivery service, and better-trained maids. "These services make an apartment a home," sums up the attitude of the entire group in asking for better-trained staffs. However, the most constructive and challenging suggestions for improvement relate to the socializing of apartment-house living, to the creation of a community spirit through "stimulating activities that will enlist the pride of all ages in maintaining in the whole building a wholesome homelike atmosphere." This has been mentioned in reporting the types of social and service rooms desired by tenants.

Hostesses for houses

Sixty percent of these tenants think that every manager should have as an assistant a woman to act as hostess and social director of the entire house. Among the many services desired of her are that she direct the life of the common social rooms, keeping a calendar of dates for their use by individual tenants for private parties, or for house parties composed of congenial groups of tenants; advise on tipping; call on new tenants and help them become adjusted to the life of the building; edit a monthly house organ; organize house committees for Christmas gratuity funds, improvement in apartment-house living, selection of tenants, and integration of apartment-house life with neighborhood life; give help in emergencies such as death or accident, and in general anticipate tenants' wants.

And more service

Sixty-eight tenants stress the social value of a house bulletin or paper which can (a) give the house directory of tenants and servants, (b) publicize house rules, (c) give house news, (d) list common social events. They want it even if it is provided merely in mimeographed form.

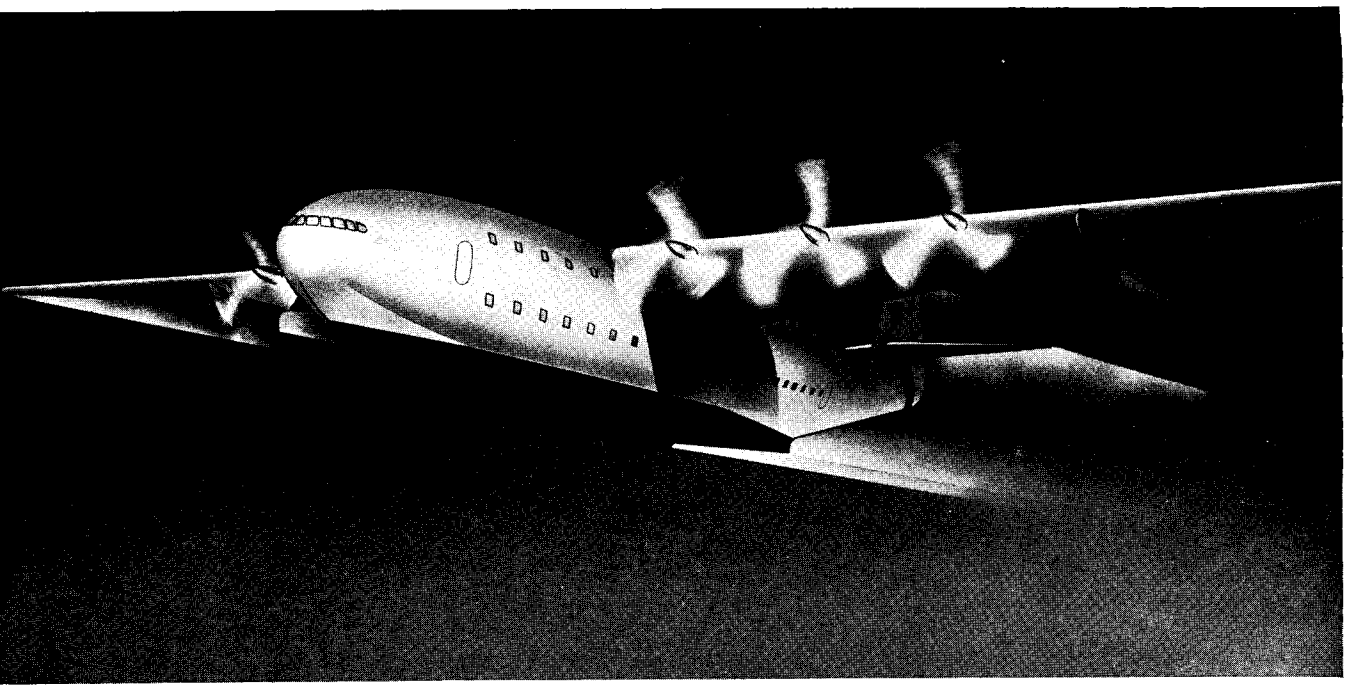
Sixty tenants want the services of an interior decorator always available. Two or three suggested that apartment-house managers in a given area join in employing one good decorator. The decorator would be expected to: individualize apartments, teaching tenants how to overcome monotony arising from sameness of walls and closeness of quarters; plan new decorations; supervise painting at house-cleaning time; suggest furniture arrangements; advise on the refinishing of old furniture; help in the purchase of new furniture; advise on furniture coverings and draperies, and give instruction in picture selection and picture hanging.

Ability to pay stressed

Gymnasiums, swimming pools, game rooms, and children's rooms call for the services of persons trained for such work. Here, too, except in the case of children's rooms, it was suggested that three or four apartment houses could be served by the same persons.

More than 92 percent of those reporting point out that they can readily suggest improvements but, unfortunately, cannot readily pay for them. "The crying need is for lower and more equitable rents now, so why suggest what will inevitably raise them? Owners can't spend without return," sums up this point of view. The emphasis now being laid on poor housing conditions everywhere is stressed by the whole group.

Upper photo by Fairchild Aerial Surveys, Inc. Lower, by Ewing Galloway



Globe

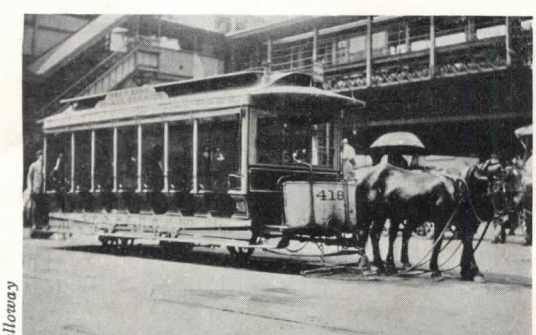
Design for a 100-passenger airliner by Boeing Aircraft Company for Pan American Airways. Opposite page: Cross-overs of express highways at Forest Hills, Long Island, N. Y., above; and, below, a trailer city at Sarasota, Florida.

MOBILITY—A Controlling Factor in Design

Acceleration of industrial productivity during recent years has made mobility a factor of increasing importance in American life. Our population has changed from a comparatively stable group to an increasingly mobile one. Constant migration is creating, in every section of the country, new problems that have widespread social and economic significance.

These changes and the attendant problems have resulted largely from development and widespread use of mobile designs—trains, automobiles, airplanes. But mobility has been a cause, as well as a result of such developments. Industry has increased production by controlling the flow of its processes. The mobile assembly line has made possible lower costs and consequent wider distribution and use; and it has also demonstrated that mobility—both as cause and effect—is a production factor that conditions a wide variety of things to meet human needs.

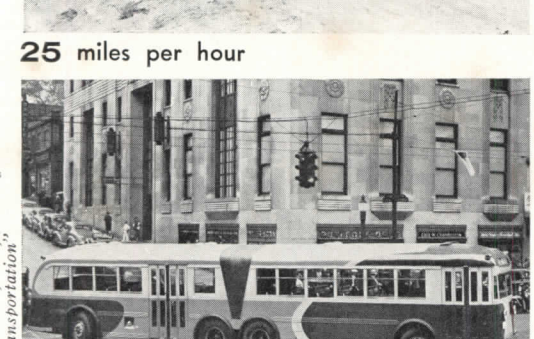
The technique that is producing modern units of transportation is more and more being applied to production of materials, equipment, and services used in buildings. A flow of new products is rapidly replacing older elements of design—a process that involves mobility as measured by increasing rates of building obsolescence. The result is a continued change—mobility—in design forms as means to fill the needs of the constantly expanding range of human activities.



Galloway

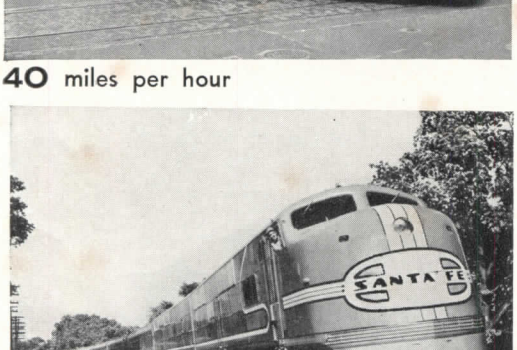
10 miles per hour

25 miles per hour

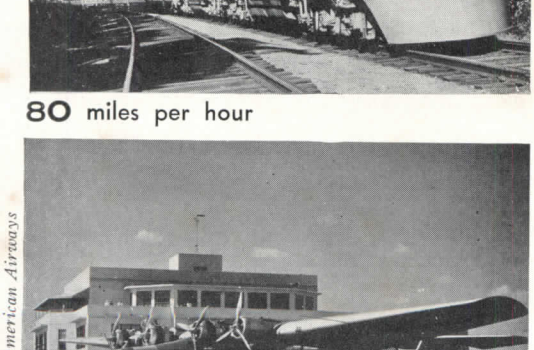


Parade Studios, Inc., courtesy "Bus Transportation"

40 miles per hour

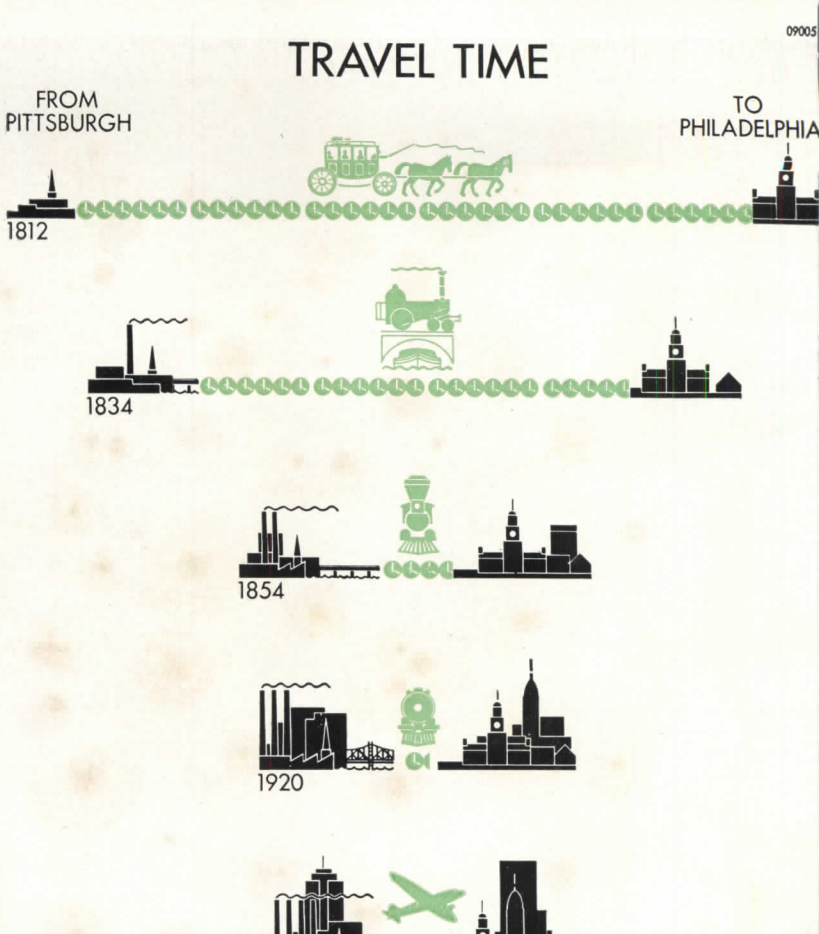


80 miles per hour



Courtesy Pan American Airways

150 miles per hour

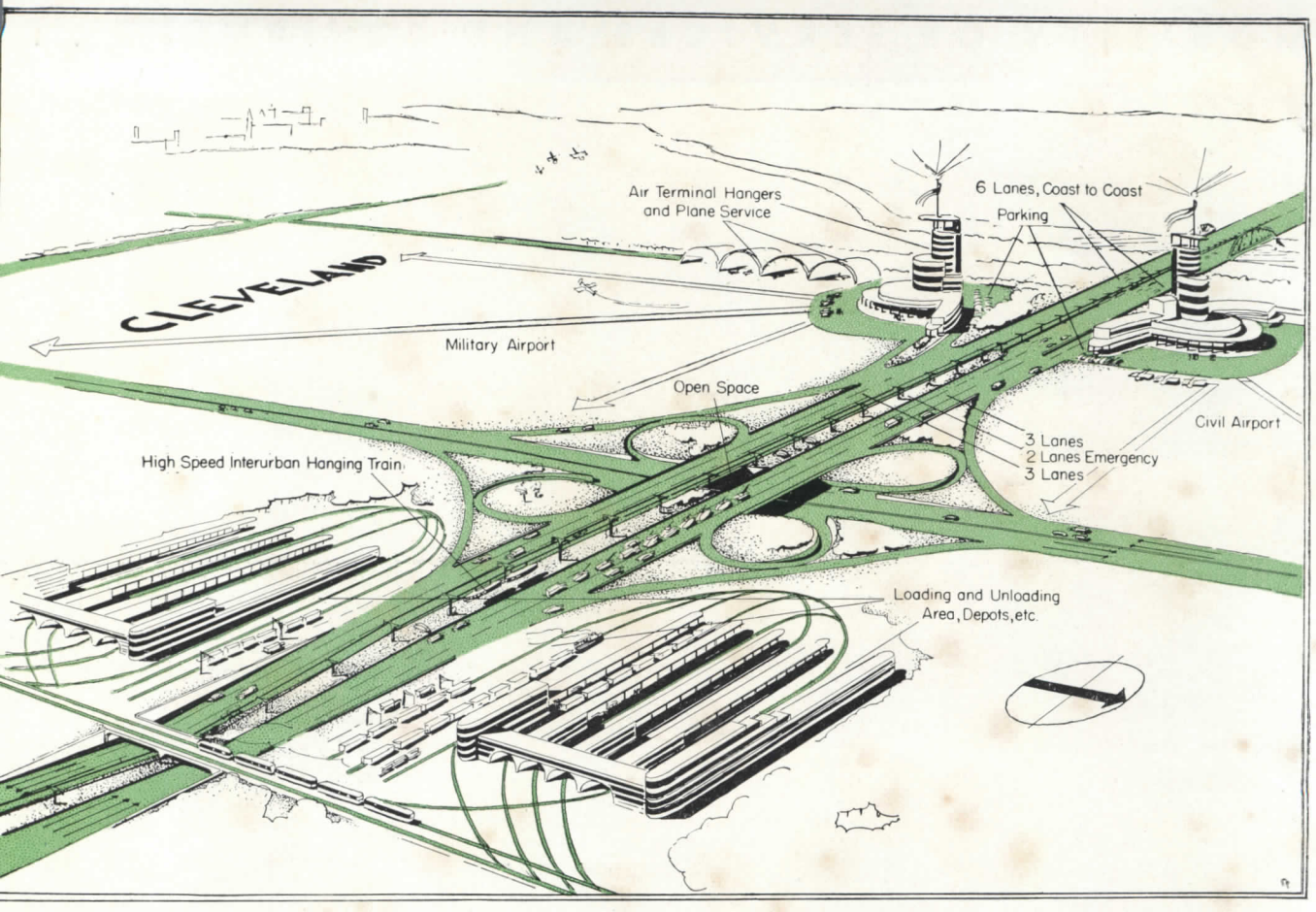


INCREASING SPEED and EFFICIENCY . . .

As speeds and available transportation facilities increase, distance shrink proportionately as suggested in the pictograph above. Peopl become generally more mobile. In 1920, for example, the averag travel per inhabitant was 500 miles per year. In 1929 it had increase fourfold to 2,000 miles per year. Among direct results of suc increases in individual mobility is a decreasing isolation of areas, whic implies an increasing development of localities offering variety o economic opportunity.

According to the National Resources Committee, " . . . there is ever reason to expect a continuation of the spread of population ou from the centers of metropolitan areas into surrounding satellite cities suburban communities, and adjacent rural areas . . . a trend towar greater individual mobility may be expected to follow the rapi improvement of means of communication and transportation. . . Extensive movements of population are essential to the economi progress of areas of relative overpopulation, with high reproductio rates. Interchange of population between other areas will facilitat adjustments to technological changes." (Problems of a Changin Population, page 117.)

Greater speed and efficiency of transportation units are as muc a result of increasing individual mobility as they are a cause of i And development of new forms springs directly from progressiv obsolescence resulting from technological advance—a fact that is a true of buildings and building products as of transportation units Thus, the problem of building design becomes that of integratin constantly improving elements of design to meet the increasingl complex requirements of an increasingly mobile society.



An essay in mobility. Scheme for an express cross-country highway and the intersection with urban traffic arteries of such a city as Cleveland. Designed by Wilbur Henry Adams and Stephen Juttner.

THE GENERAL TREND toward increasing mobility has a number of different aspects. Each can be charted as a trend in itself: for example, trend of population movement, increasing use of transportation units; expansion of mobile services (as mail, freight, deliveries); the spread of industrial technique based on a flow of parts to a moving assembly line. All, however, are related. Each acts upon the other and, in turn, is acted upon. And each involves in varying degrees a relationship of space (area, bulk, weight) and time (speed, coordination, efficiency).

Thus, the designing of any structure becomes a problem of integrating certain specific aspects of mobility. To the degree that space or consideration of the time element is involved, mobility is a controlling factor in design. Extent of such control depends upon the type of structure and the expedient circumstances that condition its fabrication and use.

1. *Structures that are themselves mobile:* Design of transportation units of all types calls for the highest degree of integration. Power and speed (time) must be correctly geared to size, weight, and form (space) and the whole designed in relation to a factor of economic mobility that involves the balance of financial return with total costs (initial, operating, and maintenance) over a calculated period of useful life. This last involves the mobility of obsolescence as an important factor of design. Witness the streamlined trains, which emphasize the technological obsolescence of former types.

2. *Structures which promote mobility:* These may be static (as a house, factory, department store). But insofar as they involve movement of people or things, the factor of mobility controls design, fabrication, and use. For example: a country-house is considered incomplete without a garage (for a mobile unit); and conservation of movement is one criterion in design of an efficient kitchen. A large store must handle crowds efficiently; hence, wide aisles, escalators, elevators, etc., to control traffic flows. In the industrial field, particularly, technical improvements are so rapid that structures are tending to become merely shells to house machinery, light in weight and simple in construction to make replacement easy and inexpensive.

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Design for Environmental Control. By K. Lönberg-Holm and C. Theodore Larson. Architectural Record, August, 1936, pp. 157-159.

Industrialization of Housing. By K. Lönberg-Holm and C. Theodore Larson. Technical America, March, 1938, pp. 9, 10.

MOBILITY OF SERVICES AND EQUIPMENT . . .

Globe

1

Galloway

2

Globe

3

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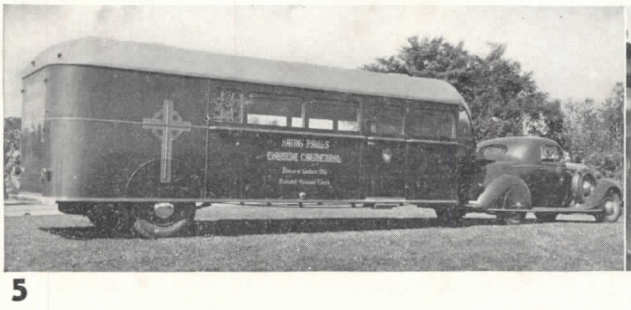

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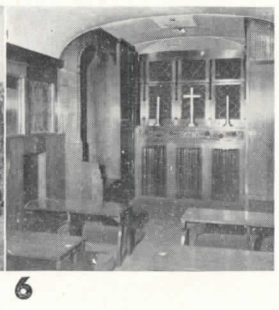
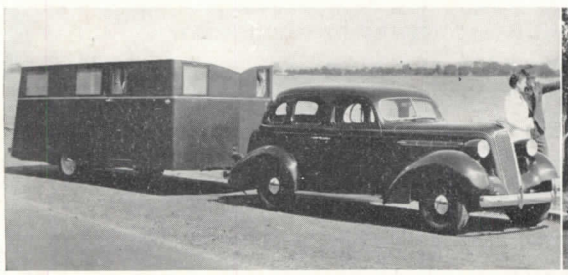


6

Opposed to the movement of people is the rapidly expanding mobility of services and things. The delivery wagon is familiar to almost every hamlet in the country. Industrialization has adapted its basic function to a variety of means and forms. Grocery, drug and hardware stores, commercial displays, scientific exhibitions and, of course, the circus—all are on wheels. Among others, mobility has come to the dentist's office (1); the public library (2); the telegraph and telephone (3); the research and testing laboratory (4); and even the church (5 and A.R., 11/37, pp. 32, 33).

. . . AND OF PREFABRICATED DWELLINGS



Covered Wagon Co.

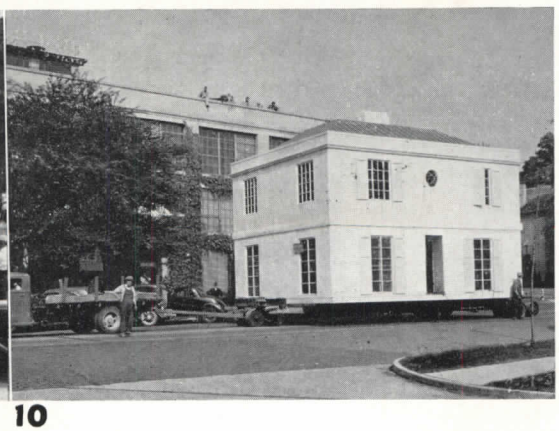
7

Galloway

8

Courtesy Covered Wagon Co.

9



Courtesy Hobart Bros.

10

The automobile trailer—perhaps more than any other single unit—is symptomatic of increasing population mobility. As a traveling house it has created a new series of social and economic problems involving highway design and development of "trailer cities." These new communities spring from service needs of "demountable houses" (8 and 9). The trailer's influence on dwelling design is suggested in the prefabricated, transportable dwelling unit built by the Covered Wagon Co. (9). Application of mobility to houses, factory-built, but traditional in design and facilities (10) is still rare.

Safety in Plumbing Systems

Modern American plumbing seems the best in the world. But research—started as a result of a dangerous epidemic—has exposed grave faults. At the same time it has established standards of safe design to eliminate back-siphonage as a menace to public health.

TATISTICALLY this country leads the orld in installations of sanitary cilities. This situation is not al-ered by the facts—as reported in ie U. S. Department of Commerce tatistical Abstract, 1936, page 596 -that in 1930 about 85% of U. S. arms were without indoor water ervice and about 92% had no bath-ooms. Nor is it changed by the reat need for wider development of ater supply, conservation, and use hich is coupled with the necessity or developing remedial solutions to roblems of sewage disposal and reatment.

Evidence compiled in recent years, owever, shows, increasingly, that anitary installations may be dan-erous to individual and public health, ven though equipment may appear o be the best procurable. Inspection f Detroit and New York Federal uildings in 1937 carried on jointly y the U. S. Public Health Service nd the WPA revealed that 68.5% f all plumbing fixtures examined ight become hazards to public ealth. The accompanying table in-icates, in part, the findings of the urvey; and since plumbing in gov-rnment buildings is substantially the ame as that in most other structures, ie figures take on added signifi-ance as suggesting the potential ienace that may lurk in similar lumbing installations in buildings of ll types.

The situation is not new. But only ecently has it been sufficiently clari-ed by research and experiment to ake possible such a precise tabula-ion. Following the epidemic of moebic dysentery in Chicago in 933, a number of investigations were nstituted to establish the cause of rinking-water contamination through plumbing fixtures and to develop methods by which such contaminations could be prevented. (See AR, 1/37, pp. 42, 43.)

Causes of water pollution

Water-borne diseases which constitute a menace to public health usually develop from contamination of drinking water by sewage. Epidemics of enteric illness may be caused by pollution of the water supply, which does not involve any question of faulty plumbing. But the technique of water analysis and purification relative to standards of potability is well advanced. (See publications of Bureau of Agricultural Engineering, U. S. Dept. of Agriculture, and those of U. S. Public Health Service). Likewise, methods of sewage treatment and disposal have been perfected so that pollution of public drinking-water supplies need no longer be a problem of either research or installation.

Danger of pollution lies in plumbing installations themselves when the supply of drinking water is—or may become, through operation of the plumbing fixture—connected with the system of waste disposal. The cross-connections thus formed may cause pollution of pure water under three conditions:

1. When pure and impure water sources are separated (actually, joined) by a valve and pressure of the impure source is permanently higher, pollution may result from seepage through the valve.

2. When pressure on pure water is temporarily reduced below that of impure water, contamination may result from a gravity flow of the impure source.

3. When pressure of pure water

FEDERAL BUILDING PLUMBING IN DETROIT AND NEW YORK

FIXTURE	% SAFE	% UNSAFE
Flushometer closets	0	100%
High tank closets	0	100%
Air conditioners	0	100%
Bedpan washers	0	100%
Dental cuspidors	0	100%
Low tank closets	0.2%	99.8%
Boilers	2.1%	97.9%
Instrument sterilizers	9.1%	90.9%
Drinking fountains	10.5%	89.5%
Lavatories	14.8%	85.2%
Bathtubs	31.5%	68.5%
Urinals	84.8%	15.2%
Sinks	96.1%	3.9%

(From "The Ladle", February, 1938)

The table above—partial result of an official survey of plumbing in Detroit and New York City Federal buildings—dramatizes the hazard to public health that may exist in modern sanitary systems. Building designers can help eliminate this hazard by adopting methods of plumbing layout and installation which research engineers have made available. Legally, the situation can be improved by revising existing plumbing codes to make these technical standards mandatory. Many cities, including New York and Chicago, have already accomplished this. Manufacturers of plumbing equipment are rapidly making available fixtures of all types that will meet requirements that research experiments have proved necessary for the prevention of cross-connections and back-siphonage. The plumbing trade is aware of existing dangerous conditions and is actively aiding in their elimination. Only by adherence to established technical standards by all factors involved can water pollution through plumbing fixtures be eliminated as a dangerous menace to public health.

supply drops below atmospheric, pollution from the waste system may take place from the vacuum thus formed. This process of water pollution is called "back-siphonage."

All cross-connections are potentially a menace to health. But all are not equally dangerous. Hydraulic and sanitary engineers recognize two types of cross-connections: *direct,* a continuous interconnection (involved in 1, above) as "between dual water-distributing systems, completely submerged inlets from water-supply lines to closed plumbing fixtures" (priming lines to pumps, tank-flushed water closets, etc.); and *indirect,* in which continuous interconnection is not present and completion of cross-connection depends on development of unusual conditions. Examples are: "water-closets with direct flush-valve supply—and other plumbing fixtures and equipment whose supply inlets may become partially or wholly submerged." (tubs, lavatories, etc.)

By far the greatest number of cross-connections are of the indirect type. But—as indicated in the Federal buildings survey—they may also be the greatest *potential* menace because, though fixtures may operate under completely safe conditions when pressures in supply and waste lines are normal, one or more abnormal occurrences may cause dangerous pollution without any outward evidence. Direct connections are relatively easy to recognize, control, and eliminate.

The "abnormal occurrences"—stoppage in waste lines, vacuums in either supply or waste lines, etc.—produce a siphon action in plumbing systems, which causes the contents of waste lines to flow back into lines supplying pure water. Investigation of these abnormal occurrences, the determination of their effect in plumbing systems, and the discovery of effective methods of preventing back-siphonage in plumbing fixtures of all types—these, in combination, have constituted the objectives of much research and recent experimental work. Results can be studied in complete form in the published material listed on this page.

Control of back-siphonage

In brief, prevention of back-siphonage—and therefore elimination of a widespread menace to public health—can be absolutely assured only by eliminating the possibility of cross-connections of whatever type. A number of factors may contribute to produce back-siphonage where cross-connections—actual or potential—exist. In many cases the simultaneous combination of occurrences necessary to cause back-siphonage through indirect cross-connections is so rare that opinions vary as to the relative danger of pure water pollution from this source.

Research engineers have shown, however, that conditions tending to produce back-siphonage are always present, to some degree, in all plumbing systems. Furthermore, they involve phenomena of pressure changes caused by liquid flows that are not subject to precise control. Therefore, all serious investigations of the problem have led to a common general conclusion: *To prevent pollution from entering any part of the pure water piping system, design of individual plumbing fixtures must be such that cross-connections of any type are eliminated and some method incorporated to prevent formation of siphon-action from impure to pure water sources.*

Design of piping systems

Formation of excessive vacuums—an important contributing cause of back-siphonage—and certain types of cross-connections can be eliminated by correct layout and installation of water-piping in both supply and disposal systems. Dawson and Kalinske state, in their recent report for the National Association of Master Plumbers (see references), that, "At least 90% of all vacuum formations, and therefore 90% of the hazards of back-siphonage, could be prevented if water-piping systems were sized and installed correctly."

This statement has particular force relative to piping systems in tall buildings where high velocities in waste lines may create vacuums in upper-floor pipes or flood fixtures on lower floors, if sizes of soil and vent stacks are inadequate. Also, the water of certain localities may cause pipe corrosion, particularly at valves; or it may line pipes with insoluble precipitates, which diminish flow from the calculated normal and therefore tend to develop abnormal and dangerous pressure changes.

Air-conditioning installations may also become a source of pure water pollution unless extreme care is exercised to eliminate cross-connections between city water supplies a condensers, cooling devices, was lines, etc. Many such installatio utilize a water supply auxiliary to city supply—a condition found al in certain types of industrial plan which operate *water-using* equi ment. Health hazards will ex through cross-connections betwe the two water-supply systems unle the potential danger of back-sipho age is recognized and guarded again in the design and installation of t piping systems.

References:

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Cross-Connections in Plumbing a Water-Supply Systems. Revised e tion, January, 1936, issued jointly State Board of Health, Bureau Plumbing and Domestic Sanitary Eng neering and the Department of H draulic and Sanitary Engineering, U versity of Wisconsin, Madison, Wisco sin. Free to citizens of Wisconsin; others, 25 cents per copy.

Cross-Connections in Plumbing Sy tems, by Roy B. Hunter, Gene Golden and Herbert N. Eaton. R search Paper RP 1086; from the Jou nal of Research of the National Bure of Standards, Vol. 20, April, 1938. U. Department of Commerce, Washingto D. C. Price 15 cents.

Effect of City Water and Sewera Facilities on Industrial Markets a Their Relation to the Market for Ai Conditioning Equipment. By O. Holleran, Chief, Industrial Marketi Unit, Marketing Research Division, B reau of Foreign and Domestic Co merce, U. S. Dept. of Commerce, Was ington, D. C. Market Research Seri No. 17, April 1938. Price 10 cents.

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The Ladle. Business journal for Ma ter Plumbers and Heating Contracto of New York State, 136 East 30th S New York, N. Y. Issues of Decembe 1937, and February, 1938.

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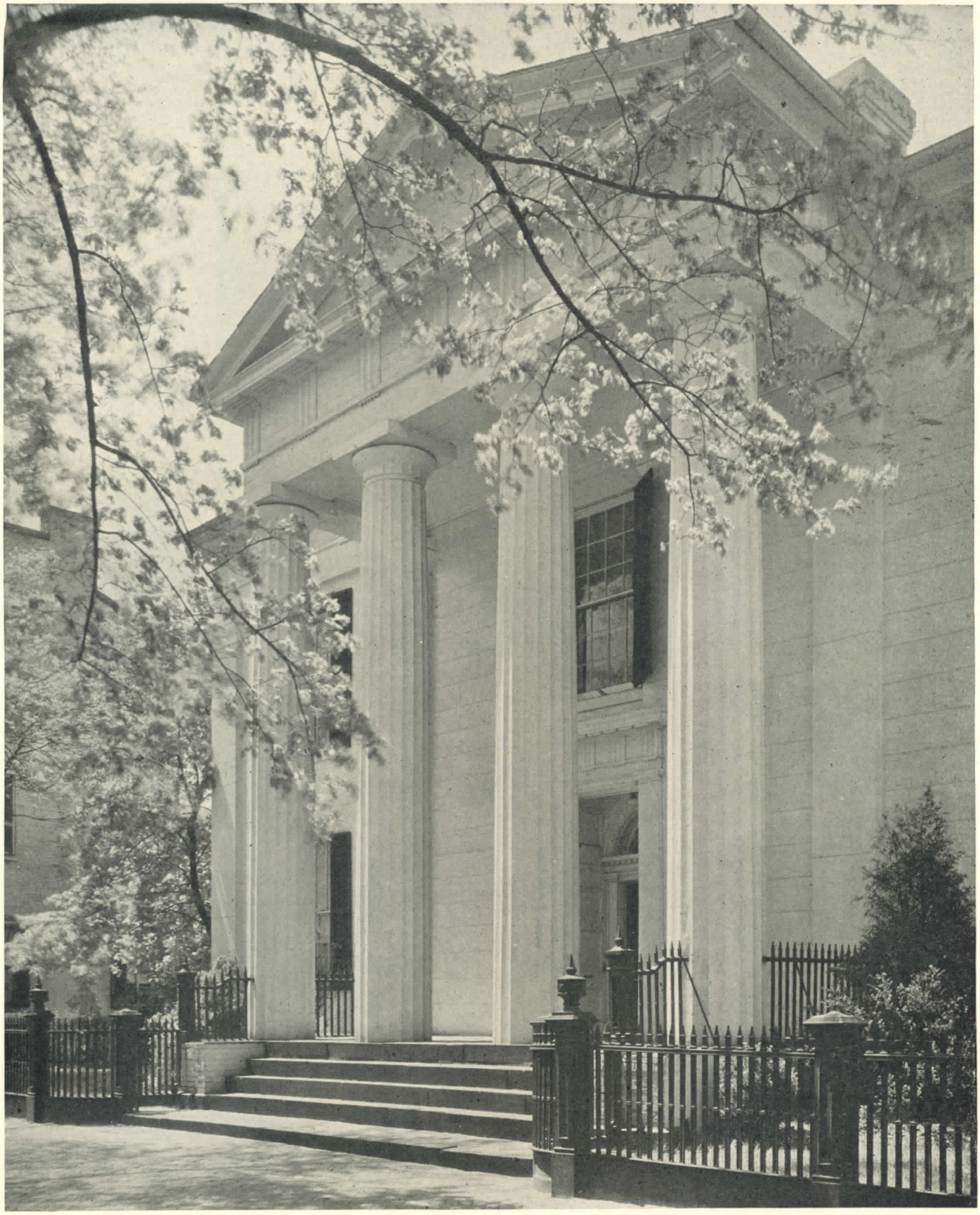
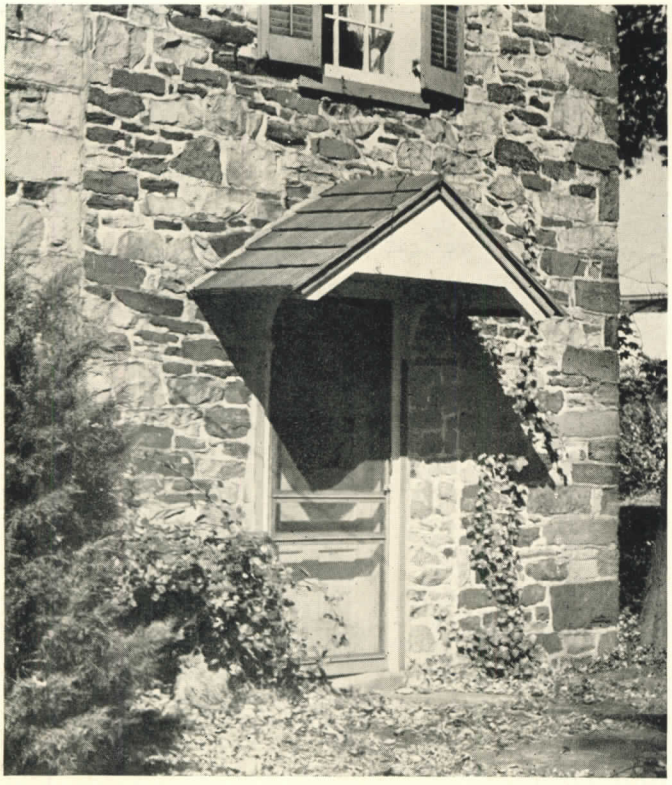


Frances Benjamin Johnston

RESIDENTIAL ENTRANCES



R. Tebbs

1

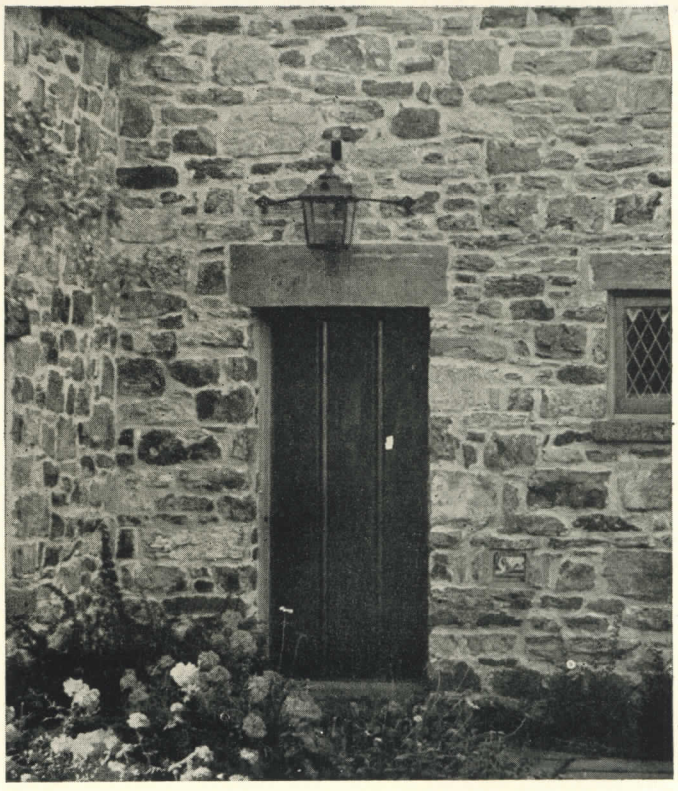
2

R. Tebbs

3

4

Early precedents that still appear contemporary: 1 is an entrance to a country house in Bucks County, Pa., that dates from 1760; 2, a town-house entrance, one of the oldest in Germantown, Pa.; 3, entrance of Revolutionary vintage in Newcastle, Del.; and, 4, one of many entrances in Nantucket, Mass., that are typical of early design in New England.



Van Anda

6

Ph. B. Wallace

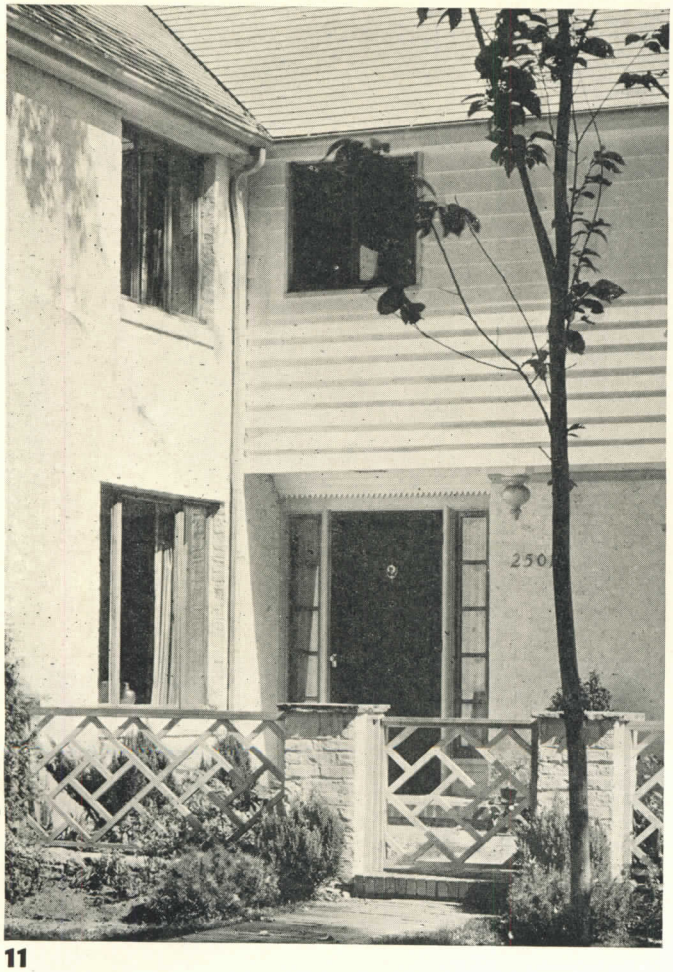
8

Contemporary entrances based on precedent: 5, a kitchen entrance, designed by John L. Volk, architect, at Palm Beach, Fla.; 6, at Gladstone, N. J., was designed by Perry M. Duncan, architect; 7, entrance to the library wing of a house in Bucks County, Pa., that dates from 1760; 2, a town-house entrance, Narbeth, Pa., designed by R. B. Okie, architect.

Paul J. Weber

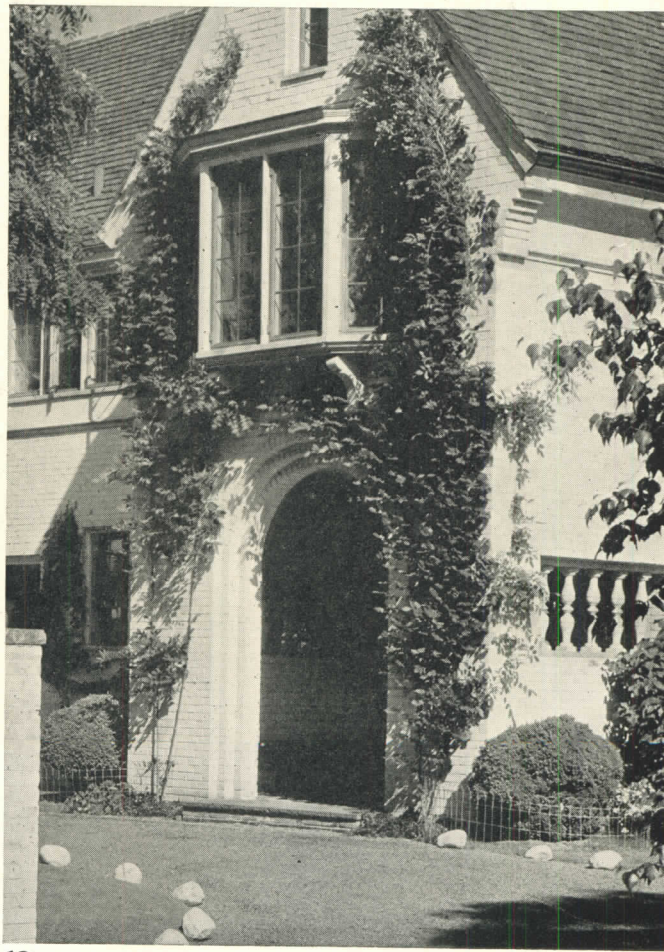
9

10



Hedrich-Blessing

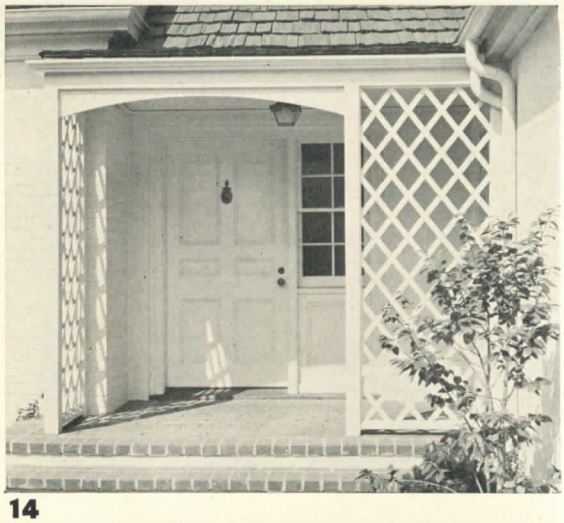
11



12

George Haight

13



George Haight

14

Gottscho

15

McBride & Anderson

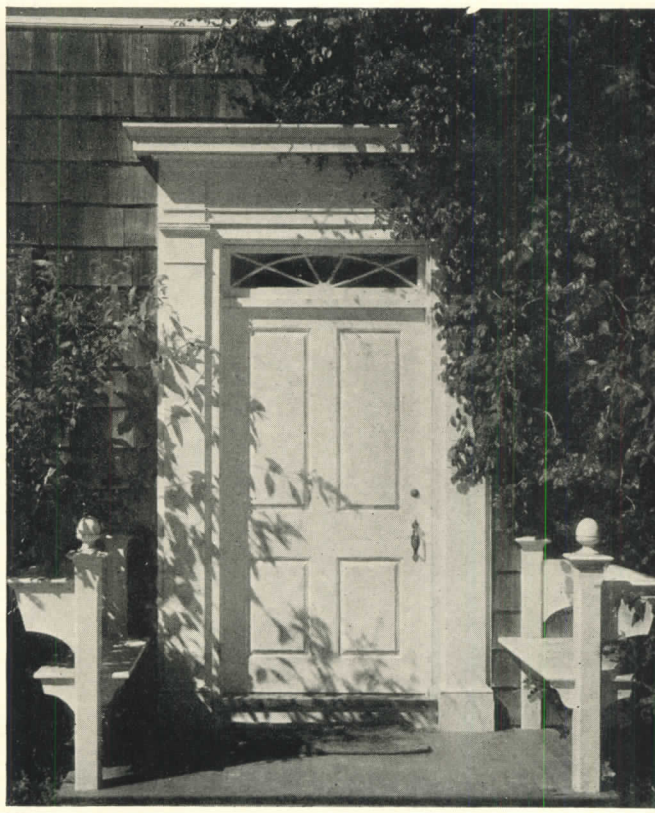
16

On facing page: 9, designed by Eugene J. Lang, architect for a house at Scarsdale, N. Y.; 10, main entrance to a Birmingham, Ala., house for which Warren, Knight & Davis were architects; 11, entrance to a small house at Evanston, Ill., designed by Perkins, Wheeler & Will, architects; 12, at Mill Neck, Long Island, N. Y., designed by Richard H. Dana, architect.

On this page: 13 is a small house entrance at Pasadena, Calif., designed by Donald D. McMurray, architect; 14, entrance designed by H. Roy Kelley, architect, for another small house at San Marino, Calif. 15 is at Palm Beach, Fla., designed by Treanor & Fatio, architects; and 16 is the main entrance to a small house at Seattle, Wash., designed by George Wellington Stoddard, architect.

Van Anda

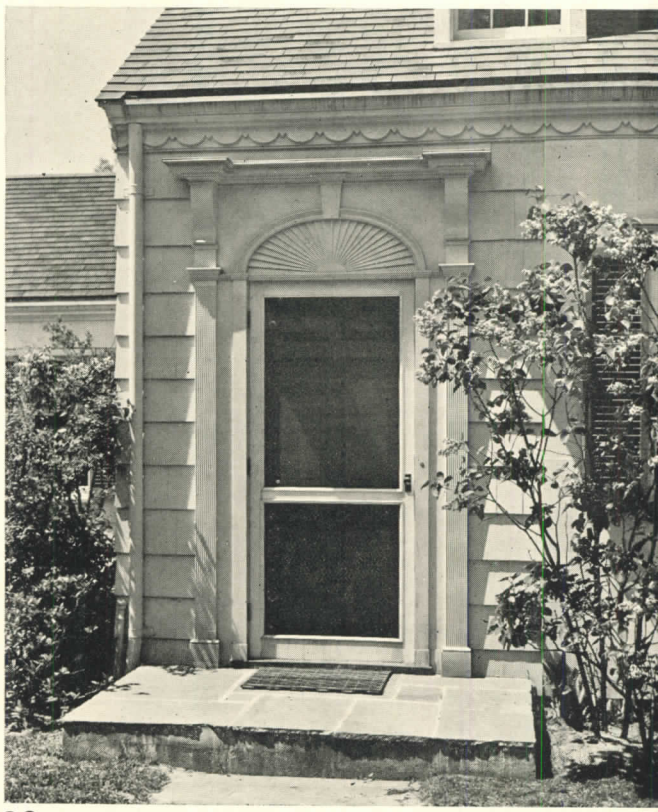
17



18

Gottscho

19



20

17 is an entrance to a house at Manhasset, Long Island, N. Y., for which Roger H. Bullard was architect. 18 was designed by James C. Mackenzie, architect, for a small house at Falmouth, Mass. 19 is the main entrance to one of a group of houses at Riverdale, N. Y., for which Dwight James Baum was architect; and 20 was designed by Cameron Clark, architect, for a house at Fairfield, Conn.

1

Gottscho

22

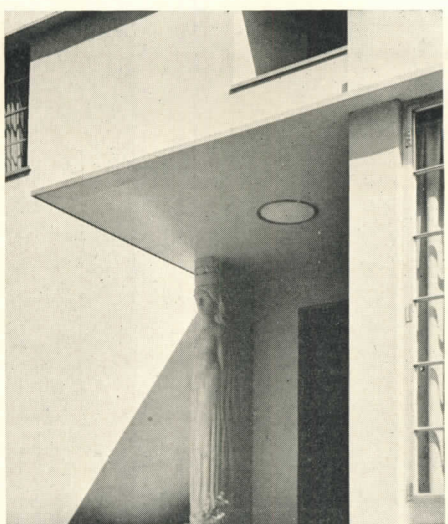
3

George Haight

24

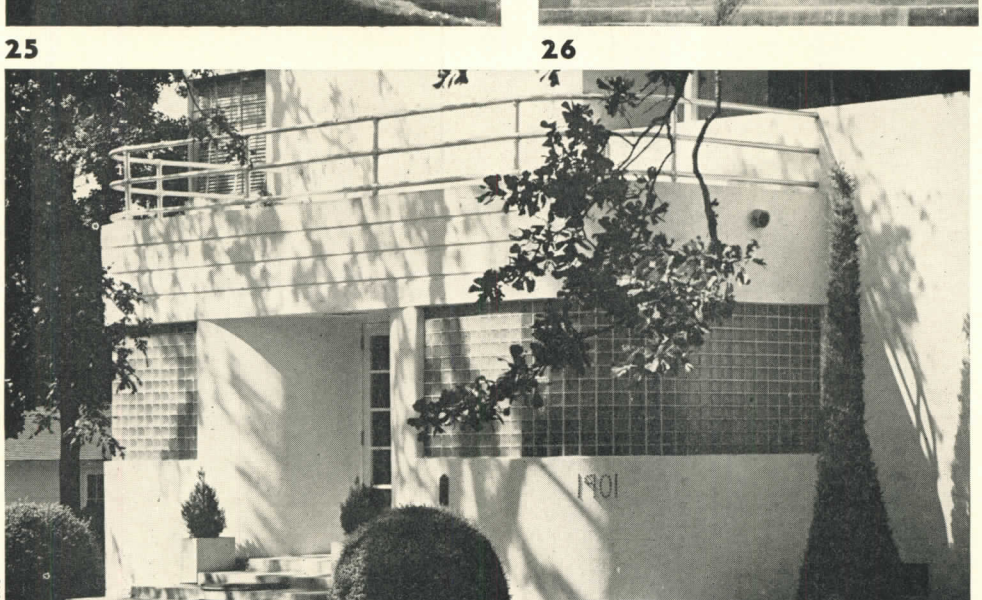
21 is an entrance to a prefabricated house at White Plains, N. Y., designed by Holden, MacLaughlin & Associates, architects; 22, a garden entrance to a large house at Locust Valley, Long Island, N. Y., for which Bradley Delehanty was architect. 23 shows carved wood detail on an entrance at Milwaukee, Wis., designed by Grassold & Johnson, architects; and 24 was designed by Roland E. Coate for a small house at Bel-Air, Calif.

25



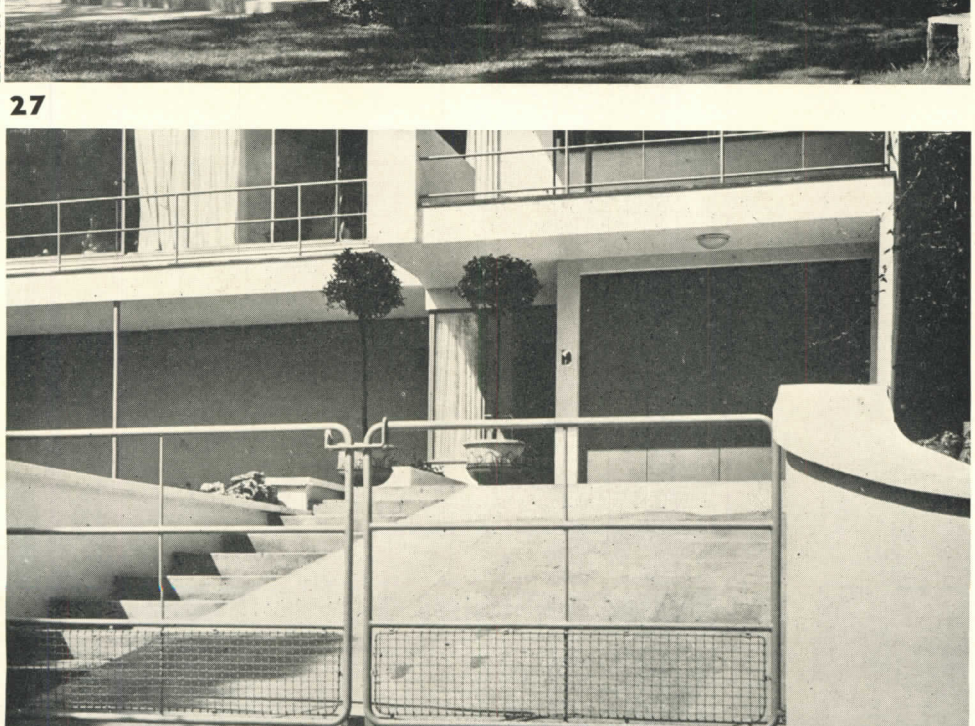
Gabriel Moulin

26



Edwards Studio

27



28

25 is a small house entrance at Madison, Wis., designed by Beatty & Strang, architects; and 26 was designed by J. R. Miller and T. L. Pflueger, architects, for a hillside house at San Francisco, Calif. 27 is in Tyler, Tex., and was designed by Hobart Plunkett, architect; and 28 the entrance to a house at Hampstead, England, designed by E. Maxwell Fry, architect

Current Trends of Building Costs

Compiled by Clyde Shute, Manager, Statistical and Research Division, F. W. Dodge Corporation, from data collected by E. H. Boeckh & Associates, Inc.

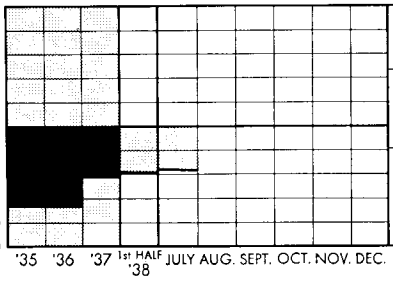
CURVES INDICATE control trends in the combined material and labor costs in the field of residential frame construction, the monthly curves being an extension of the local cost averages during the years 1935, 1936, and 1937. The base line, 100, represents the U. S. average for 1926-1929.

Tabular information gives cost index numbers relative to the 100 base for 9 common classes of construction, thus showing relative differences as to construction types for this year and last.

Cost comparisons or percentages involving two localities can easily be found by dividing one of the index numbers into the difference between the two. For example: if index A is 110 and index B, 95, (110-95)÷95 =.16. Thus costs in A are 16% higher than in B. Also costs in B are approximately 14% lower than in A: (110-95)÷110=.14.

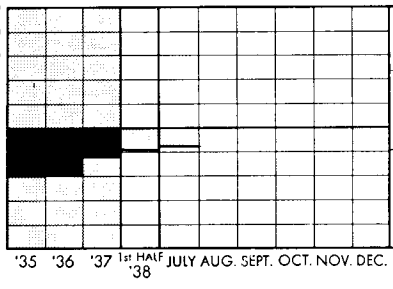
CONSTRUCTION COST INDEX U. S. average, including materials and labor, for 1926 - 1929 equals 100.

ATLANTA



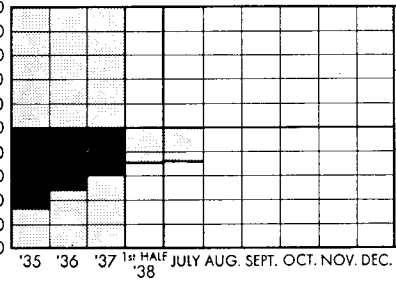
	July '37	July '38
Residences		
Frame	79.2	82.2
Brick	85.5	85.3
Apartments		
Br. & Wood	83.3	85.9
Br. & Conc.	93.8	96.4
Br. & Steel	93.3	96.8
Comm. & Fact.		
Frame	76.5	80.0
Br. & Wood	86.2	87.9
Br. & Conc.	96.4	98.5
Br. & Steel	94.7	97.8

BALTIMORE



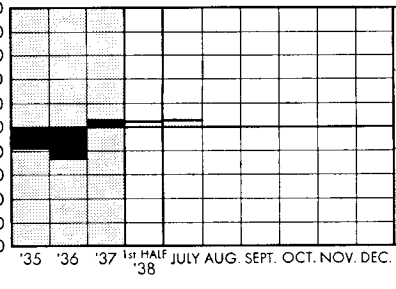
	July '37	July '38
Residences		
Frame	91.3	92.1
Brick	94.6	95.0
Apartments		
Br. & Wood	91.8	94.3
Br. & Conc.	93.3	98.6
Br. & Steel	94.4	98.6
Comm. & Fact.		
Frame	91.4	91.8
Br. & Wood	92.0	95.9
Br. & Conc.	91.5	99.0
Br. & Steel	95.0	100.6

BIRMINGHAM



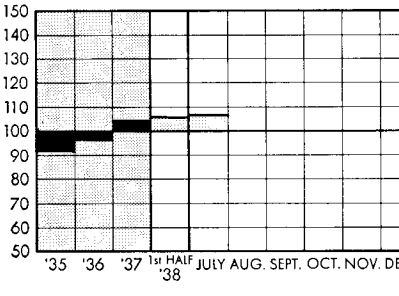
	July '37	July '38
Residences		
Frame	81.8	86.4
Brick	88.5	89.6
Apartments		
Br. & Wood	86.1	90.3
Br. & Conc.	92.0	96.5
Br. & Steel	91.2	93.6
Comm. & Fact.		
Frame	79.3	83.1
Br. & Wood	92.0	93.7
Br. & Conc.	94.0	96.5
Br. & Steel	92.6	96.3

BOSTON



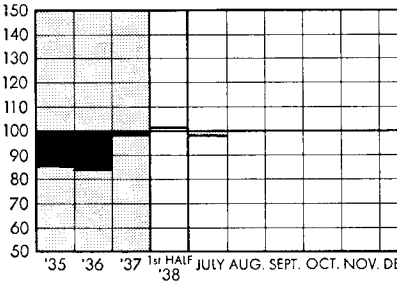
	July '37	July '38
Residences		
Frame	105.9	103.4
Brick	113.0	109.0
Apartments		
Br. & Wood	109.0	107.2
Br. & Conc.	113.0	113.9
Br. & Steel	110.9	111.3
Comm. & Fact.		
Frame	106.6	103.0
Br. & Wood	109.4	108.4
Br. & Conc.	114.6	115.3
Br. & Steel	116.8	115.8

CHICAGO



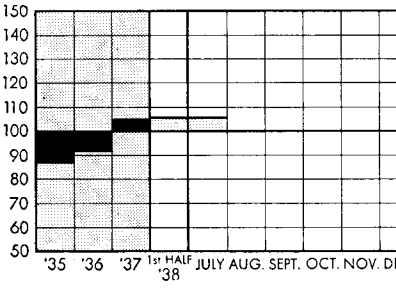
	July '37	July '38
Residences		
Frame	105.9	107.7
Brick	112.3	110.3
Apartments		
Br. & Wood	106.9	108.9
Br. & Conc.	119.8	123.0
Br. & Steel	114.0	118.0
Comm. & Fact.		
Frame	109.1	110.7
Br. & Wood	106.1	107.9
Br. & Conc.	124.0	127.1
Br. & Steel	118.7	122.9

CINCINNATI



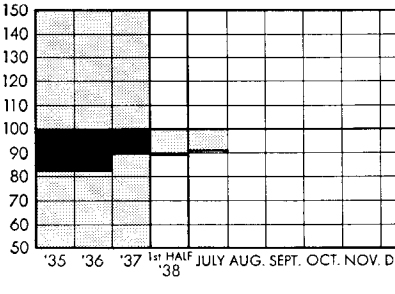
	July '37	July '38
Residences		
Frame	102.9	98.6
Brick	111.2	102.3
Apartments		
Br. & Wood	106.1	102.1
Br. & Conc.	111.3	112.2
Br. & Steel	108.8	108.6
Comm. & Fact.		
Frame	103.1	98.0
Br. & Wood	108.4	104.3
Br. & Conc.	115.0	114.3
Br. & Steel	113.6	112.7

CLEVELAND



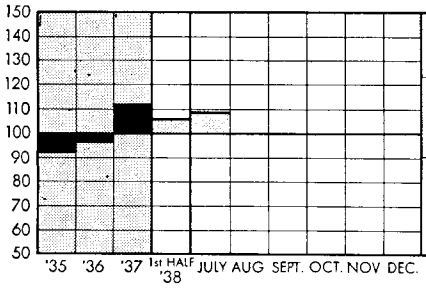
	July '37	July '38
Residences		
Frame	108.0	105.9
Brick	115.6	109.9
Apartments		
Br. & Wood	110.9	109.6
Br. & Conc.	111.3	116.4
Br. & Steel	112.1	113.5
Comm. & Fact.		
Frame	109.7	106.7
Br. & Wood	111.4	110.4
Br. & Conc.	119.7	119.5
Br. & Steel	118.4	118.7

DALLAS



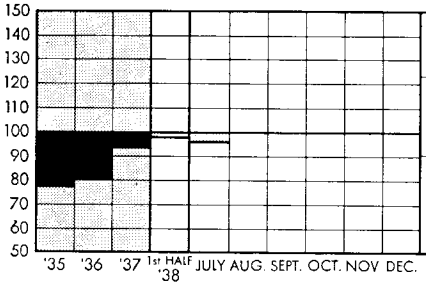
	July '37	July '38
Residences		
Frame	89.0	91.9
Brick	94.9	93.0
Apartments		
Br. & Wood	92.0	93.5
Br. & Conc.	93.0	98.5
Br. & Steel	93.9	98.5
Comm. & Fact.		
Frame	87.5	91.4
Br. & Wood	93.9	93.9
Br. & Conc.	93.8	98.2
Br. & Steel	95.4	100.3

DENVER



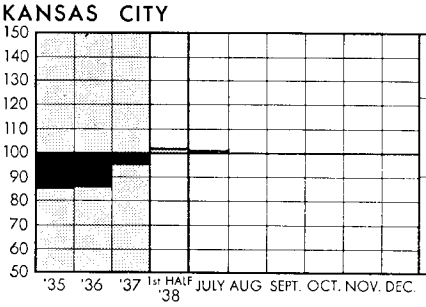
	July '37	July '38
Residences		
Frame	117.6	109.2
Brick	120.6	110.0
Apartments		
Br. & Wood	115.2	105.3
Br. & Conc.	116.0	114.8
Br. & Steel	115.2	113.2
Comm. & Fact.		
Frame	121.2	111.3
Br. & Wood	111.8	107.0
Br. & Conc.	117.6	116.1
Br. & Steel	119.0	106.8

DETROIT



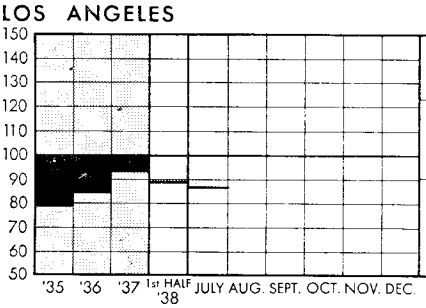
	July '37	July '38
Residences		
Frame	95.3	96.3
Brick	101.8	100.8
Apartments		
Br. & Wood	98.1	101.1
Br. & Conc.	105.3	108.4
Br. & Steel	102.8	107.2
Comm. & Fact.		
Frame	96.6	96.0
Br. & Wood	97.9	103.0
Br. & Conc.	108.7	110.1
Br. & Steel	108.4	112.0

KANSAS CITY



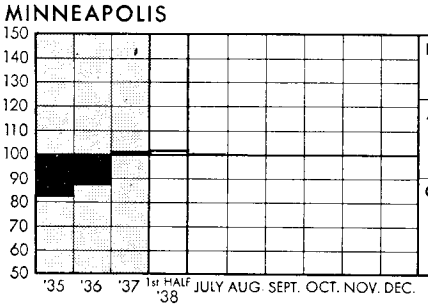
	July '37	July '38
Residences		
Frame	94.0	101.2
Brick	102.9	107.2
Apartments		
Br. & Wood	99.8	107.0
Br. & Conc.	109.1	117.8
Br. & Steel	106.7	114.8
Comm. & Fact.		
Frame	92.2	100.5
Br. & Wood	103.5	110.4
Br. & Conc.	112.0	121.2
Br. & Steel	113.0	119.0

LOS ANGELES



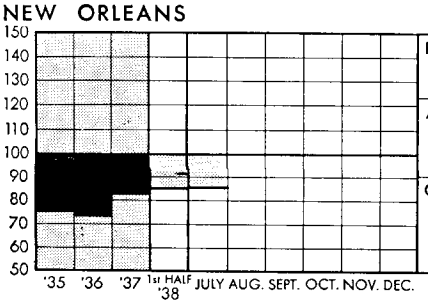
	July '37	July '38
Residences		
Frame	89.8	87.8
Brick	94.4	94.3
Apartments		
Br. & Wood	91.3	94.7
Br. & Conc.	97.1	102.3
Br. & Steel	98.3	103.9
Comm. & Fact.		
Frame	89.9	92.2
Br. & Wood	90.4	93.8
Br. & Conc.	97.3	102.3
Br. & Steel	100.1	105.9

MINNEAPOLIS



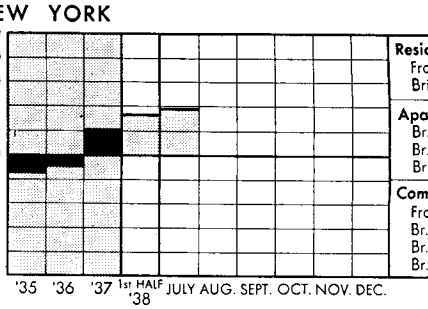
	July '37	July '38
Residences		
Frame	104.7	100.5
Brick	110.8	106.5
Apartments		
Br. & Wood	106.5	103.2
Br. & Conc.	112.5	112.9
Br. & Steel	110.6	110.6
Comm. & Fact.		
Frame	106.4	101.3
Br. & Wood	104.6	102.9
Br. & Conc.	115.8	116.6
Br. & Steel	115.6	114.4

NEW ORLEANS



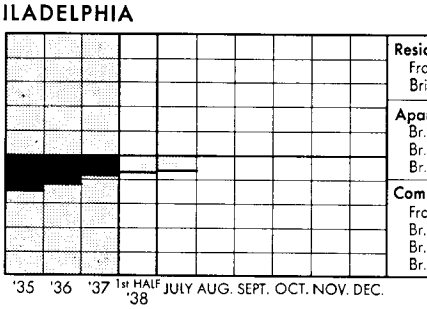
	July '37	July '38
Residences		
Frame	84.9	86.8
Brick	88.2	87.9
Apartments		
Br. & Wood	86.0	89.1
Br. & Conc.	87.7	92.9
Br. & Steel	91.3	96.2
Comm. & Fact.		
Frame	84.6	85.5
Br. & Wood	85.8	89.6
Br. & Conc.	86.0	92.0
Br. & Steel	93.5	96.6

NEW YORK



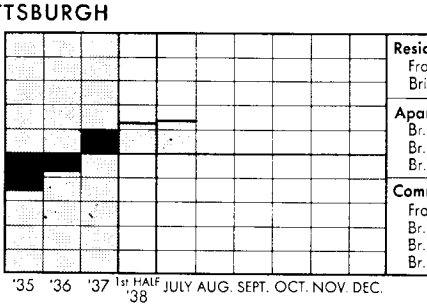
	July '37	July '38
Residences		
Frame	116.2	119.3
Brick	121.6	121.1
Apartments		
Br. & Wood	116.7	119.5
Br. & Conc.	126.2	128.2
Br. & Steel	122.1	123.8
Comm. & Fact.		
Frame	119.1	122.7
Br. & Wood	113.9	116.3
Br. & Conc.	127.6	130.3
Br. & Steel	126.4	128.1

PHILADELPHIA



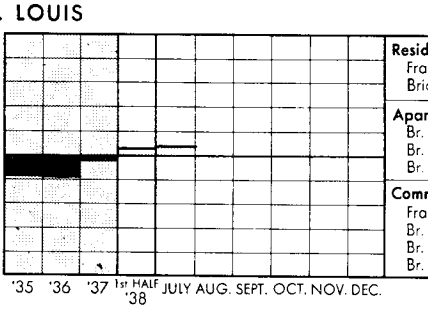
	July '37	July '38
Residences		
Frame	91.9	93.9
Brick	98.5	98.4
Apartments		
Br. & Wood	95.9	98.5
Br. & Conc.	98.2	105.3
Br. & Steel	98.6	102.7
Comm. & Fact.		
Frame	90.0	91.3
Br. & Wood	97.8	102.5
Br. & Conc.	100.6	107.9
Br. & Steel	101.2	105.0

PITTSBURGH



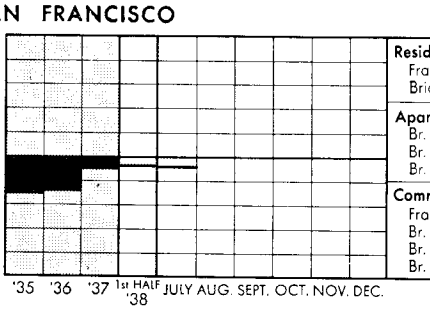
	July '37	July '38
Residences		
Frame	112.7	113.2
Brick	119.2	116.8
Apartments		
Br. & Wood	114.7	115.1
Br. & Conc.	113.1	117.2
Br. & Steel	109.5	113.8
Comm. & Fact.		
Frame	112.1	113.4
Br. & Wood	116.7	116.0
Br. & Conc.	114.2	119.0
Br. & Steel	108.9	117.3

ST. LOUIS



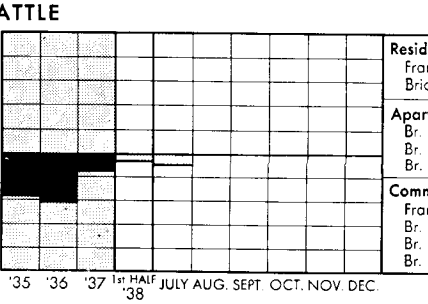
	July '37	July '38
Residences		
Frame	98.3	103.3
Brick	119.6	107.4
Apartments		
Br. & Wood	104.0	107.3
Br. & Conc.	114.3	118.3
Br. & Steel	112.3	115.8
Comm. & Fact.		
Frame	98.1	113.3
Br. & Wood	105.8	108.3
Br. & Conc.	118.7	119.6
Br. & Steel	118.6	119.4

SAN FRANCISCO



	July '37	July '38
Residences		
Frame	96.4	97.5
Brick	104.9	105.4
Apartments		
Br. & Wood	101.5	102.3
Br. & Conc.	110.7	116.0
Br. & Steel	109.3	112.5
Comm. & Fact.		
Frame	95.0	95.9
Br. & Wood	103.9	105.9
Br. & Conc.	114.8	120.9
Br. & Steel	113.1	116.2

SEATTLE



	July '37	July '38
Residences		
Frame	94.4	95.4
Brick	105.5	103.4
Apartments		
Br. & Wood	102.6	103.0
Br. & Conc.	119.4	119.9
Br. & Steel	115.2	115.6
Comm. & Fact.		
Frame	91.4	92.8
Br. & Wood	108.9	107.8
Br. & Conc.	124.3	126.2
Br. & Steel	122.6	120.4

Trend Notes on a Building World

Each month these pages record significant developments in the realm of design and in the fields of materials, equipments, and services.

ALLOYS AND METAL MAGIC

BECAUSE THEY HELP to provide innumerable necessities and comforts of today, alloys rule more of our lives than most of us probably realize. A suspension bridge is made possible by alloyed cable strands; and an alloy pen point makes writing easier. Little-known metals as beryllium, tungsten, iridium, molybdenum, platinum, and many others have properties that amazingly change or reinforce those of ordinary metals as copper, iron, aluminum, and zinc.

Scientists say, however, that we still have hardly touched the potentialities of their use. They talk of alloys lighter than aluminum, far stronger than steel in comparable cross section, readily workable, and highly resistant to corrosion. As for research possibilities for their manufacture and use, extraordinary things are happening in scientific laboratories.

To study the basic physical properties of little-known metals and thereby to discover how they can be used industrially, Dr. Ralph H. Hultgren of Harvard has invented a new electron furnace to heat metals to 4500° F., or nearly half the heat of the sun.

Another Harvard man, Prof. P. W. Bridgman, has found a way to apply pressures of about three-quarters of a million pounds per square inch to produce allotropic forms of numerous substances, including metals.

Gold has been turned into radioactive mercury and copper into radioactive zinc by the modern alchemy of Dr. Lee A. Dubridge at the University of Rochester. He accomplished his experiments with a 5,500,000-volt atom smasher called a cyclotron. The metals were changed through disintegration by a proton beam. According to Dr. Dubridge, such experiments open up new fields of understanding the characteristics of metals and give new knowledge regarding possibilities for a vast array of new alloys, qualities of which could be predicted in large measure.

Today industry is laboriously searching for such new and better alloys. Pure science is no less active; and tomorrow we may be building far beyond our present dreams because of products made available through experiments of each.

For example, Dr. Byron E. Eldred, president of the Engineering Society, has developed a method of casting metal by latent heat applied from within in contrast to the present method of applying heat from without. Dr. Eldred's method may revolutionize the metal-casting industry, for it is said to produce, directly from molten metal, castings of vastly improved quality free from voids and defects.

TWO METAL PRODUCTS designed to simplify construction have recently been announced. One, manufactured by the K-M Building Products Co., of Milwaukee, Wis., is a furring anchor consisting of a malleable cast-iron bracket which fits into a sheet steel socket. The K-M anchor is adjustable and can be installed in both masonry and concrete construction.

The other device, made by the Fanner Manufacturing Co. of Cleveland, Ohio, is a combination of a safety hook bolt head and deep washer to convert ordinary bolts into hook bolts.

EQUIPMENT

OIIL-HEATING PLANTS are now being simplified, made more efficient, more compact. Among recent announcements of new units are: 1. The "Model F. C. R. Oilfurnace", a winter air-conditioning unit by The Timken-Detroit Axle Co. of Detroit, Mich. Built specifically for small houses, the unit heats, humidifies, cleans, and circulates air under fully automatic control, burning one gal. of oil per hr. at top capacity. The same company announces a low-priced rotary oil burner—"Model F" —rated at 575 sq. ft. of EDR steam and designed as a conversion unit for small houses; 2. The "Gilbarco Model FBS80" by the Oil Burner Division, Gilbert and Barker Manufacturing Co. of Springfield, Mass. This unit is a low-capacity (80,000 B.t.u. per hr. at register) winter air-conditioning plant for small houses. A new summer portable air-conditioning cabinet—"Gilbarco GB90 Air Conditioner"—is available from the same company. Among the features is an adjustable 3-way directional air flow control.

A NEW GAS-FIRED steam and hot-water boiler is announced by the York Ice Machinery Corp. of York, Pa., as one unit of a complete line of heating and winter air-conditioning equipment that will be known as "Yorkaire Heat." The gas-fired boiler is available in eight sizes and is completely automatic.

ANOTHER GAS-FIRED UNIT is now available from the C. L. Bryant Corp., Cleveland, Ohio. The new plant combines a furnace and devices for complete winter air conditioning. Controls are automatic and the assembly has an efficiency rating of 80% according to the manufacturer's announcement.

AN AIR PURIFIER which cleans and circulates air has been perfected by Airtemp, Inc., Dayton, Ohio. Called "Clean-Breeze", the unit is designed for installation in an open double-hung window and can be operated by plugging into any light socket.

AN ELECTRIC DOOR CHIME, designed with short tubes to conserve wall space, is now available from The A. E. Rittenhouse Co., Inc., Honeoye Falls, N. Y. Called "The Sentinel Model", it is offered in both single- and double-purpose types.

(*Continued on page* 128)

FORTHCOMING 1938 STUDIES: Apartments — September; Houses ($15,000–$25,000) — October; Houses ($25,000 and up) — November; Office Buildings — December. PRECEDING 1938 STUDIES: Theaters — July; Factories — June; Schools — May; Houses ($7,500–$15,000) — April; Houses ($7,500 and under) — March; Retail Stores — February; Hotels — January.

ARCHITECTURAL RECORD
COMBINED WITH
AMERICAN ARCHITECT AND ARCHITECTURE

CHRONIC HOSPITALS

By ISADORE ROSENFIELD, *Senior Architect, New York City Department of Hospitals*

In collaboration: Edward M. Bernecker, M.D., General Medical Superintendent; Karl M. Bowman, M.D., Director, Psychiatric Division; Allen A. Kane, M.D., Director, Division of Tuberculosis; James Rosen, M.D., Director, Bureau of Investigations. Institutions analyzed herein were done under the direction of: Department of Hospitals, S. S. Goldwater, M.D., Commissioner; The Hospital Planning and Construction Board; Mr. Rosenfield as Senior Architect; and the following architects: Welfare Hospital, Butler, Kohn, York and Sawyer; Triboro Hospital for Tuberculosis, Eggers and Higgins; Kings County Psychiatric Pavilion, Tachau and Vought; Convalescent Day Camp, William Gehron.*

HOSPITAL institutions are generally spoken of as *acute, chronic,* and *convalescent.* There are no sharp demarcations between groups, but it may be said that persons afflicted with temporary but sharp illnesses are in the "acute" class. The average general, contagious or maternity hospital is an "acute hospital." Convalescents are those whose disease has been sufficiently arrested so as not to require active nursing and therapy. These are—or should be—cared for in custodial homes, sanatoria, "day camps", or clinics.

Who are the chronics?

Chronics are those who suffer from illness which lingers. Suffering involved may be no less acute, but the length of hospital stay may last from a month to three years, an average being three months. Chronic types are generally grouped as (1) *psychiatric,* (2) *tuberculous,* and (3) *all others.* In the last group are those suffering from cancer, neurological disturbances, diabetes, cardiac, digestive disorders or glandular disorders, and many other diseases. Mental and tuberculous cases, long recognized as special groups, have been more or less specially provided for.

Why emphasis on chronics?

Few private agency hospitals exist for specialized or general chronic types, so that a sharp disproportion between facilities for acute and chronic patients results. Most chronics, if they find their way to a hospital at all, find themselves in a general public hospital: in other words, in a hospital intended for acute cases. As the facilities of such institutions are limited the following evils result: beds intended for the acute are frequently occupied by the chronic; medical attention and research are concentrated on the more "interesting" acute cases, resulting in comparative, even tragic, neglect of chronics and in little scientific knowledge of the nature of chronic illness and how to combat it.

Recent surveys of hospitalization disclose a substantial need as far as the chronics are concerned.**

Evolution of institutions for chronics

For some time the average civilized community has recognized the insane and the tuberculous as chronic categories requiring separate institutions. With minor exceptions these remain the only types of special institutions. At first, even though specialized, they were primarily custodial in nature. Their chief therapeutic value lay in the fact that under proper management they provided conditions (food, rest, and fresh air) which aided natural recovery. Sanatoria for the tuberculous and sanitaria for the mentally ill were situated in the country, preferably in mountains or near the seashore. For the tubercular, some authorities believed only one or the other type of environment was conducive to "cure."

In the nineteen-twenties knowledge acquired of many new forms of diagnosis and active therapy led to a new conviction applicable to various chronic illnesses. Remote sanatoria are not convenient for more active forms of therapy, which require experts in the fields of roentgenology, surgery, serology, etc. Such experts are to be had and can be conveniently trained in large centers of culture—i.e., cities. Consequently, special hospitals have recently developed within or close to cities for treatment of chronic diseases. Sanatorium treatment is today preferred, either for those showing that they could not benefit from active therapy or for convalescents.

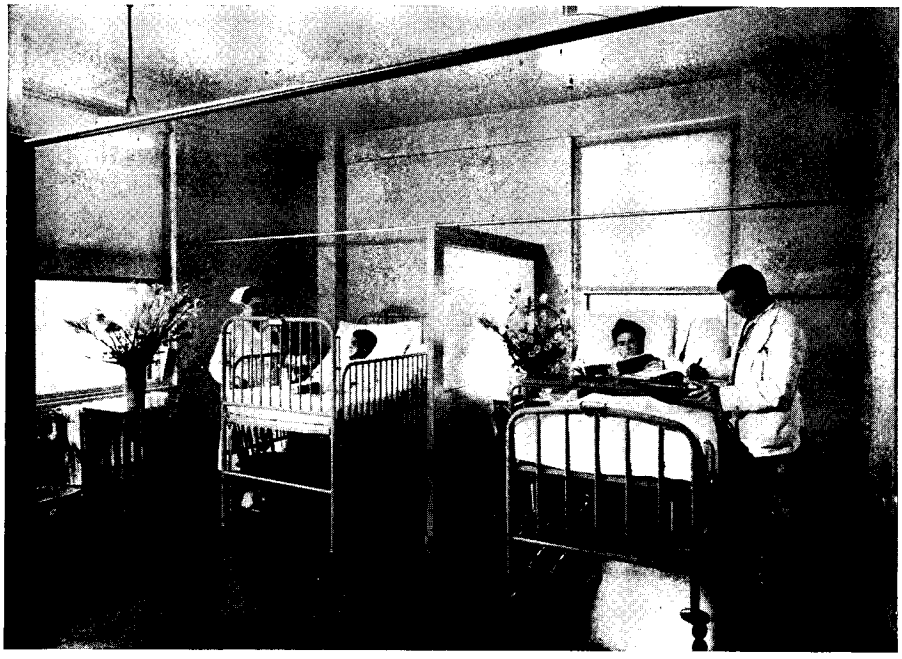
Most people—unless they are well to do—go to clinics or outpatient departments when they first observe signs of illness. Frequently, if their condition and home environment permit, they need not be confined to hospitals. Yet, if left to medication alone, hospitalization may become necessary. Particularly among children, malnutrition and other conditions exist which, if neglected, result in ultimate hospitalization. In short, many cases require something between a clinic and a hospital. A similar need is observed after hospitalization. Convalescent institutions are not always the best answer, and more frequently, are not available to the underprivileged. Day camps fill this need.

*Information presented on pages 86-91, 95-99 and *104-107* was obtained from the New York City Department of Hospitals.

**Reports published by the United States Public Health Service state that in this country one person in six suffers from chronic disease. Families with incomes below $3,000 yearly average three times the number of days lost because of chronic illness as compared with higher income groups. This indicates the need for chronic institutions.

General Chronic Hospitals

TIME-SAVER STANDARDS



Warts Bros.

Typical ward, Meadowbrook Hospital, Eggers & Higgins, Architects

GENERAL CHRONIC hospitals make rovisions for many afflictions requir- ng highly specialized medical treat- ent. Design standards are, how- ver, relatively appropriate to the arious patient classifications.

ocation and orientation

The site should be as open as pos- ble, with pleasant views; perman- nce of these factors is important. Easy accessibility and cheap trans- ortation are desirable since visits rom friends and relatives are en- ouraged, and most persons coming o the institution have relatively low ncomes. These considerations point o a semirural location convenient to rolley-car, bus, or subway lines.

Ward units should be placed so hat patients' quarters face the best iew, preferably toward the south. Arrangements which force patients in ne building to look into the rear of nother building are to be avoided.

Administration units should prefer- bly be centrally located with respect o ward units, but such accessory tructures as heating plant, nurses' ome, etc., should lie preferably omewhat removed from the ward nit area, and so situated as not to in- terfere with the view and sun ex- posure of the ward units.

Circulation

Patients, visitors, and services should, if possible, each have sepa- rate entrances for ease of control, and avoidance of cross circulation, crowd- ing, and confusion. Main circulation which traverses nursing units and other work centers interferes with hospital procedure. "Cul-de-sac" ar- rangements are preferable, with each department forming a dead end. This permits main traffic to bypass work- ing units without interfering.

About 50% of chronic patients are ambulant; hence, for accessibility to grounds, ward buildings should be low. From this point of view two- story structures are considered ideal. If higher buildings are required be- cause of land or other costs, four stories are considered desirable. In four-story ward units bedridden pa- tients can be accommodated on the two top floors, half of the ambulant patients one flight of stairs from the grounds, remainder at ground level.

Administration: check list

Superintendent's, nurse super- visor's, assistants' and secretaries' offices; office supplies storage; doc- tors' lounge and medical library, rest rooms for nurses and help, locker rooms; toilets for public and staff; information desk opening from main lobby; call systems.

Housekeeping: housekeepers' of- fice; general storage; soiled linen, clean linen, bedding, patients' cloth- ing and oxygen tank storage; male help's, female help's and nurses' lockers; sterilizing room for bedding, clothing, etc.

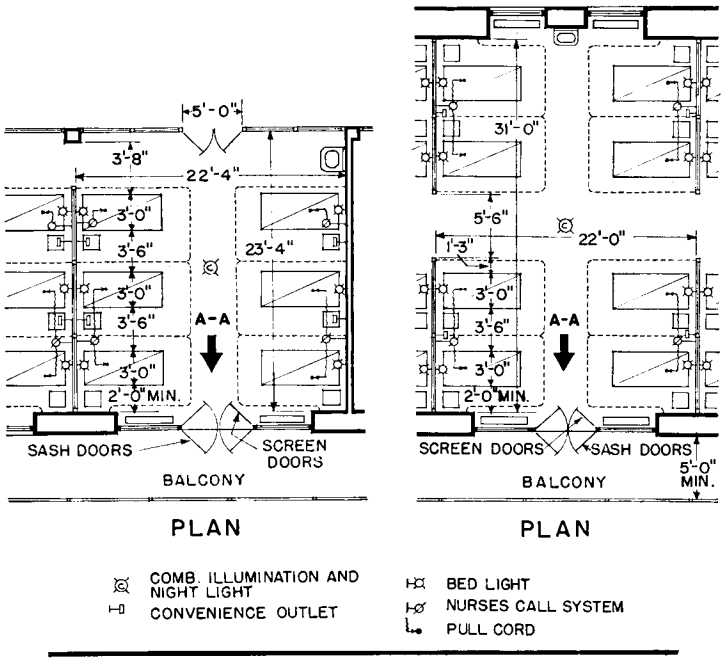
Treatment units: check list

Dental: Waiting, extraction, oper- ating and receiving rooms; dentists' office; on upper floor. (See "Stand- ards for Dental Offices", ARCHITEC- TURAL RECORD, Dec. 1937, Building Types, pp. 116-118.)

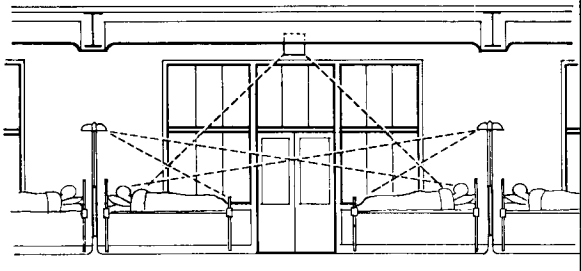
Therapy: Waiting lobby and adja- cent office; physiotherapy, hydro- therapy, occupational therapy rooms; library; exercise room; toilets; all usually on an upper floor.

X-ray: Waiting lobby; rooms for fluoroscopy, radiotherapy, cystoscopy, cardiography, deep and superficial radiotherapy; film loading, develop- ing, viewing, storage and supply rooms; roentgenologist's and secre- tary's offices; all on an upper floor.

Nursing Units



TYPICAL WARDS: Scale, plans, 1/16" = 1'-0"; section, 1/8" = 1'-0"



WARD LIGHTING: Ceiling fixture furnishes both general and night lighting.

NURSING UNITS generally include: 1 large and several smaller wards; 1 or 2 isolation rooms; nurses' station, utility room, treatment room, serving kitchen, linen and locker rooms; patients' bath, showers, toilets; staff toilets.

Wards

Wards should be located on that side of building with best exposure.

Nurses' station

There should be one per nursing unit, situated to oversee as many beds as possible. Seating and counter space should accommodate two people. Minimum wall cabinets include two compartments: one for narcotics, one for ordinary medicines. All drawers and doors should be equipped with locks, particularly the narcotics cabinet.

Balconies, decks, terraces

Provide maximum areas of this type, some directly accessible from each ward; door openings and balconies approximately 5 ft. wide will permit beds to be moved out parallel to walls and will accommodate reclining chairs, etc. If beds are to be placed endwise to building, 10 ft. is required for each single row, 17 ft. for two rows plus an aisle.

Treatment room

At least one treatment room per floor is desirable; one for each nursing unit is preferred; it may be located on north side of corridor. Minimum equipment includes handwashing lavatory and instrument sterilizer. The equipment shown opposite is preferred for a treatment room used for teaching demonstration.

Utility room

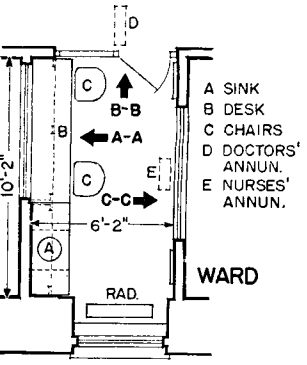
Location should be as central a possible to beds served; one mai utility room per nursing unit is re quired. If plan of nursing unit i elongated, one or more subutilit rooms, equipped primarily for bedpa technique, may serve remote wards.

Ward laboratory

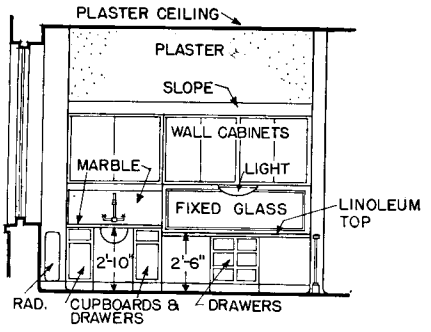
Routine duties of blood, urine an similar examinations are made fo convenience, on the patients' floor. I the nursing units on one floor ar small, laboratories may be placed o alternate floors.

Day room

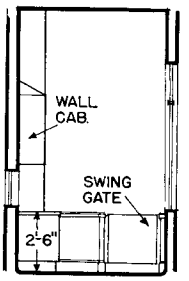
Maximum window area is requi site. Rooms usually contain reclinin chairs, small tables, magazine racks etc. One day room per nursing un is required, located to a good view



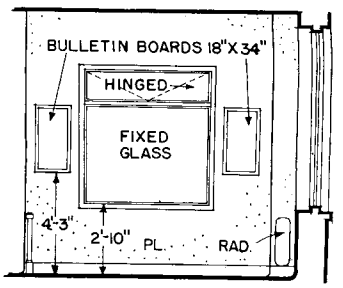
PLAN



SECTION A-A

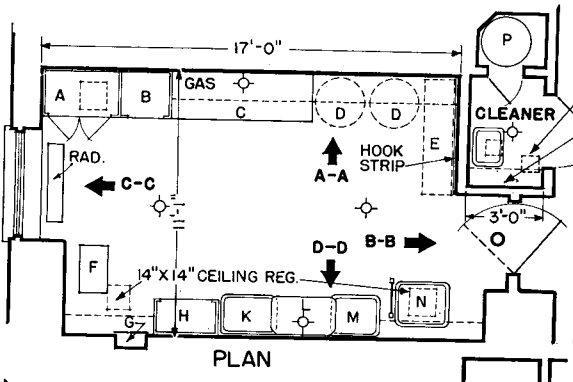


SECTION B-B



SECTION C-C

NURSES' STATION: Scale, 1/8" = 1'-0"



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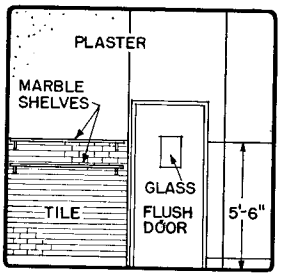
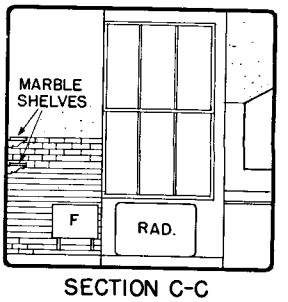
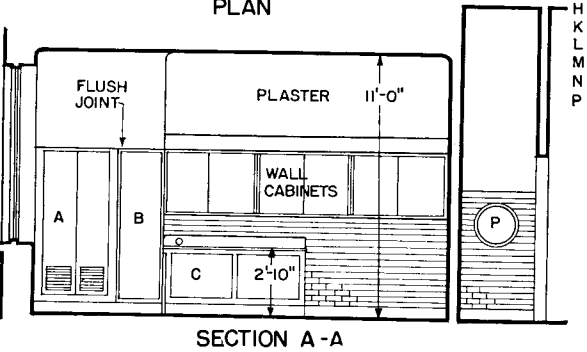


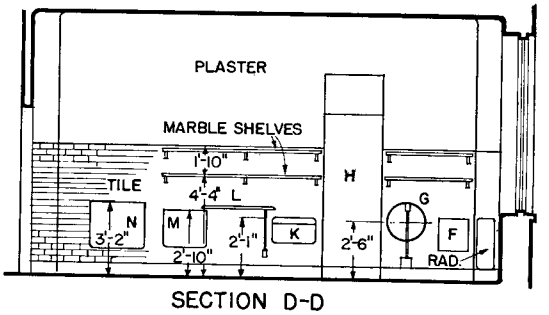
SECTION B-B



SECTION C-C

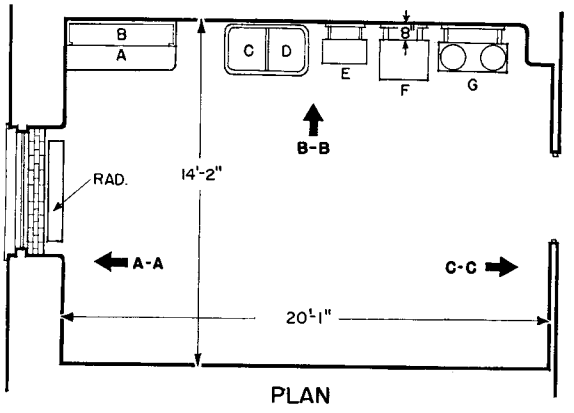


SECTION A-A



SECTION D-D

UTILITY ROOM: Scale, 1/8" = 1'-0"



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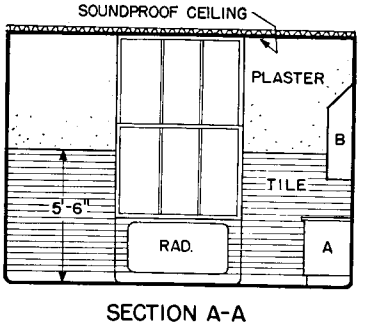
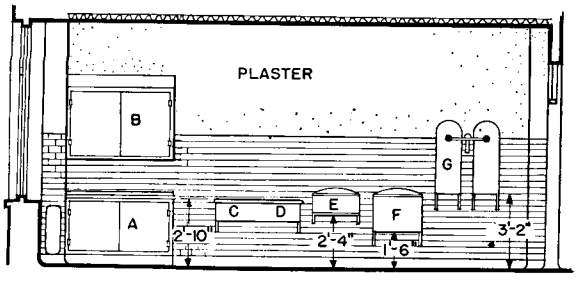


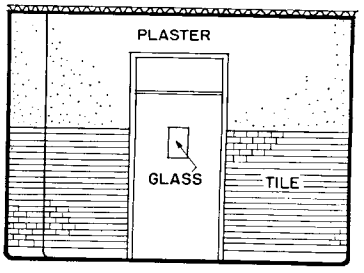
SECTION A-A

TREATMENT ROOM: Scale, 1/8" = 1'-0"

A LOW CABINET
B HIGH CABINET
C SINK
D INSTRUMENT TRAY } 42"X 24"
E INSTRUMENT STERILIZER
F UTENSIL STERILIZER
G WATER STERILIZER, 6 GAL.

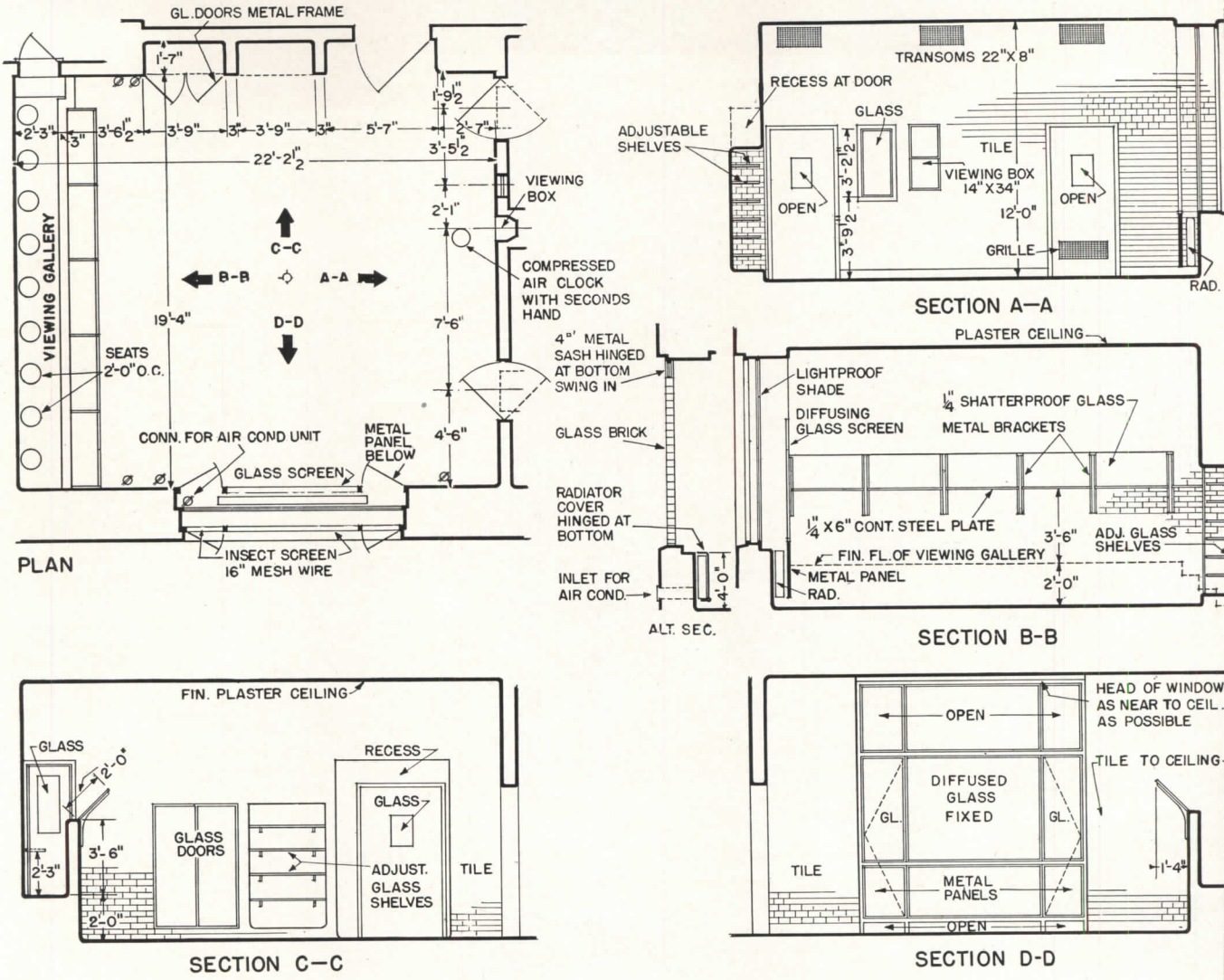


SECTION B-B



SECTION C-C

TIME-SAVER STANDARDS Operating Units



OPERATING ROOM: Scale, ⅛" = 1'-0"

THIS DEPARTMENT comprises one or more operating suites; anesthetic room, instrument-washing and storage rooms; nurses' work and saline solution rooms; doctors' lockers; possibly waiting rooms for guests and blood donors.

The department should be readily accessible to patients concerned, either by being on same floor with them or by elevator. Location preferred is a "dead end" or cul-de-sac, the corridor of which is under no circumstances to be used as a thoroughfare. The top floor is preferable.

Operating rooms

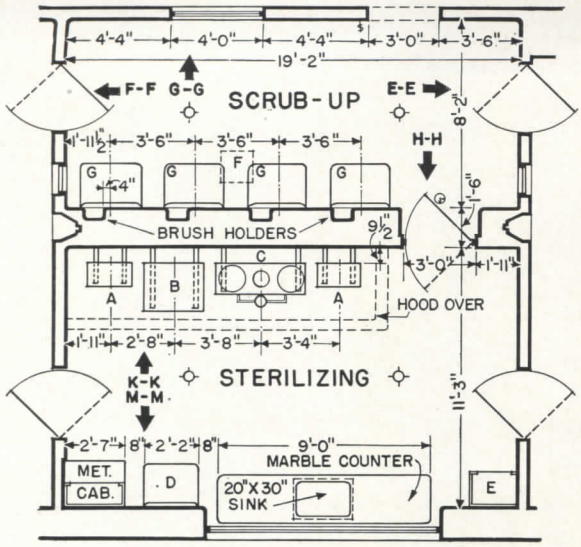
At least one operating room is essential; two are desirable, one for clean and one for septic cases. The next addition would be a room for minor surgery. The number of operating rooms required depends not on the number of patients, but on the number of patients on the surgical service, the general nature of the surgical cases, the average length of time typical operations take, whether they are emergency operations or not, whether the operating staff is available at all hours or in limited hours, etc.

Sterilizing and scrub-up

One sterilizing and one scrub-up room for two operating rooms, should be provided. When operating rooms cannot be paired, each operating room must have its own scrub-up and sterilizing rooms. There must be, in addition, regardless of the size operating department, a workroo for nurses and facilities for sterilizi drums of gauze and large object facilities for doctors and nurses change clothes, and to clean up a bathe.

Saline solution room

This room is included in extensi operating departments. Its purpo is the making of distilled water whi is used for various purposes in t and other departments of the hospit It is used here principally for t preparation of saline solutions. Th solutions must be kept in a warmi cabinet. This room is also used storing of equipment and for vari minor purposes.



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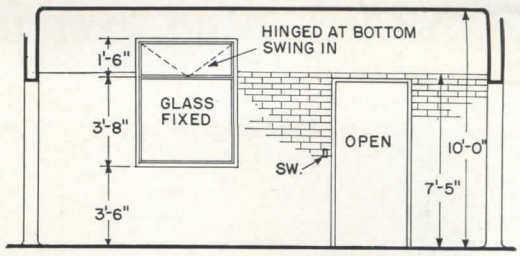
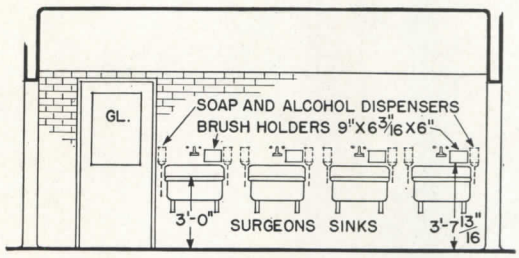
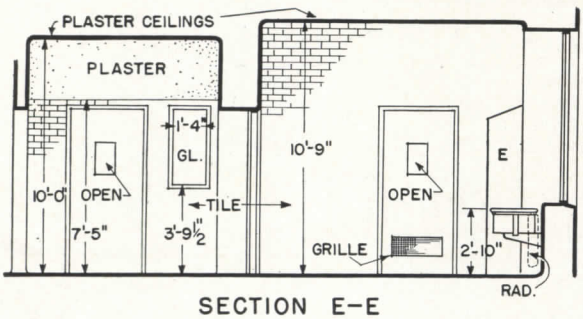


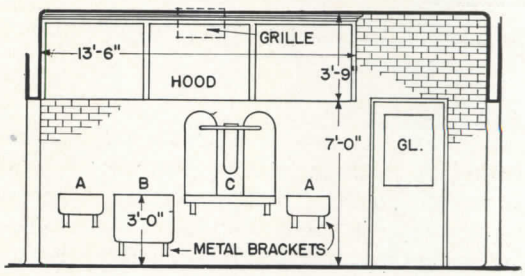
SECTION G-G



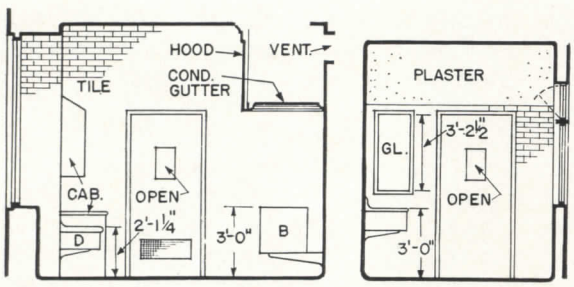
SECTION H-H



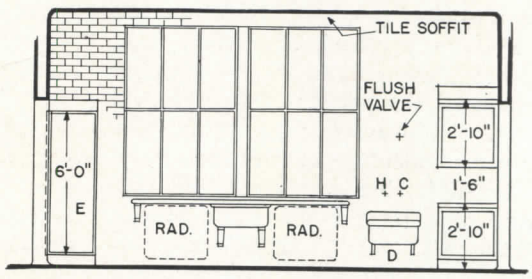
SECTION E-E



SECTION K-K



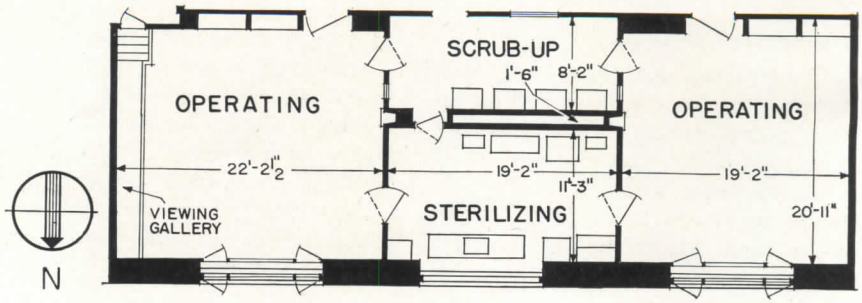
SECTION F-F



SECTION M-M

SCRUB-UP AND STERILIZING: Scale, 1/8" = 1'-0"

A. 12x22x10 in. instrument sterilizer
B. 24x30 in. utensil sterilizer
C. 35-gal. water sterilizer
D. Clinical sink
E. 18x24 in. blanket and solution warmer
F. 16x16 in. ceiling register
G. Surgeon's sinks



OPERATING UNIT PLAN:
Scale, 1/16" = 1'-0"

Food Preparation

Wurts Bros.

Kitchen, Home for Incurables, New York; Crow, Lewis & Wick, Architects

CAPACITIES of hospital kitchens are dependent on three principal factors: personnel, planning, and equipment.

This study is based upon usual requirements for a 300-bed hospital and is intended for use in preliminary planning only. In determining requirements for specific jobs, routine and practices of the institution and habits of personnel should be considered, as well as dietetic requirements of the particular type of hospital. Consultation with hospital superintendents, dietitians, and institutional kitchen specialists will provide data beyond the scope of this discussion. For instance, ice cream can be purchased but its consistency is not always dependable. It is not a luxury but an essential; numerous sherbets and ices are made part of the daily menu. The modern and simple facilities now available for freezing these products make it advisable to include them in the equipment.

Location and arrangement

Convenience for the reception of stores indicates the necessity for direct access to a service entrance, court, or drive; convenience for distributing meals indicates a central location from which all points of delivery are, as nearly as possible, equidistant. In multi-story hospitals, locations immediately adjacent to service elevators are desirable. Natural light and air are also advisable. In some cases, when kitchens are located in one-story wings, monitor roofs or skylights may be used, although the latter tend to raise kitchen temperatures during summer months.

Arrangements of units composing the hospital kitchen may be compared to production lines of factories, each department contributing to the finished product, which is loaded in pans and tureens and placed on insulated serving carts for distribution. Issue of supplies is by requisition to the storekeeper. Daily records of pro-rata and per-capita meal costs are kept and checked.

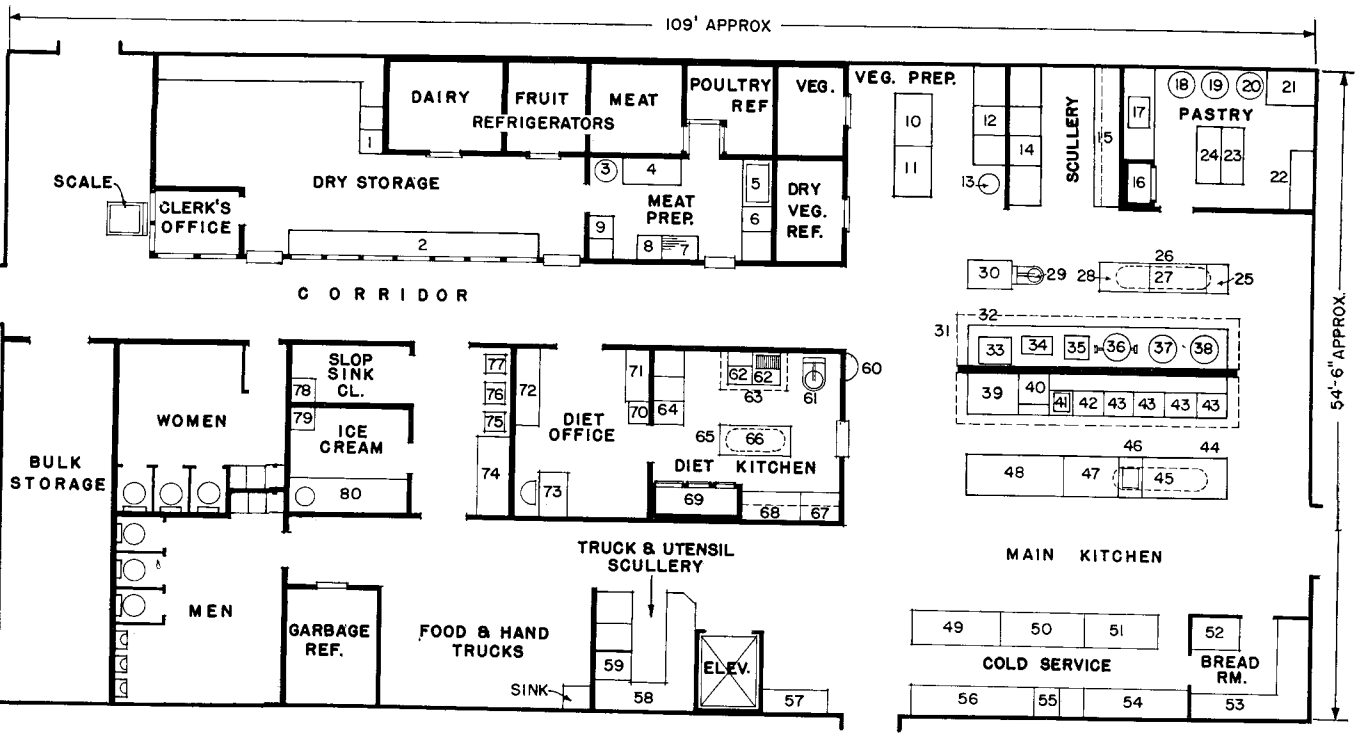
Experience indicates that departments should be arranged in sequence of operation, contiguous to, and opening from, the cooking area, and that circulation should be extremely simple, with cross-traffic eliminated. Study of the accompanying typical plan indicates one method of accomplishing such a result. Note that serving carts have an extremely short distance of travel from cart-storage space to cooking spaces and diet kitchens where they receive food, and that on their return, dish- and cart-washing facilities are so located as to reduce travel similarly. Location of service elevators is determined in the same way. Washrooms, lockers, and dining rooms for kitchen help ar placed with a view to restricting thei users to the kitchen wing.

Kitchen departments and equipment

Dry stores include not only food stuffs, but also general supplies suc as brooms, brushes, mops, soap, an the many miscellaneous items re quired for household cleaning an maintenance.

Refrigerated stores include meat poultry, dairy products, perishab vegetables, fruits, and fish. As t refrigerator construction, cork i sulation, cement exteriors, and ti interiors are recommended, using co lofts where height permits.

Cooking apparatus is placed in tw rows, back to back, in the center the kitchen, divided by a low part tion of sufficient length to accon modate all fixtures, and in close pro imity to the butcher shop, vegetab room, and scullery. Gas and electrici are equally satisfactory for range broilers, and ovens. Stock and veg table kettles are more economical operated by steam, but where pow rates permit, these can be adapted other services. A ventilating ho over cooking apparatus, extendi two feet in length and width beyo ranges, ovens, and kettles, can be su ported by the low partition and ceiling hangers. A large duct is co nected with the exhaust syste



YPICAL MAIN KITCHEN: Scale, 1/16" = 1'-0"

. Sink and drainboard
. Counter
. Chopper
. Table
. Fish box
. Sink and drainboard
. Bench
. Block
. Sink and drainboard
. Bins
. Table
. Vegetable sink and drainboard
. Peeler
. Pot sink and drainboards
15. Cabinet and shelves
16. Refrigerator
17. Sink and drainboard
18. Kettle
19. Mixer
20. Stove
21. Oven
22. Cabinet
23. Table
24. Table
25. Sink
26. Table
27. Pot rack
28. Bain Marie
29. Mixer
30. Table
31. Hood
32. Depressed floor
33. Sink
34. Cereal cooker
35. Steamer
36. Tilting kettle
37. Kettle
38. Kettle
39. Table
40. Broiler
41. Fryer
42. Spreader
43. Four ranges
44. Table
45. Pot rack
46. Hot plate
47. Bain Marie
48. Table and heater
49. Table
50. Cold pan
51. Table
52. Counter and cabinet
53. Counter and cabinet
54. Counter and cabinet
55. Sink and drainboard
56. Refrigerator
57. Heater
58. Table
59. Two - compartment sink
60. Drinking fountain
61. Mixer
62. Two ranges, Salamander
63. Hood
64. Sink and drainboard
65. Cook's table
66. Pot rack
67. Dresser
68. Cabinet
69. Refrigerator
70. Lavatory
71. Cabinet
72. Cabinet
73. Desk
74. Stock ice
75. Ice cuber
76. Ice crusher
77. Sink
78. Slop sink
79. Sink
80. Ice-cream cabinet

ıere should also be channels at the od base with drips carried to floor ains. A sunken pit or curbed drip n is usually provided under stock ttles and steamers. This can be in. high and sloped to a drain.

Sinks of modern types have ınded top rims, corners, and botns pitched to outlets, all for sanirv reasons. Wall brackets can be ed instead of legs. Quick-opening lves, with levers located at the botn within easy operating reach, are ailable for use instead of waste ıgs. Monel or stainless steel sinks quire greater initial investment but ve labor costs in cleaning.

Pastry kitchen equipment. Bread king in a hospital of this size is not onomical, but a pastry kitchen is sential to provide muffins, biscuits, t rolls, and pastry.

Small utensils, molds, etc. A room for storing these is desirable; or space can be provided in the chef's office.

Serving equipment. In the main serving kitchen, prepared food is served on trays and placed in trucks, especially devised to segregate heated and unheated food to assure maintenance of proper temperatures. Requirements include Bain Maries; food and dish heaters; refrigerators for salads, dairy products, and ice cream; cabinets and shelves. Elevators to the upper floors can be located adjacent to the floor service pantries.

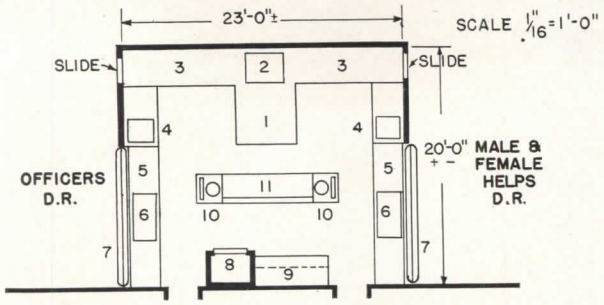
Auxiliary areas

Ward service. Each ward floor requires a serving pantry containing 320 sq. ft. and equipped with a separate dishwashing machine and tables, sink and drainboard, hot plate, egg boiler, toaster, coffee and milk urns, refrigerator, dressers with drawers, and wall cabinets. The most desirable type of cabinet and dresser is enameled metal.

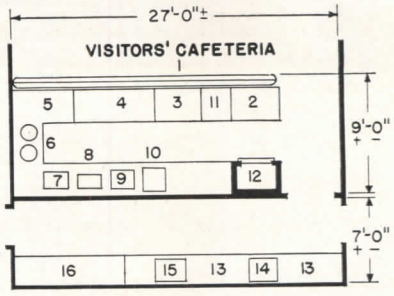
Nurses' dining rooms are served from cafeteria counters, equipped for waitress service or self-service, and include a steam table, cold pan, toaster, hot plate, egg boiler, dresser, wall cabinets, refrigerator, ice-cream cabinet, coffee and milk urns.

Officers' and help's dining rooms. These can be served from a pantry located between the divisions for men and women. This food preparation area is equipped with a steam table, coffee urn, refrigerator, dresser, and cabinets and dishwashing facilities.

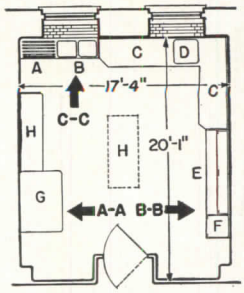
Food Preparation (continued)



HELP'S CAFETERIA PANTRY

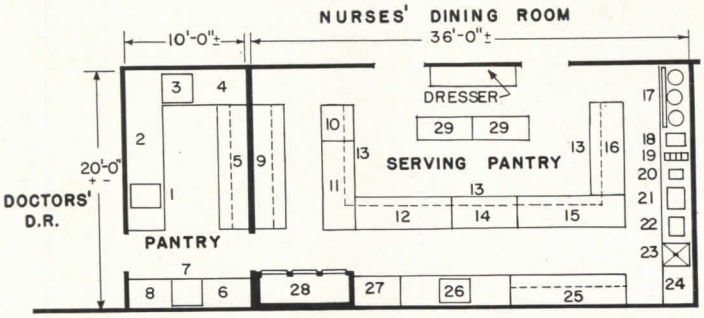


VISITORS' CAFETERIA PANTRY

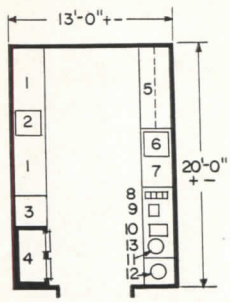


SERVING KITCHEN

A. Drainboard
B. Sinks
C. Dish table
D. Dishwasher
E. Cabinet
F. Broom closet
G. Refrigerator
H. Work table



STAFF AND NURSES' DINING ROOM PANTRIES



WARD SERVING PANTRY

AUXILIARY KITCHEN AREAS: Scale, 1/16" = 1'-0"

Help's Cafeteria Pantry
1. Clean dish table
2. Dishwasher
3. Soiled dish table
4. Sink and drainboard
5. Counter
6. Cold pan
7. Tray slide
8. Refrigerator
9. Cabinet
10. Coffee urns
11. Steam table

Visitors' Cafeteria Pantry
1. Tray slide
2. Soda fountain
3. Cold pan
4. Steam table
5. Counter
6. Coffee urns
7. Toaster
8. Hot plate
9. Griddle
10. Sink
11. Ice-cream cabinet
12. Refrigerator
13. Dish tables
14. Dishwasher
15. Sink and drainboard
16. Cabinet

Staff and Nurses' Dining Room Pantries
1. Sink
2. Soiled dish table
3. Dishwasher
4. Clean dish table
5. Cabinet
6. Table
7. Sink
8. Heater
9. Cabinet
10. Bread and butter
11. Ice-cream cabinet
12. Cold pan
13. Shelf
14. Counter
15. Steam table
16. Heater
17. Urns
18. Hot plate
19. Egg boiler
20. Toaster
21. Griddle
22. Waffle iron
23. Sink
24. Back counter
25. Cabinet
26. Sink and drainboard
27. Table
28. Refrigerator
29. Tray table

Typical Ward Serving Pantry
1. Dish tables
2. Dishwasher
3. Cabinet
4. Refrigerator
5. Cabinet
6. Sink
7. Drainboard
8. Egg boiler
9. Toaster
10. Hot plate
11. Coffee urn
12. Milk urn and warme
13. Counter

Visitors' lunchrooms are now provided in modern hospitals. These can be located conveniently to the street entrance, and are fitted with a small steam table and items of equipment suggested for the other pantries in modified form, plus a soda bar.

Finishes

Red Welsh quarry tile is recommended for the floors of the kitchen and its subdivisions. Floors should be provided with drains at practical points. Walls can be of ivory glazed tile with coved bases. All surfaces should be easily cleaned.

Mechanical equipment

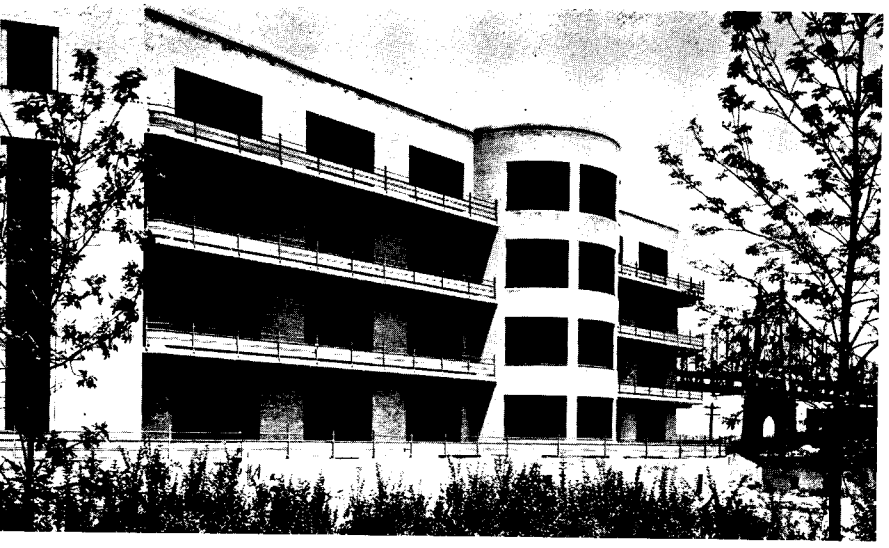
Ventilation systems should be adequate to change the air every two minutes, and should include an exhaust system connected to hoods over ranges, kettles, dishwashing machines, and all fixtures emitting smoke, steam, or heat. When windows are not available, fresh-air intakes are necessary.

Lighting by natural means is the preferred method. Artificial light should be provided by any enclosed fixture which has a minimum of horizontal dust-collecting surface.

Plumbing, gas, electrical and othe service connections are best studie in relation to the specific plan an equipment selected. Data are avai able from manufacturers of all typ of equipment and from specialists the field.

Refrigeration. It is frequently e pedient from the standpoint of bo control and economy to adopt se arate and group refrigerating uni rather than central systems.

Information contained in this Time-Saver Sta ard was prepared by Mr. George P. Ahner Nathan Straus-Duparquet, Inc. It has also b checked by Miss Ella G. Ennis, Chief Dietiti Department of Hospitals of the City of New Yo



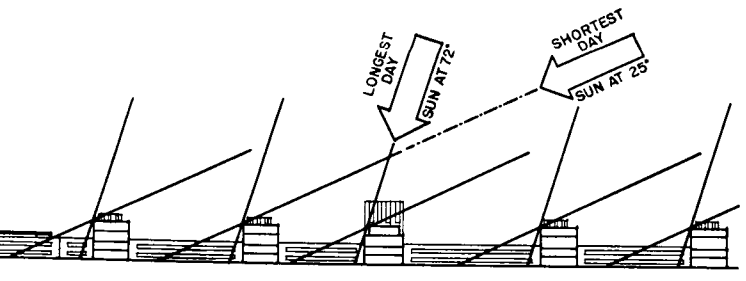
ENERAL CHRONIC HOSPITAL—1,500 BEDS

ELFARE HOSPITAL

ELFARE ISLAND, NEW YORK CITY

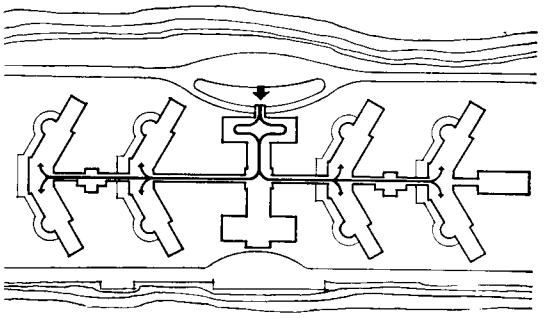
HRONIC PATIENTS will be hospitalized in the four chev-n-shaped structures. These, while retaining a southerly posure, take advantage of the river vista and minimize e patients' view into the rear of the building in front. onvenience and accessibility determined the placement the administration block in the center of the patients' commodations. The shape of this structure is the tural expression of needs differing greatly from those the ward buildings.

At the northern terminus is the mortuary and labora-ry building. All buildings are connected by a covered ssage and underground service tunnel.

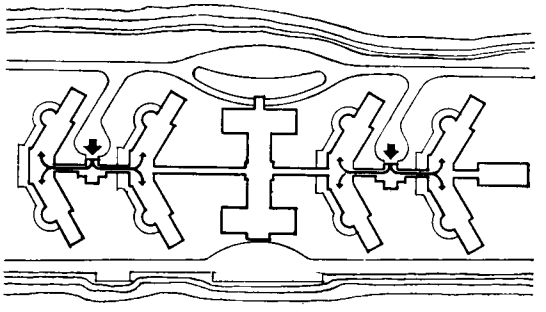


angement precludes casting of shadows upon adjoining structures.

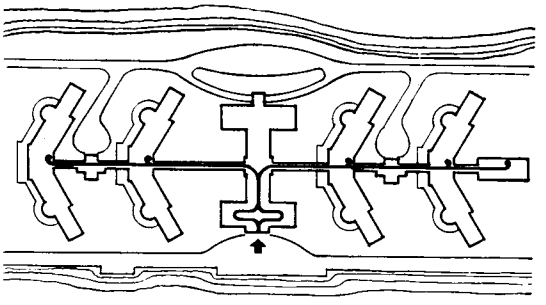
CIRCULATION DIAGRAMS



Patients

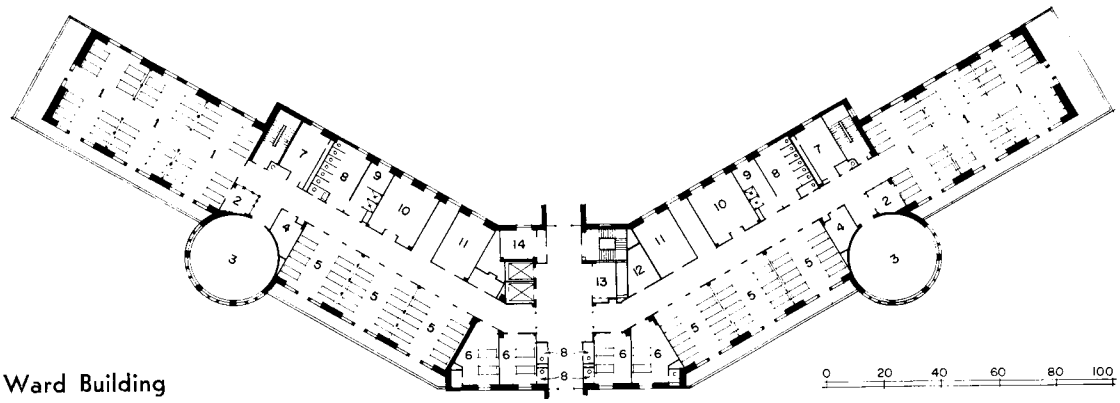


Visitors



Service

WELFARE HOSPITAL, WELFARE ISLAND, N. Y. C.

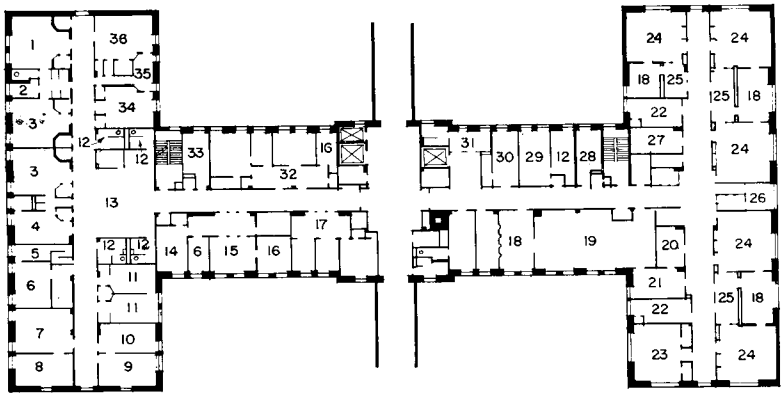


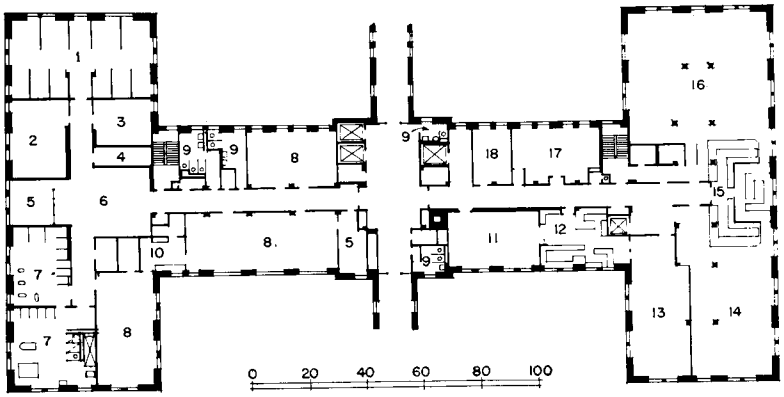
Ward Building

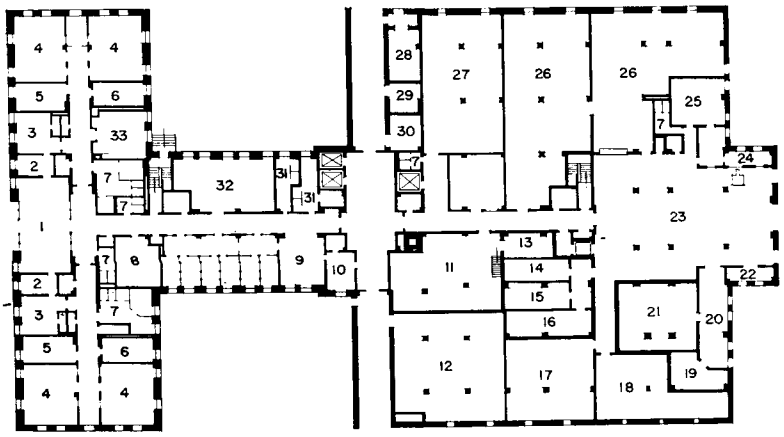
Typical Ward Floor

1. 8-bed ward
2. Nurses' station
3. Day room
4. Linen
5. 6-bed ward
6. Isolation (2-bed ward
7. Utility room
8. Toilets
9. Bath and showers
10. Serving kitchen
11. Treatment room
12. Lockers
13. Stretchers
14. Laboratory

Administration Building







Third Floor

1. Fluoroscopy
2. Barium preparation
3. Radiography
4. Fluoroscopy
5. Loading
6. Developing
7. Film viewing
8. Film storage
9. Roentgenologist
10. Secretary
11. Cystoscopy
12. Toilet
13. Waiting room
14. Cardiography
15. Workroom
16. Office
17. Metabolism
18. Sterilizing
19. Nurses
20. Instrument
21. Instrument washing
22. Anesthetic
23. Plaster
24. Operating
25. Scrub-up
26. Tissue lab.
27. Linen
28. Saline solution
29. Doctors' lockers
30. Guests
31. Blood donors
32. Dental suite
33. X-ray supplies
34. Superficial radiotherapy
35. Control
36. Deep radiotherapy

Second Floor

1. Physiotherapy
2. Exercise room
3. Static room
4. Supplies
5. Office
6. Waiting space
7. Hydrotherapy
8. Occupational therapy
9. Toilets
10. Workroom
11. Staff dining
12. Serving kitchen
13. Intermediate staff dining
14. Clerks' dining
15. Cafeteria
16. Help's dining
17. Nurses' dining
18. Patients' library

Basement

1. Waiting lobby
2. History
3. Examining
4. 6-bed ward
5. 2-bed ward
6. Utility
7. Toilets
8. Telephone
9. Waiting room
10. Property room
11. Incinerator charging
12. Machine room
13. Garbage refrigerator
14. Dairy refrigerator
15. Milk refrigerator
16. Vegetable refrigerator
17. Stores
18. Root cellar
19. Corned beef refrigerator
20. Butcher shop
21. Meat refrigerator
22. Can washing
23. Receiving room
24. Checker
25. Clerks
26. General storage
27. Surgical supplies
28. Ice cream
29. Ejector room
30. Electric service
31. Discharge
32. Records
33. Diet kitchen

Tuberculosis Hospitals

TIME-SAVER STANDARDS

REQUIREMENTS FOR treatment of tuberculosis have changed somewhat in recent years. In general, requirements, in addition to medical and surgical care, may be said to include:

a. Ample wholesome food
b. Fresh air
c. Regulated amounts of sunshine
d. Rest

Patients may be grouped into two general classifications: (1) inpatients, or those needing hospitalization, and (2) outpatients, or those who require treatment but who need not be confined to the hospital. As in a *general chronic hospital,* a noticeable percentage of inpatients are ambulant.

(1.) Inpatients

Admitting: receiving, examination, property, history and record rooms; observation wards broken into 2- or 3-bed units, isolation rooms; toilets and baths for male and female patients; toilet for staff; nurses' station; linen storage; utility room and serving kitchen; stretcher space; discharge facilities.

Operating department: same as for general chronic hospitals, with addition of bronchoscopy room. This room requires, in addition to standard equipment, a 24-in. instrument sterilizer.

Necessary, too, is space for the Drinker apparatus, or "Iron Lung." Not infrequently a postoperative tuberculosis patient suffers collapse of the lung. To restore breathing, the patient is placed in the artificial respirator, or supplied with concentrated oxygen.

Dental Suite: same as for general chronic hospitals.

Laboratories: for chemistry, bacteriology, serology, tissue and clinical pathology; media and sterilizing rooms; museum, record room, and pathologist's office; ward laboratory, one per nursing unit or floor.

Eye, ear, nose and throat unit: waiting room, minor operating room, utility room, darkroom, history room, treatment cubicles.

Typical patients' floor: 3 or 4 small wards (2 to 6 beds each) per large ward (approximately 24 beds), 2 isolation rooms, 1 utility room, nurses' station, serving kitchen, linen closet; separate patients' and nurses' toilets, patients' washroom with dental bowls and bath; at least one solarium per nursing unit; balconies or roof space directly accessible to each ward; location of wards and service rooms as in general chronic hospitals.

Screens between groups of beds extend to the ceiling. Six-bed wards are separated by doors. Ceilings in all of the wards are preferably soundproofed.

All the foregoing is desirable to prevent one patient's coughing from annoying the others. Acoustical treatment also favors physical examination of the chest. Smaller wards, primarily intended for the very sick and postoperative cases, are equipped with aspirators for continuous suction of drainage of pus, etc. Aspirators operate on running water, much like dental drainage apparatus. Washrooms, in addition to the usual lavatories, contain flushing dental lavatories which are desirable for expectorating patients.

Treatment rooms: taps, fluoroscopy, and pneumothorax, one each in suite, per nursing unit or floor. Dressing and rest facilities are not necessary when patients' beds are nearby.

Sputum technique: The expectorating patient has at bedside, or carries about with him, a metal sputum cup, fitted with a folding carton cup. Daily or, if necessary, more frequently, these are collected and replaced. Used cups are taken to the sputum room where the cartons are removed and deposited into cans prior to being burned. The metal cups are then washed, sterilized, and dried, fitted with fresh carton cups and returned.

The sputum room should therefore afford sufficient space and facilities for storing and sterilizing in accordance with this technique.

Occupational therapy, recreation, etc.: space for teaching such arts and crafts as medical condition permits; assembly room with stage and motion-picture facilities; small lending library; roofs and balconies, partially shaded; day camp similar to convalescent day camp.

Food service: general and diet kitchens are larger than for general chronic hospitals; because of special diets, large quantities of milk products, etc., which are served bedridden patients from ward kitchens, ambulant patients from cafeterias.

(2.) Outpatients

In this department the patient is examined and, if necessary, is admitted; or his case may warrant only periodic treatment and re-examination. Similarly ailments may be arrested to a degree where further stay in the hospital is not indicated. Such cases may return home, but conditions may require further observation and treatment.

The tuberculosis "clinic" has features peculiar to itself. These include "fluoroscopy", "pneumothorax", and "taps" rooms; the last two may be interchangeable or combined. Artificial pneumothorax therapy consists of resting one or both lungs by insufflating air into the chest cavity. Prior to the induction of this form of collapse therapy, and periodically thereafter, patients are examined and re-examined under the fluoroscope. In subsequent treatment it is frequently necessary to remove the fluid or pus which may accumulate in the chest cavity. Treatment suites should be equipped with dressing booths and rest couches that can be curtained off. All other equipment is portable.

(3.) Inpatients and outpatients

Pharmacy: located conveniently to both in- and outpatient areas.

X-ray: located similarly to pharmacy; includes radiography, fluoroscopy, cystoscopy, barium preparation rooms; loading, developing, film storage and viewing rooms; roentgenologists' offices; waiting room and stretcher space. An ample number of dressing cubicles are desirable in order that ambulant patients should consume the least possible time in disrobing for examination. (See "Radiographic and Allied Equipment", ARCHITECTURAL RECORD, July, 1937, Building Types, pp. 149-151.)

Administration

Administration areas are the same as for general chronic hospitals.

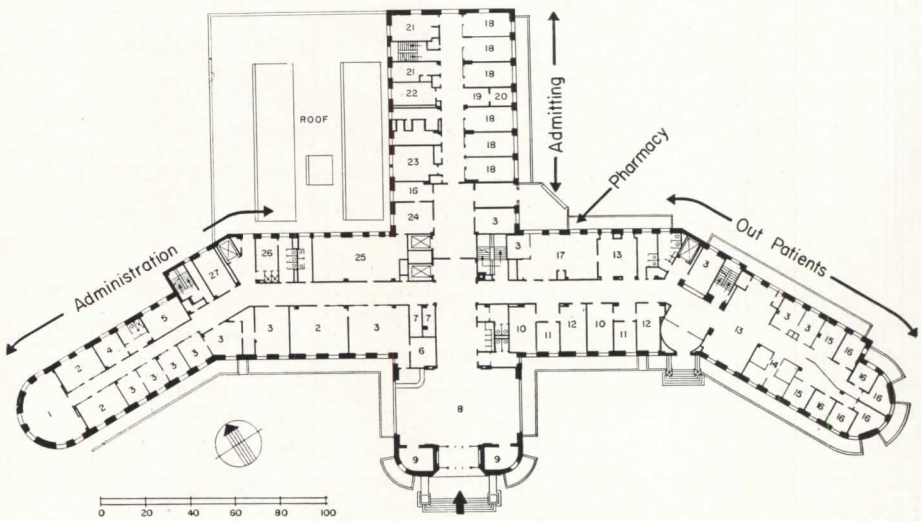
Peter A. Juley & Son

TUBERCULOSIS HOSPITAL—550 BEDS

TRIBORO HOSPITAL, NEW YORK CITY

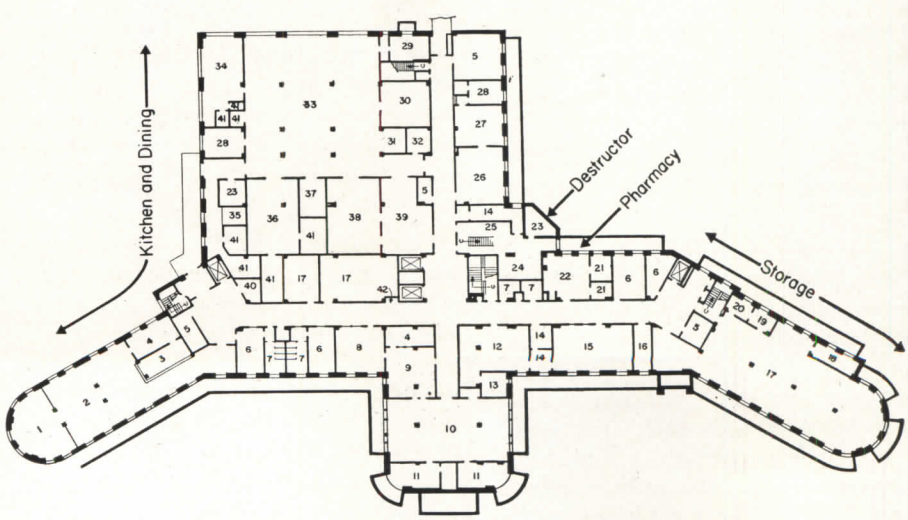
First Floor

1. Medical library
2. Unassigned
3. Office
4. Staff lounge
5. Staff locker room
6. Office supply room
7. Discharged patients
8. Main lobby
9. Alcove
10. Pneumothorax
11. Fluoroscopy
12. Taps room
13. Waiting room
14. Social service
15. History room
16. Examining room
17. Pharmacy
18. 3-bed ward
19. Nurses' station
20. Linen room
21. Isolation
22. Utility room
23. Serving kitchen
24. Office and history room
25. Record room
26. Nurses' lockers
27. Nurses' rest room



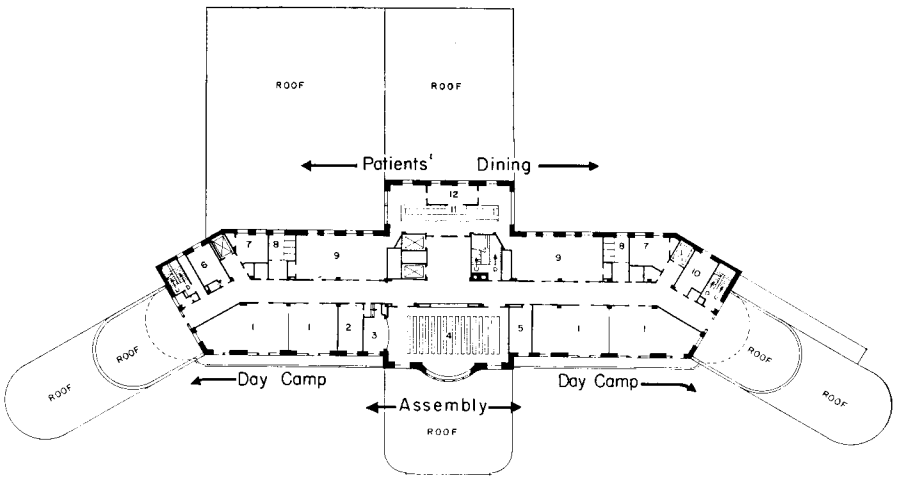
Basement

1. Clerks' dining
2. Help's dining
3. Cafeteria
4. Dish and glass washing room
5. Soiled linen
6. Locker room
7. Toilets
8. Staff dining
9. Serving room
10. Nurses' dining
11. Private dining
12. Bedding storage
13. Fan room
14. Sterilizing
15. Patients' clothing
16. Medical supplies
17. General storage
18. Switchboard
19. O. T. workroom
20. O. T. supply
21. Pharmacy stores
22. Pharmacy work
23. Garbage refrigerator
24. Destructor feeding room
25. Clean can space
26. Linen storage
27. Serving room
28. Office
29. Ice-cream room
30. Scullery
31. Help's dining
32. Bread room
33. Main kitchen
34. Bakery
35. Can washing
36. Butcher and vegetable preparation
37. Daily stores
38. Diet kitchen
39. Cart and utensil washrooms
40. Oxygen tank room
41. Food refrigerators
42. Telephone booth



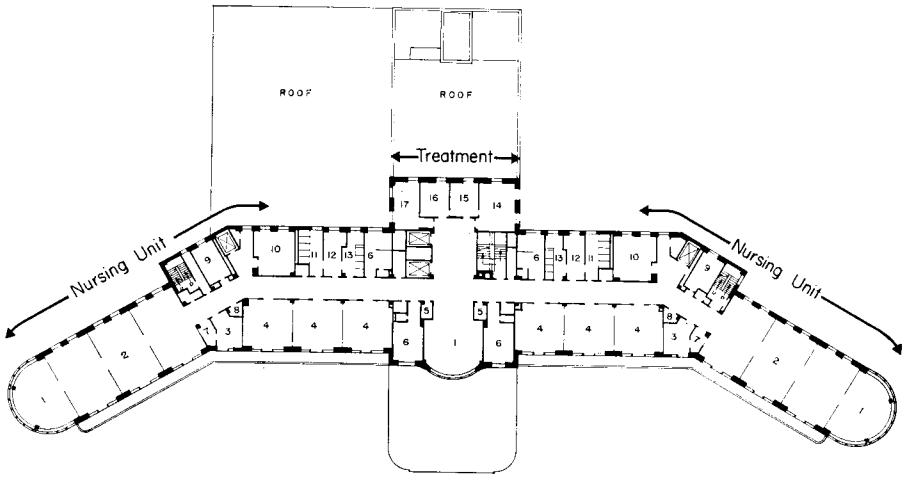
Ninth Floor

1. Day camp
2. Preparation
3. Platform
4. Assembly
5. Projection room
6. Nurses' lockers
7. Office
8. Toilet
9. Dining room
10. Rest room
11. Cafeteria
12. Dish pantry



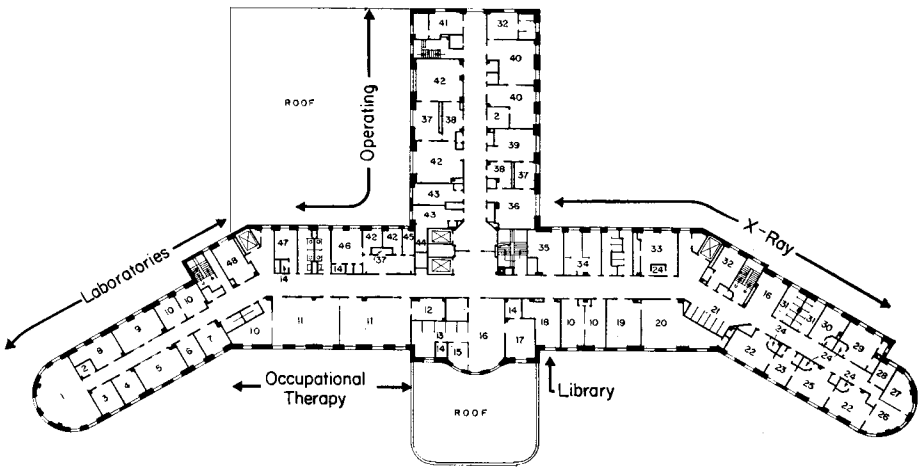
Typical Floor

1. Solarium
2. 24-bed ward
3. 2-bed ward
4. 6-bed ward
5. Stretcher closet
6. Isolation room
7. Nurses' station
8. Linen
9. Utility room
10. Serving kitchen
11. Toilet
12. Washroom
13. Bathroom
14. Pneumothorax
15. Fluoroscopy
16. Taps Room
17. Laboratory



Second Floor

1. Bacteriology lab.
2. Access room
3. Serology lab.
4. Tissue pathology
5. Pathology lab.
6. Museum
7. Record room
8. Media and sterilizing
9. Chemistry lab.
10. Office
11. Occupational therapy
12. Supply room
13. Eye, ear, nose and throat
14. Darkroom
15. History room
16. Waiting room
17. Cardiography
18. Patients' loan bookroom
19. Viewing room
20. Film filing room
21. Stretcher space
22. Radiography
23. Barium preparation room
24. Control room
25. Fluoroscopy
26. Loading room
27. Developing
28. Drying room
29. Special fluoroscopy
30. Special radiography
31. Dressing room
32. Nurses' lockers
33. Cystoscopy
34. Metabolism
35. Unassigned
36. Plaster room
37. Sterilizing
38. Scrub-up
39. Bronchoscopy
40. Nurses' work and supplies
41. Doctors' dressing room
42. Operating room
43. Anesthesia
44. Respirator space
45. Rest room
46. Surgery room
47. Photography
48. Animal operating room



Photos by Herbert Felton, ©"The Architect and Building News"

Women's Block

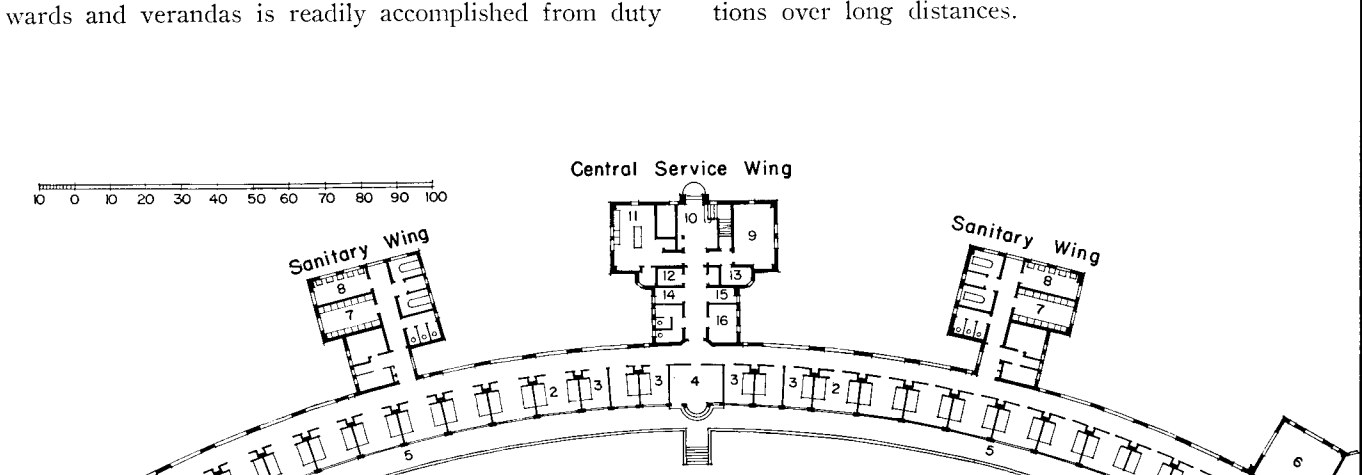
TUBERCULOSIS HOSPITAL—378 BEDS

HAREFIELD, ENGLAND

W. T. CURTIS
Architect

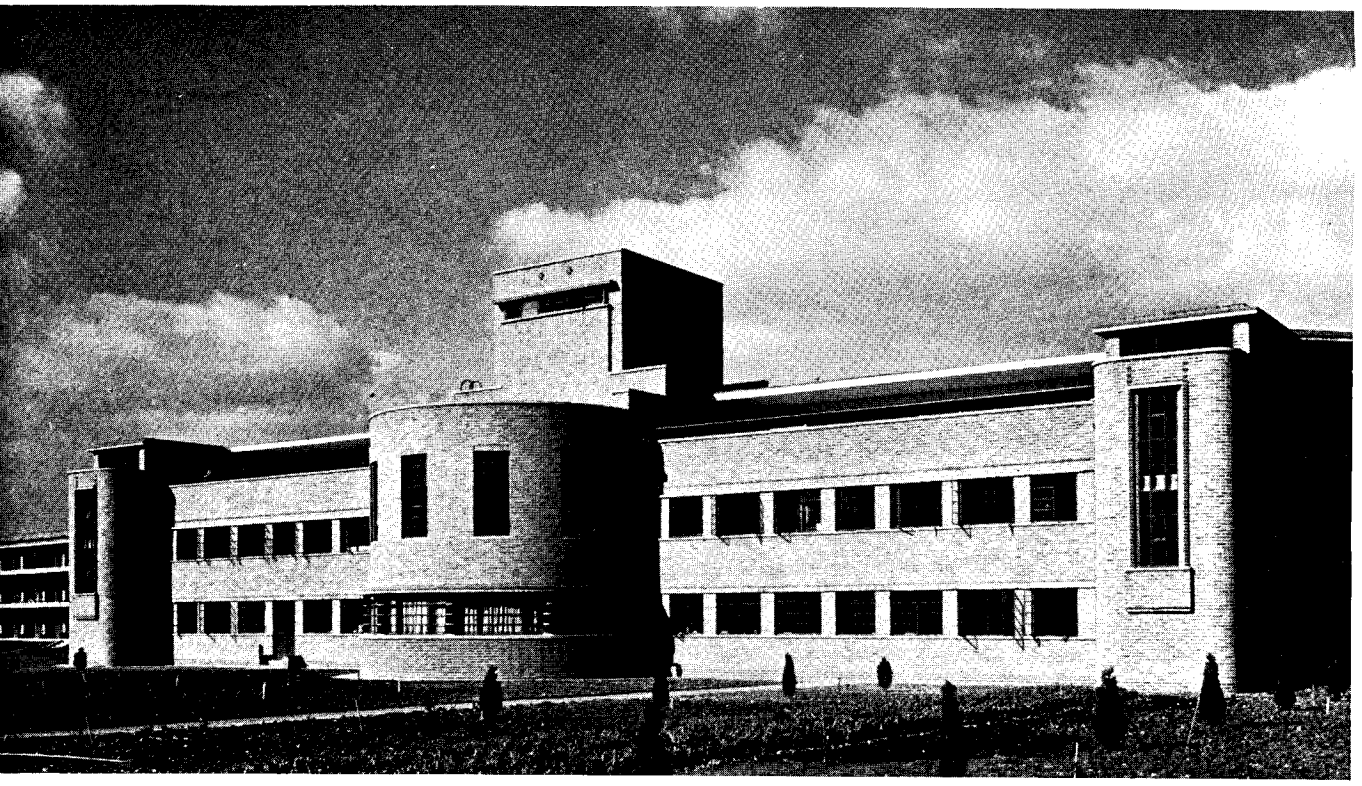
A COMPARATIVELY large open site permits minimum levels for patient accommodation. The adult nursing units are restricted to three floors and the children's buildings to one-story structures. Southern-exposed verandas and open balconies, considered essential to tuberculosis treatment, are provided on all levels and are directly accessible from each room. Supervision of wards and verandas is readily accomplished from duty room because of the openness of the units. Covered walks connect male and female areas to the common dining and recreation building.

Sputum destructors are distributed throughout the institution rather than centralized as in a more compact development. Here decentralization of destructors reduces the hazards involved in conveying sputum collections over long distances.



Women's Block

1. Recreation room
2. 2-bed ward
3. Private room
4. Duty room
5. Veranda
6. Laboratory
7. Lockers
8. Lavatory
9. Consulting
10. Hall
11. Ward kitchen
12. Switches
13. Waiting
14. Mattress drying
15. Dirty linen
16. Clean linen



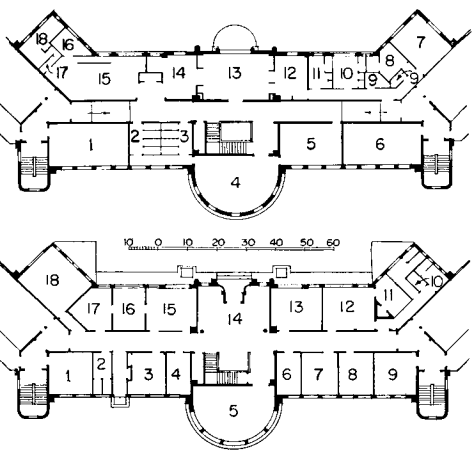
Administration Block, plans below

Second Floor

1. Women's recreation
2. Women's dressing
3. Men's dressing
4. Light treatment
5. Lecture room
6. Men's recreation
7. Dental room
8. Waiting
9. Store
10. Surgeons' room
11. Nurses' room
12. Sterilizing
13. Operating
14. Anesthetic
15. X-ray dept.
16. Transformer
17. Light trap
18. Darkroom

First Floor

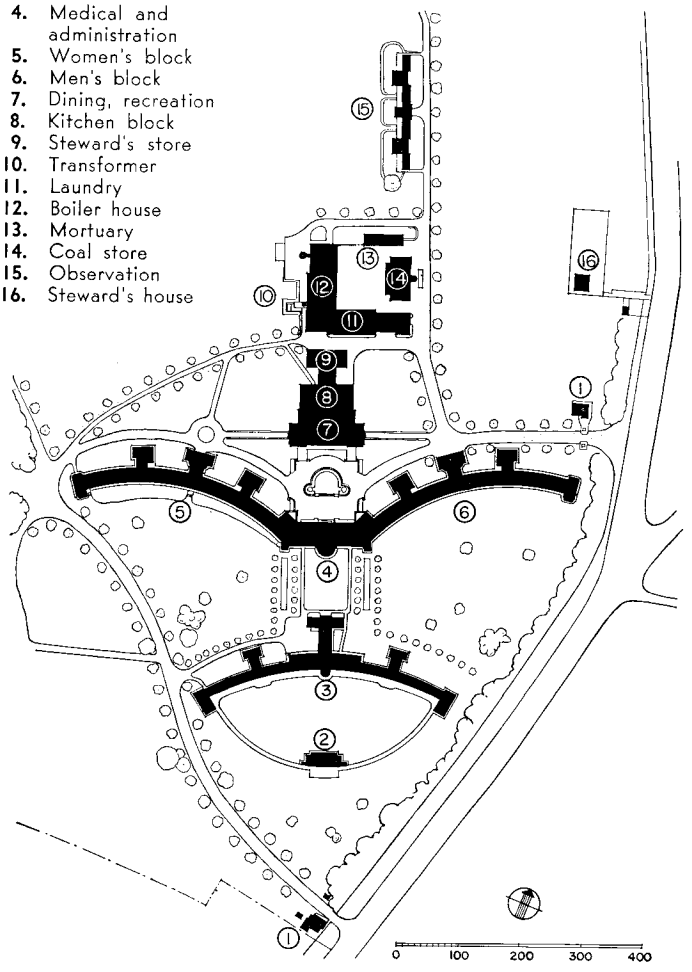
1. Quiet room
2. Women's toilet
3. Matron
4. Switch room
5. Committee
6. Tea lobby
7. Steward
8. A. M. O.
9. Quiet room
10. Store
11. Records
12. Medical super.
13. General office
14. Vestibule
15. Dispensary
16. Drugs
17. Packing room
18. Laboratory

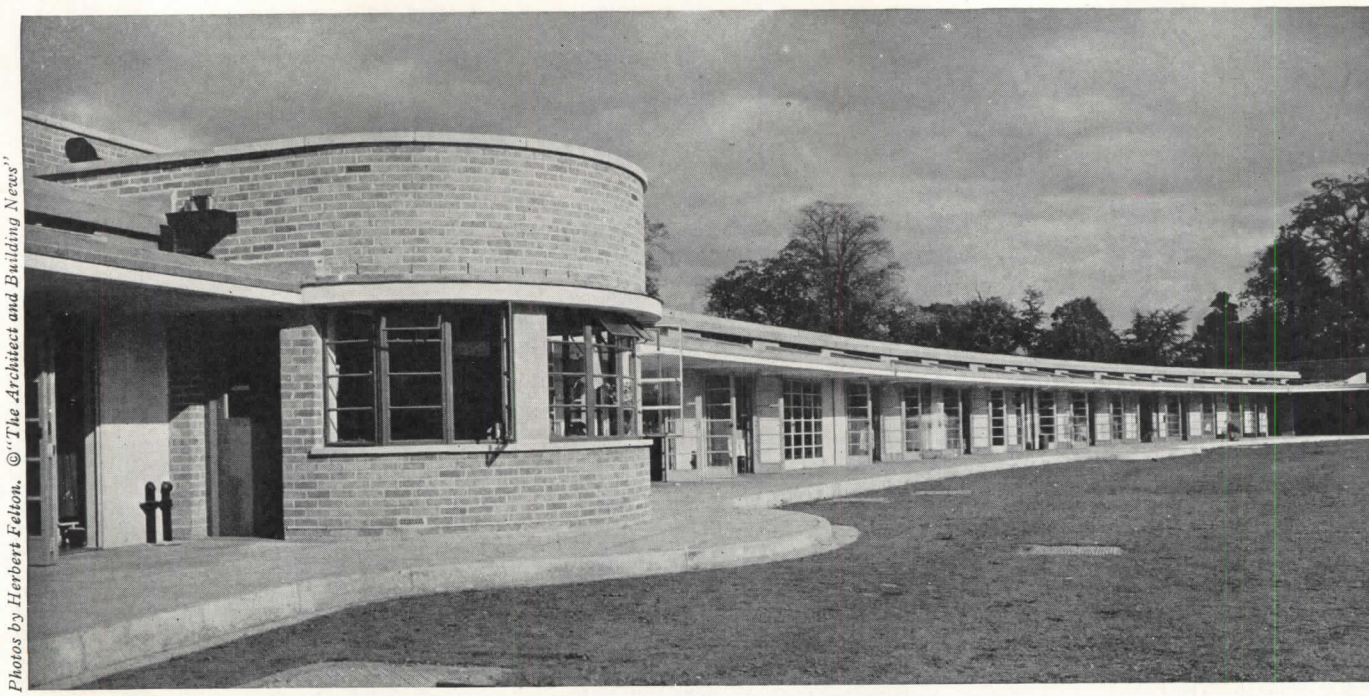


Above: Second Floor. Below: First Floor

Plot Plan

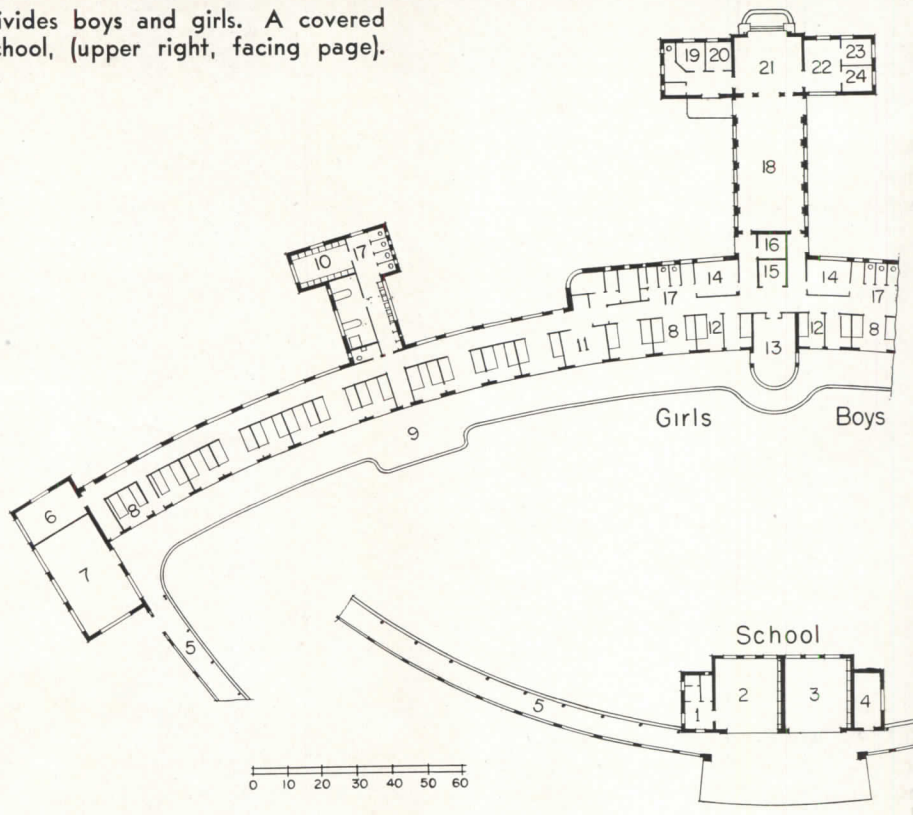
1. Lodge
2. School
3. Children's block
4. Medical and administration
5. Women's block
6. Men's block
7. Dining, recreation
8. Kitchen block
9. Steward's store
10. Transformer
11. Laundry
12. Boiler house
13. Mortuary
14. Coal store
15. Observation
16. Steward's house





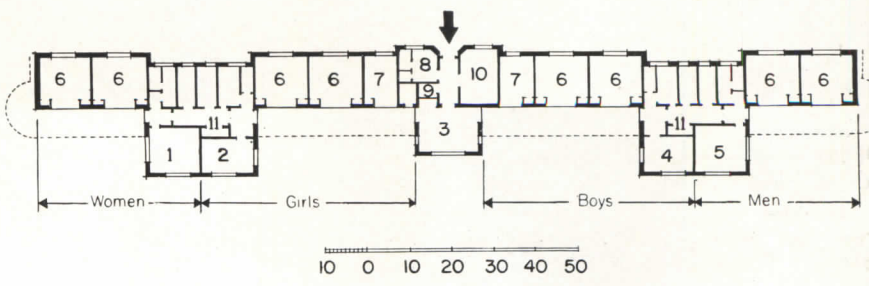
Photos by Herbert Felton. ©"The Architect and Building News"

CHILDREN'S BLOCK: Duty room divides boys and girls. A covered walk connects both wings to the school, (upper right, facing page).



Children's Block and School

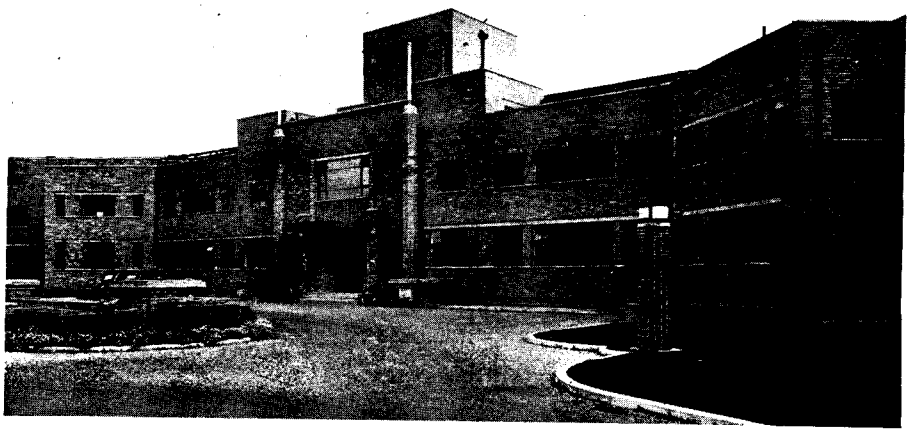
1. Teachers' room
2. Junior classroom
3. Senior classroom
4. Game stores
5. Covered walk
6. Quiet room
7. Day room
8. 2-bed ward
9. Veranda
10. Locker room
11. Special day room
12. Private room
13. Duty room
14. Consulting
15. Mattress drying
16. Switch room
17. Toilets
18. Dining hall
19. Stores
20. Larder
21. Ward kitchen
22. Scullery
23. Special case scullery
24. China and cutlery



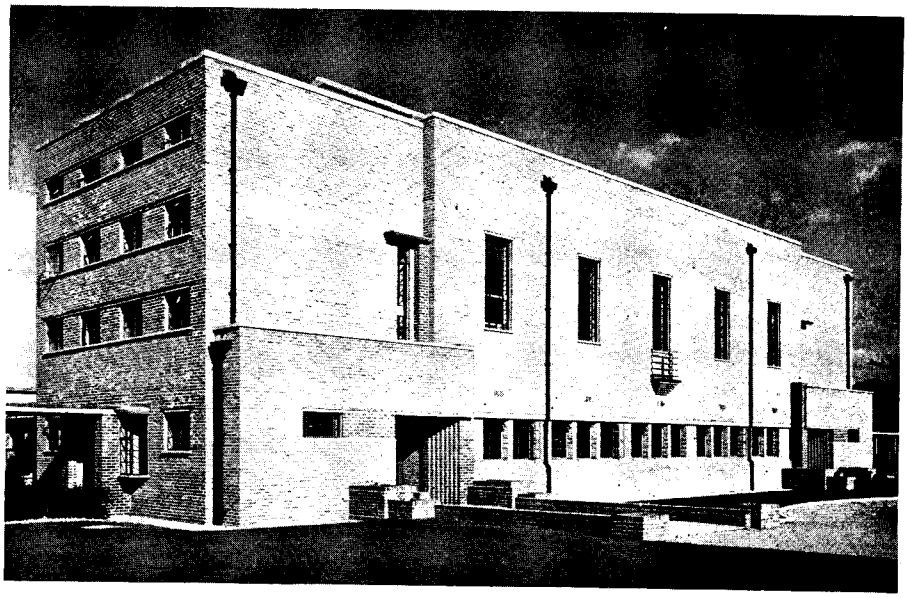
Observation Block

1. Women's day room
2. Girls' day room
3. Duty room
4. Boys' day room
5. Men's day room
6. 2-bed ward
7. Single-bed ward
8. Nurses' lavatory
9. Larder
10. Kitchen
11. Linen

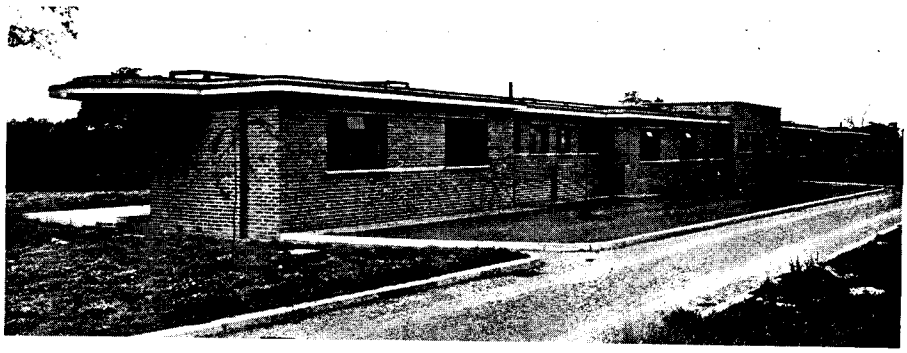
TUBERCULOSIS HOSPITAL
378 BEDS
HAREFIELD, ENGLAND



ADMINISTRATION BLOCK: between nursing units for men and women which flank either end.

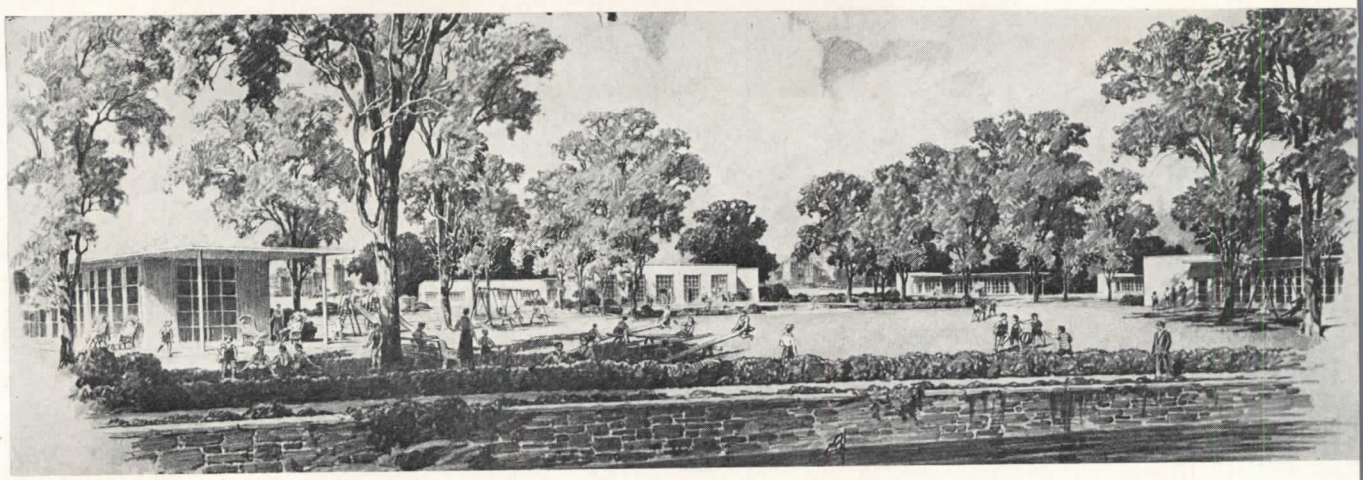


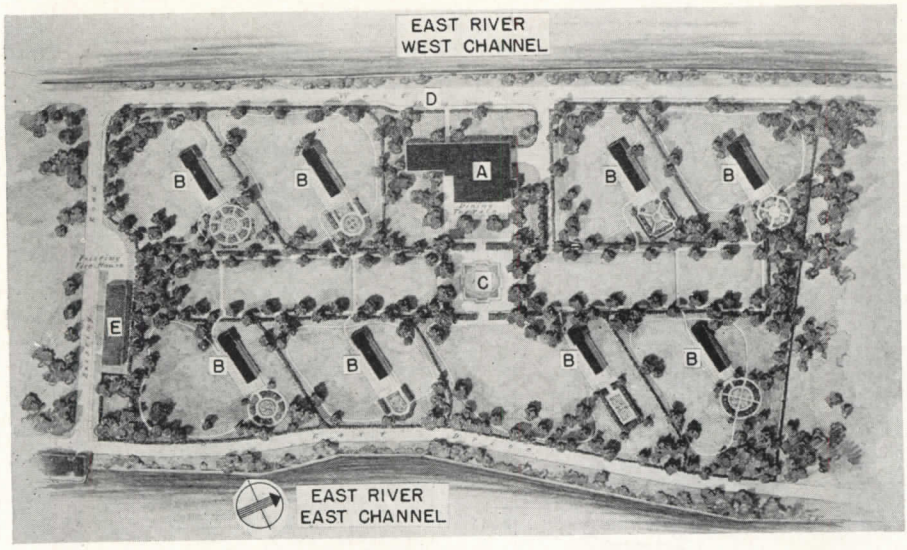
ECREATION BLOCK: On first floor e food preparation, storage and din- g areas; on second an auditorium, ancel and stage at opposite ends.



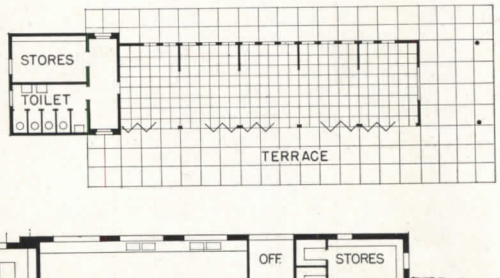
BSERVATION BLOCK: for men, men, and children. This structure removed from the general patient eas and nursing units for maximum ntrol. (Plan on facing page.)

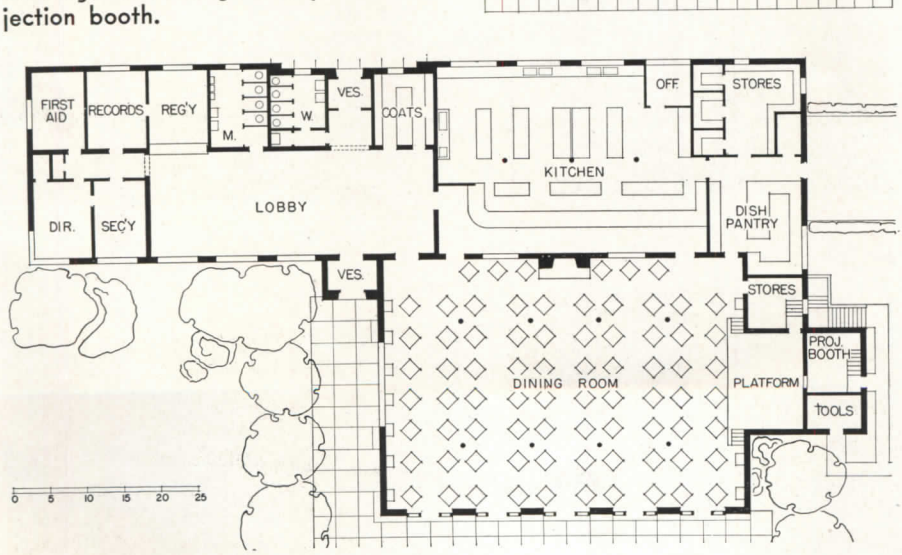
Convalescent Day Camps





Welfare Island Convalescent Day Camp. Above, plot plan: A, administration; B, shelters; C, splash pool; D, parking; E, fire house. Right, shelter building. Below, Administration Building. Note stage and projection booth.





THIS TYPE OF project is unusua among American medical institu tions. Its function is directed to (a) prevention of light clinical case from becoming acute hospital charges (b) after-care of post-hospital case who, if left to their own devices might cease to improve.

Such a camp should be availabl to men, women, and children of sev eral clinical classifications, referre to the camp by public hospitals an outpatient clinics, and by privat agencies. Patients or guests arriv in the morning and depart late i the afternoon.

Welfare Island Camp

The main house provides admin istration offices, kitchen, and dinin room. The seating capacity of th dining room is 350, but surroundin terraces double that during summe

There are eight shelters. The in door capacity of each, on the bas of all guests in reclining chairs, is 6 or 480 persons for the entire cam By using terraces and grounds arou the shelters, capacity can be double in summer months.

Shelters face southeast and are s staggered as to obtain a fair angle vision of the river. The entire fro of each shelter consists of glaze doors and transoms. Shelters a heated and can be made comfortab under all conditions.

The landscaping scheme anticipat that each shelter may be devoted a different clinical classification to a different sex or age grou Separate yards or play spaces a provided for each shelter. Oppos the main building is a "splash" po intended primarily for children.

Psychiatric Hospitals

TIME-SAVER STANDARDS

PSYCHIATRIC INSTITUTION is not be confused with the usual state spital for the insane. It is the link tween the immediate community d state hospitals. Its principal nctions may be summarized as:

(a) Outpatient diagnosis and treatment
(b) Impatient diagnosis and treatment
(c) Research and teaching

Patients to be treated here are ssified in the following groups, and ecial provisions are made for each:

(a) Outpatients; (b) Criminals;
(c) Inebriates; (d) Children
(e) Adult disturbed (other than criminal and alcoholic)
(f) Adult semi-disturbed (other than criminal and alcoholic)
(g) Adult quiet (other than criminal and alcoholic)

Any standards of planning may on become inadequate because anges in conception of psychiatric eatment occur in rapid succession.

ape

The shape of the plan should be itable to proper control. Male and male wings should be separated, sion from one into the other being, a certain degree, limited. A typical uble-Y plan permits the nurse's tion at the union of the three arms the Y to have clear control of e entire nursing unit. The station faces the main services and the trance to the unit. Cases can be agnosed properly when patients are owed comparative freedom. This n be attained by locking entrance ors to each unit and allowing tients the freedom of the unit (exoting criminal and alcoholic areas).

w lines

The patient must be admitted to the spital, moved within the building, d discharged in such a manner as have him under constant control, oiding the crossing of these lines by blic or other circulation.

mission facilities

One solution of this controlled culation locates the outpatient nic facing the street, while the adtting department faces an inner spital road: the first for convenient blic access, the other to prevent blic scenes when disturbed patients are brought in. At the entrance is a first-aid room. Quiet patients wait in a large waiting room. Disturbed patients wait in special rooms. After the patient's history is taken, he is conducted through the examination room and bathroom, where he receives clean clothes. Finally, he is taken to his assigned ward. Some patients may be taken directly to operating room, quieting bath, etc.

Elevators

Two sets of elevators are mandatory, one for general passengers, the other for patients and services. The first set always opens on public spaces, while the latter always opens into patients' or treatment areas.

Discharge

Patients do not generally remain long in a psychiatric hospital (average stay: adults, 8 days; children, 30 days). Less than one-half the patients are discharged, most others being committed to a state institution. Transfer of patients takes place at frequent periods, usually twice a week. The procedure necessitates a special discharge department in the basement with a separate ambulance drive.

Commitment

Necessary examinations should take place in one of the institution's conference rooms. Several conference rooms are also desirable for teaching, etc.

Mental hygiene

The mental hygiene clinic, or outpatient department, of a psychiatric hospital requires a series of small examination rooms: (1) psychiatric and medical, (2) psychological, and (3) social. Clinic rooms should be substantially built and acoustically isolated, as sounds (even whispers) are apt to upset patients and seriously interfere with the work. It is frequently convenient to diagnose behavior of small children while they play in a large children's common room. Alcoves permit observation. Windows between the observation alcoves and the children's room should prevent the observed from seeing the observers, but permit sound to pass.

Ward units

The principal difference between wards for quiet, semidisturbed, and disturbed is that there are required progressively more single rooms and increased provisions for pack and continuous-flow baths.

Prison wards are placed as high as possible to reduce possibility of escape or smuggling in of contraband. Doors from lobby to prison wards are bulletproof, with bulletproof-glass vision panels. Alcoholics are placed as low as possible, because turn-over is very high. This arrangement reduces use of elevators, etc.

Typical ward

A. *Medical-administrative suite* consists of four rooms assigned respectively to examiner, psychiatrist, secretary, and psychologist.

B. *Serving kitchen.* Since the up-patients will serve themselves, the kitchen is arranged for cafeteria and bedside service.

C. *Normal or hygienic bath and toilet facilities* are distinct from therapeutic and pack facilities, and are so arranged that a nurse or attendant can see what is happening in all compartments. Compartment doors are omitted and the wall in back of the basins is low.

D. *Typical single room* is 8 ft. 6 in. wide in the clear in order to permit placing the bed with its long axis perpendicular to the partitions and for necessary access to three sides.

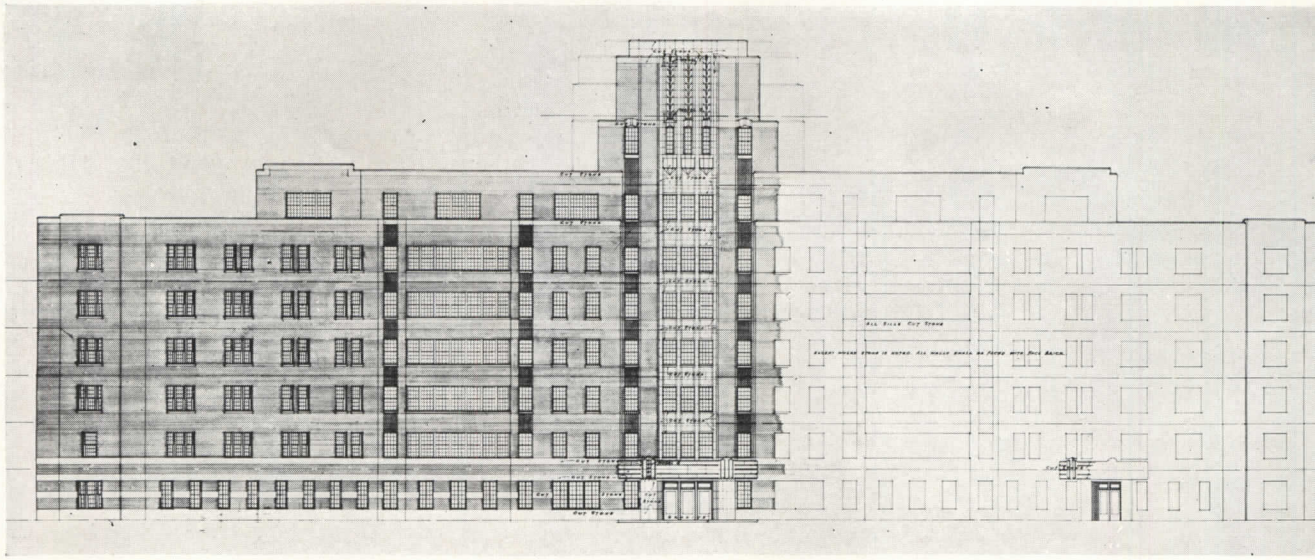
Educational and occupational therapy

In addition to day rooms in each ward, facilities are provided for both indoor and outdoor play. Roof terraces are protected with insurmountable fences. Areas are also provided for occupational therapy and classrooms for both children and adults.

Details and finishes

The design objectives are:

(a) To prevent patients from injuring themselves unintentionally;
(b) To prevent patients from injuring themselves intentionally;
(c) To make the means for restraining patients as little obvious as possible;
(d) To avoid rough surfaces and projections which excite patients to destruction of their surroundings;
(e) To make finished surfaces and equipment indestructible.

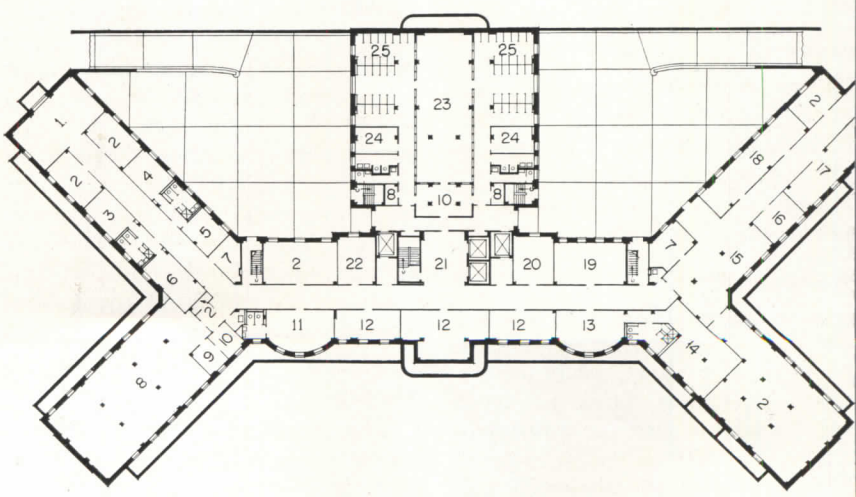


PSYCHIATRIC PAVILION—350 BEDS

KINGS COUNTY HOSPITAL
NEW YORK CITY

THE PROGRAM for this building, as developed in 1936, included provision for 450 beds, divided as follows: 20-bed alcoholic ward for transitory, nonpsychotic cases; 40-bed children's psychiatric ward; 30-bed prisoners' psychiatric ward; 20-bed prisoners' medical and surgical ward; 40-bed disturbed male ward; 40-bed disturbed female ward; 40-bed semidisturbed male ward; 40-bed semidisturbed female ward; 40-bed quiet male ward; 40-bed quiet female ward; 100-bed ward or wards for neurosurgical cases. As now revised, the neurosurgical ward is omitted. The average sex ratio of patients v stated to be about 107 males to 100 females (not incl ing alcoholics). Inclusion of the latter tended to incre the difference.

Disturbed wards are planned with as small room u as are economically feasible, and the program called individual rooms for caring for physically ill patie within quiet and semidisturbed wards. Arrangement typical floors is indicated by the third-floor plan. Ro at seventh-floor level have cage enclosures.

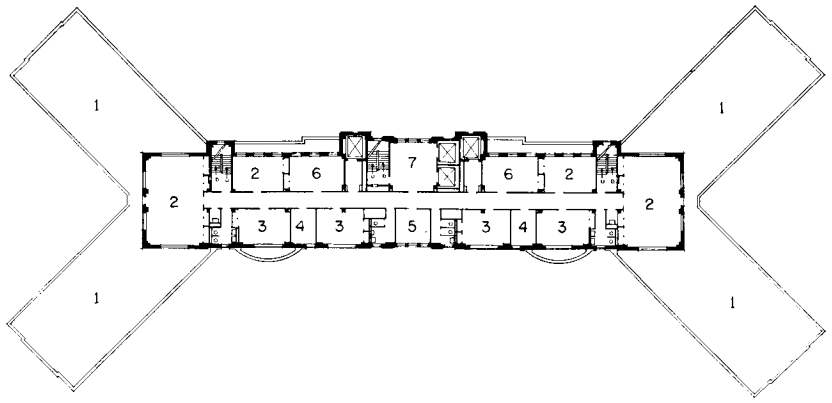


Basement

1. Repair shop
2. Storage
3. Male help rest room
4. Female help rest room
5. Women's lockers
6. Men's lockers
7. Soiled linen
8. Record room
9. Record examination
10. Clerks
11. Internes' rest room
12. Hydrotherapy
13. Nurses' rest room
14. Nurses' lockers
15. Receiving
16. Oxygen
17. Tank and valve room
18. Linen and mending
19. Snack room
20. Switchboard
21. Elevator lobby
22. Drug storage
23. Clothes storage
24. Examination
25. Discharge

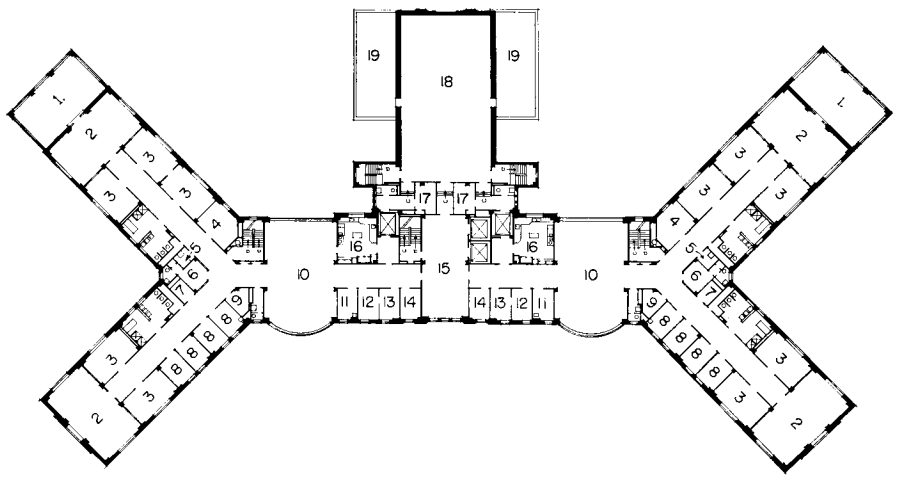
eventh Floor

1. Recreation roof
2. Occupational therapy
3. Classroom
4. Rest room
5. Supervisor
6. Reading room
7. Elevator lobby



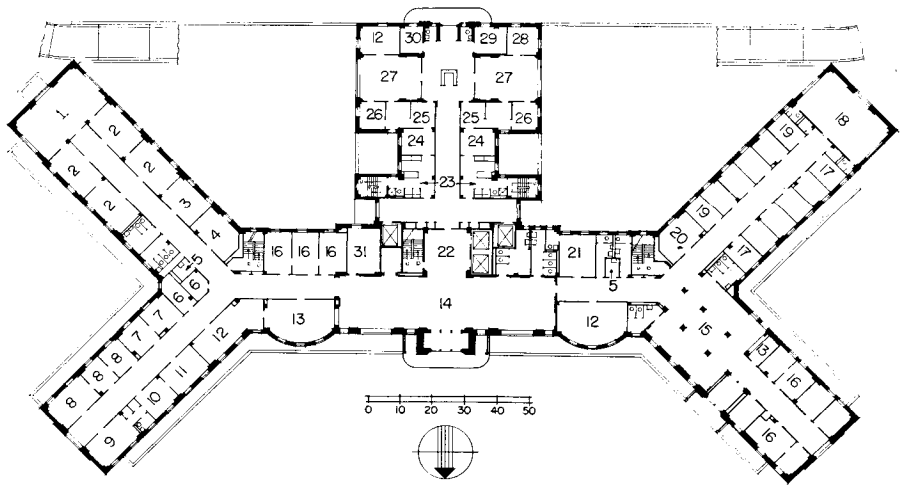
Third Floor

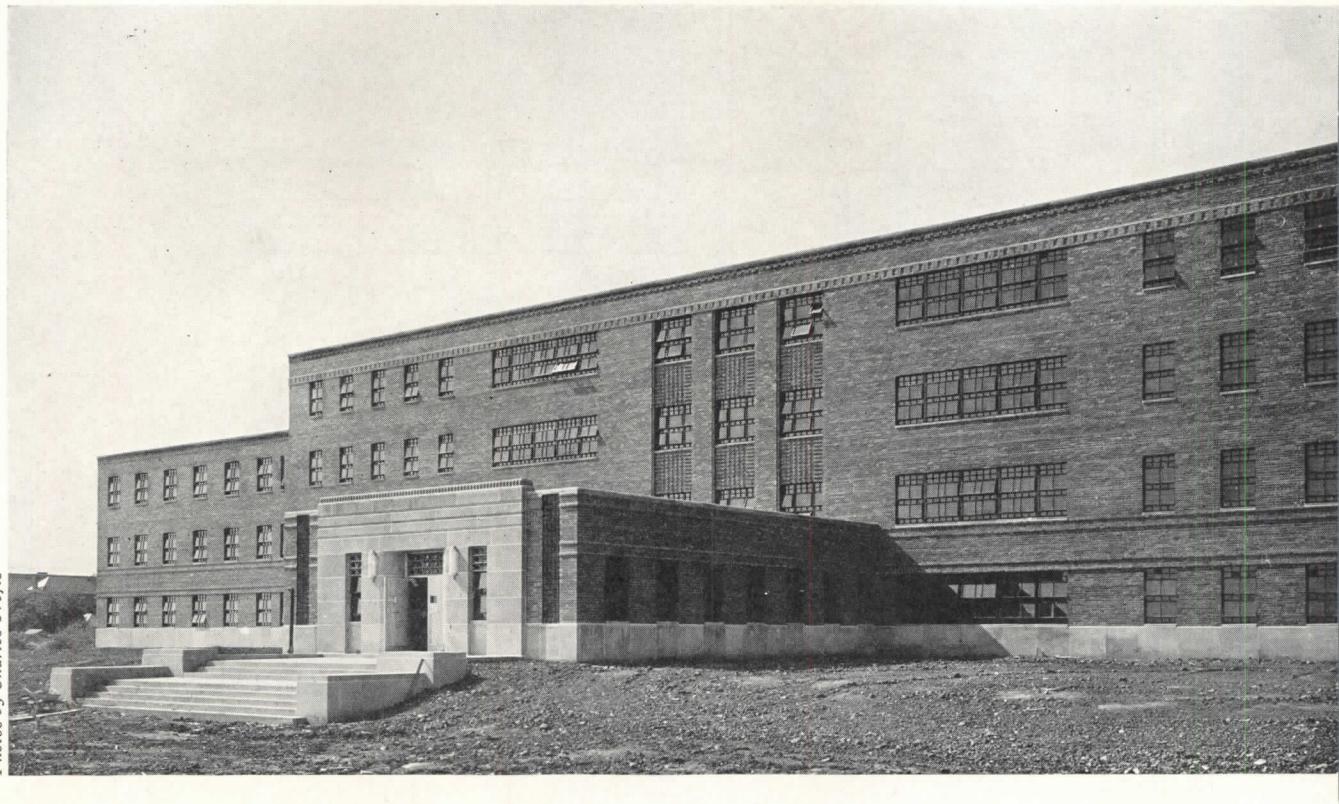
1. Porch
2. 10-bed ward
3. 4-bed ward
4. Utility room
5. Janitor
6. Nurse
7. Stretcher room
8. Private room
9. Linen
10. Day and dining room
11. Examination
12. Psychiatrist
13. Secretary
14. Psychoanalyst
15. Elevator lobby
16. Kitchen
17. Storage
18. Gymnasium
19. Recreation roof



irst Floor

. Library
2. Conference rooms
3. Chief psychologist
. Storage
. Janitor
. Coats
. Commitment
. Nursing staff rooms
. Director
. Secretary
. Assistant director
. Clerks
. Information
. Visitors' waiting
. Clinic waiting
16. Social service
17. Psychological examination
18. Children's room
19. Medical examination
20. Records
21. Nurses
22. Elevator lobby
23. Preparation
24. Examination
25. History
26. Quiet room
27. Patients' waiting room
28. Investigation
29. Treatment
30. Stretcher
31. Property clerk





Photos by Charles Trefts

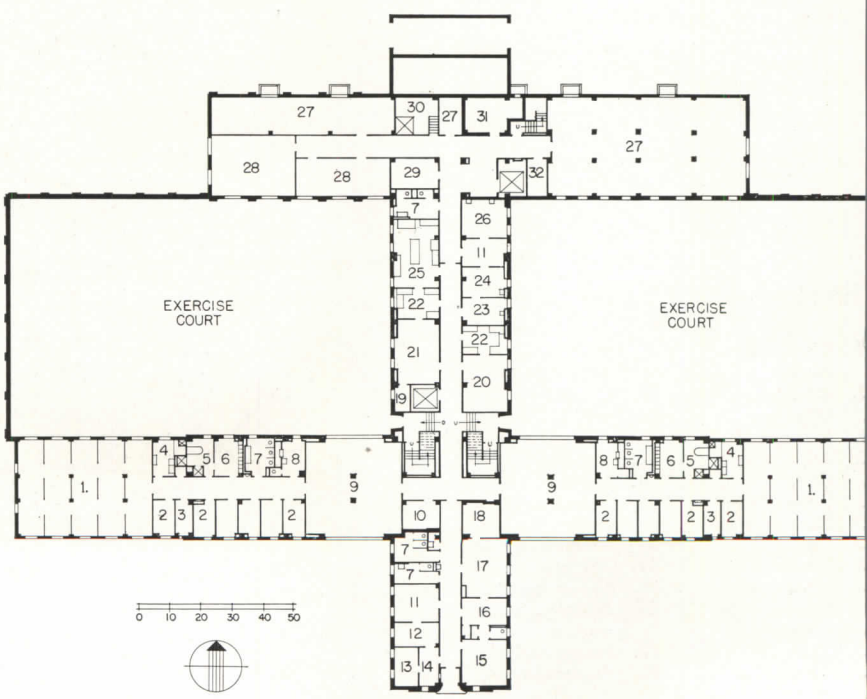
HOSPITAL FOR THE CRIMINAL INSANE—288 BEDS

STATE HOSPITAL NO. 1
FULTON, MISSOURI

LOUIS LA BEAUM
Architec

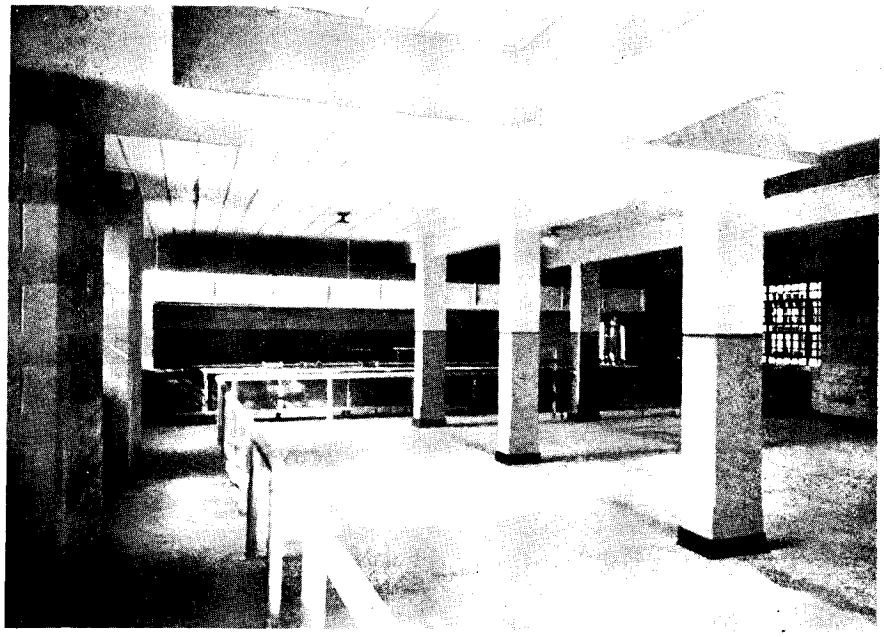
THIS BUILDING is a detention hospital for state prisoners who develop mental ailments after conviction. Some cases are mild, some extreme, but all require segregation. The hospital includes seven self-contained nursing units consisting of ward, day room, toilets, locker, bath, utility room, and isolation rooms.

Interior finish is devoid of unessential details an comparatively indestructible. Surfaces are generally terrazzo, tile, or painted concrete, plywood forms bein used for the latter to secure smooth surfaces. Visito and mild cases enter from the south, violent cases fro the north, through the covered driveway.

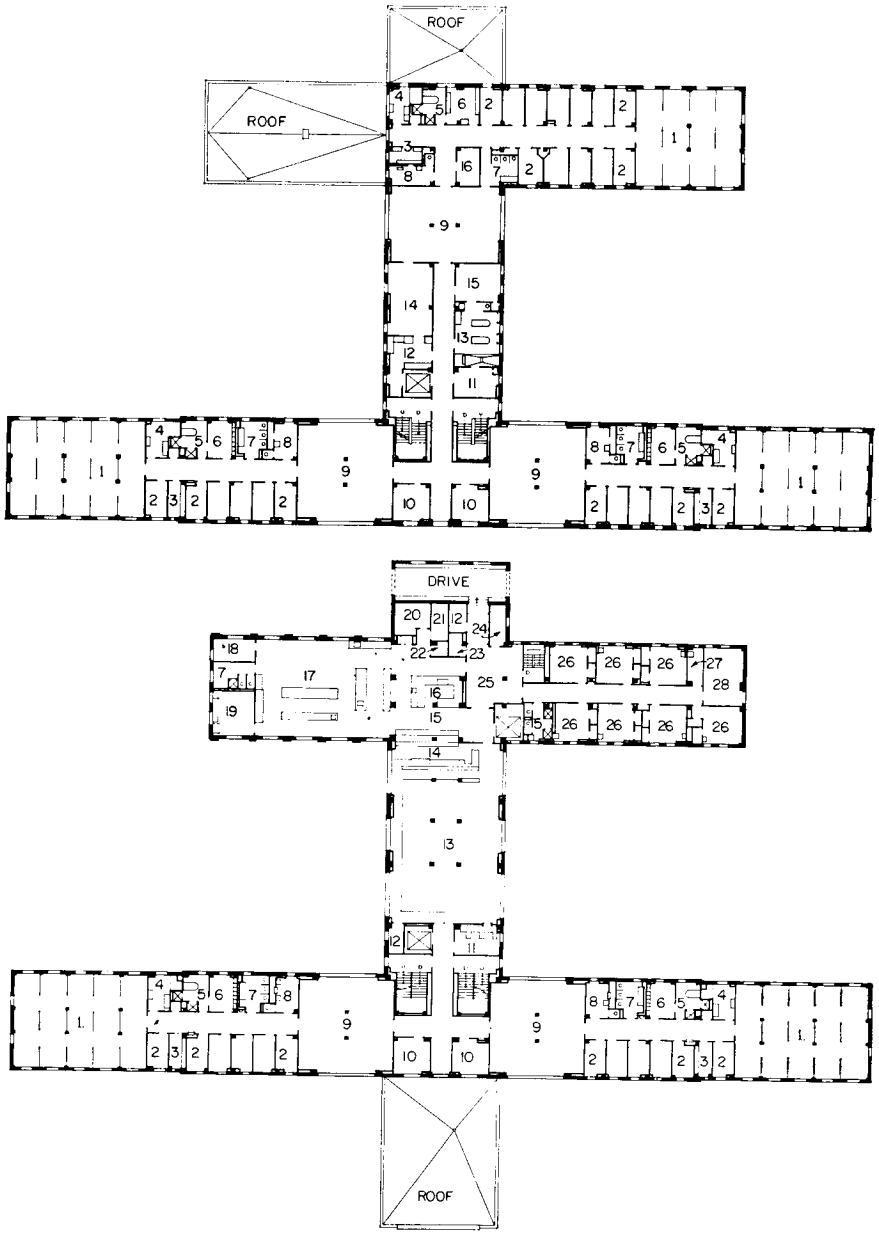


First Floor

1. Ward
2. Isolation
3. Linen
4. Utility
5. Bath
6. Lockers
7. Toilets
8. Nurse
9. Day room
10. Photos and fingerprints
11. Waiting room
12. Office
13. Registration
14. Guard
15. Superintendent
16. Secretary
17. General office
18. Records
19. Switchboard
20. Staff dining
21. Attendants' dining room
22. Serving room
23. Dental
24. Dentist
25. Kitchen
26. Barber
27. Storage
28. Shop
29. Supplies
30. Steam entry
31. Transformers
32. Machine room



Cafeteria on second floor



rd Floor

Ward
Isolation
Linen
Utility
Bath
Lockers
Toilet
Nurse
Day room

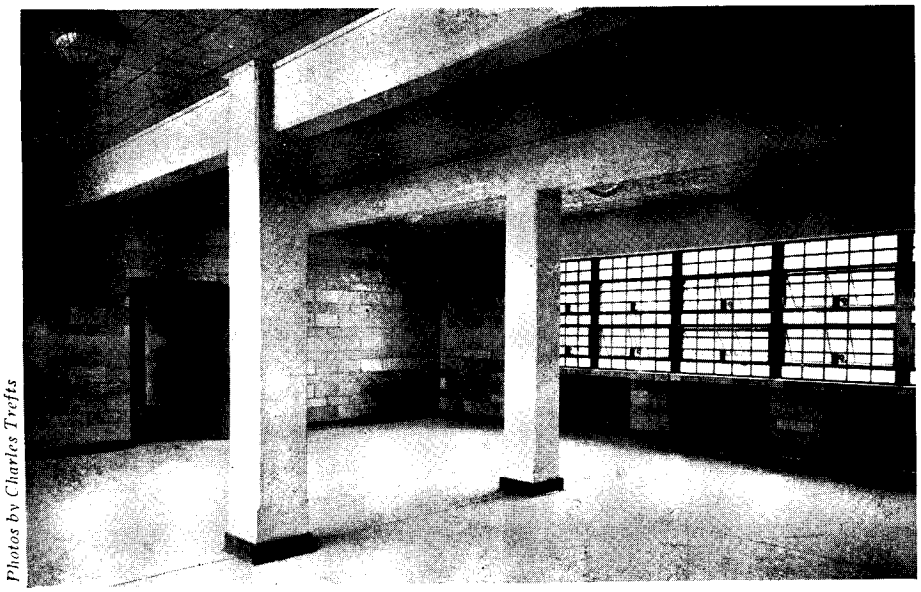
10. Visitors
11. Colonic irrigation
12. Serving room
13. Continuous baths
14. Dining room
15. Pack room
16. Storage

cond Floor

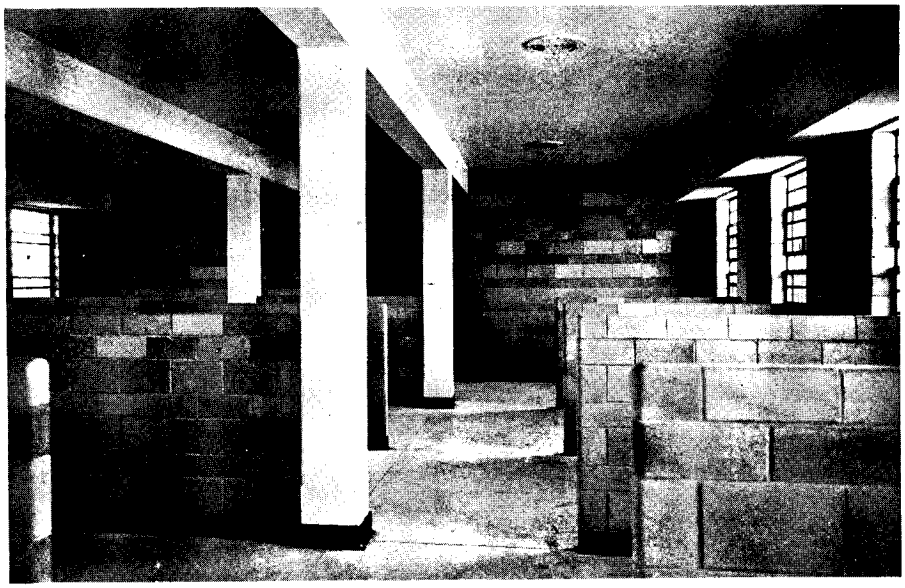
Ward
Isolation
Linen
Utility
Bath
Lockers
Toilets
Nurse
Day room
Visitors
Scrapping room
Storage
Dining room
Cafeteria
Serving room

16. Dishwashing
17. Kitchen
18. Help's dining
19. Vegetable preparation
20. Vegetable storage
21. Meat
22. Dairy
23. Garbage
24. Guard
25. Receiving room
26. Attendant
27. Pressing room
28. Clubroom

HOSPITAL FOR THE CRIMINAL INSANE



Photos by Charles Trefts



At top, interior of a typical day roo
walls and floors are surfaced with
destructible materials, ceiling is aco
tically treated, radiators are recesse
and lighting fixtures are protecte
Below, typical ward; coves and b
noses are used at all corners. Dw
partitions permit observation throu
out the ward.

SCHEDULE OF EQUIPMENT AND MATERIALS

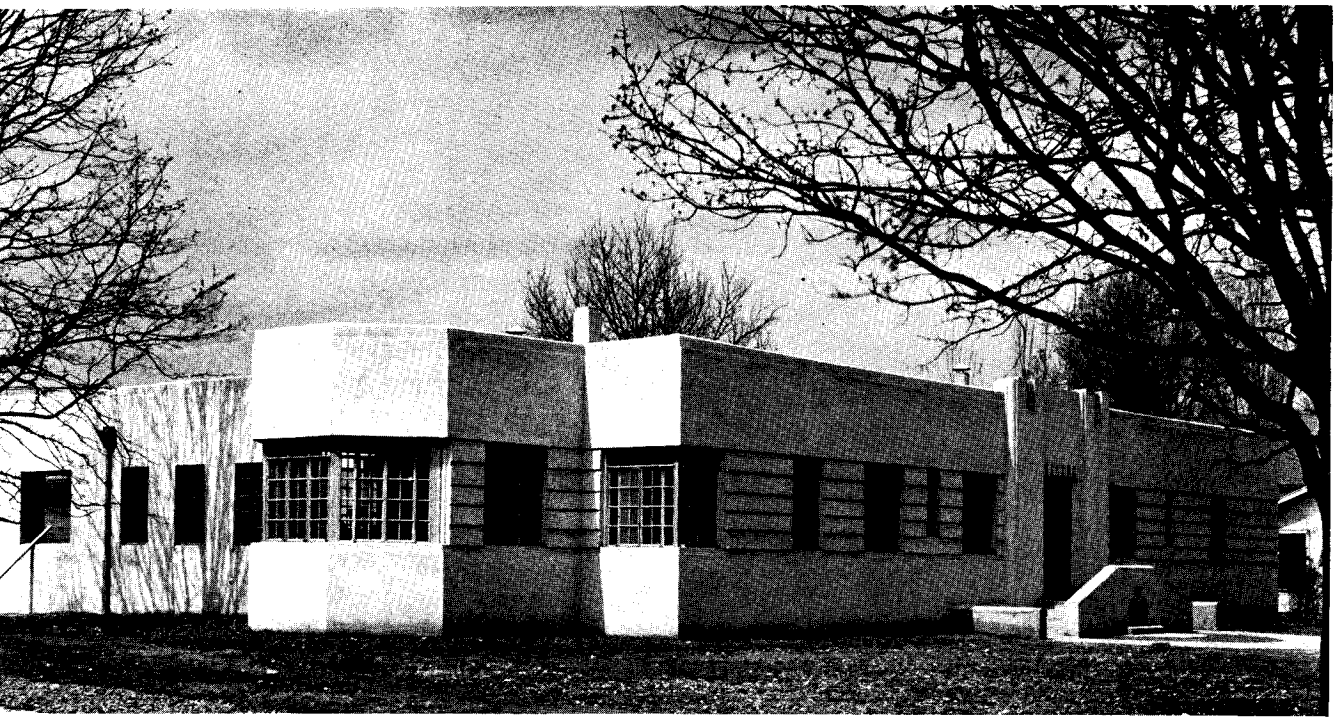
FOUNDATION
Concrete

STRUCTURE
Reinforced concrete columns and floors

EXTERIOR
Walls: Brick, concrete; cut-stone trim, Indiana Limestone Corp.
Sash: Detention windows, guards and screens, William Bayley Co.
Roof: Concrete deck, built-up roofing

INTERIOR
Floors: Tile, The Coates Co.; cement, aggregate finish, trap rock, Pilot Knob Ore Co.
Walls: Cement plaster; tile, The Coates Co.; marble, St. Genevieve and Carthage, Arnosti Marble Co.; X-ray proof material, Ray-Proof Co.
Doors: Detention, Pauly Jail Building Co.; hollow metal, Dahlstrom Metallic Door Co.; rolling steel, R. C. Mahon Co.
Ceilings: Plaster; acoustical treatment, Acousti-Celotex, Celotex Corp.
Millwork: McClelland & Co.

EQUIPMENT
Elevators: Otis Elevator Co.; enclosures, Lasar Mfg. Co.
Hardware: Sargent & Co.
Kitchen: Southern Equipment Co.
Plumbing: Fixtures, Standard Sanitary Mfg. Co.; hose cabinets, W. D. Allen Manufacturing Co.; valves, Pratt & Cady Co., Fairbanks; pumps, Westco, Micro-Westco, Inc.; traps, heavy duty, Webster Co.
Heating: Radiators, Trane Co.; unit heaters, American Blower Co.; automatic temperature regulators, Johnson Service Co.
Refrigeration: Refrigerator equipment, Market Forge Co.; compressors, Curtis Mfg. Co.
Electrical: Switches and receptacles, keyed, Hart & Hegeman Electric Co.; explosion-proof switches, Crouse Hinds Co.; lighting fixtures, Edwin F. Guth Co.



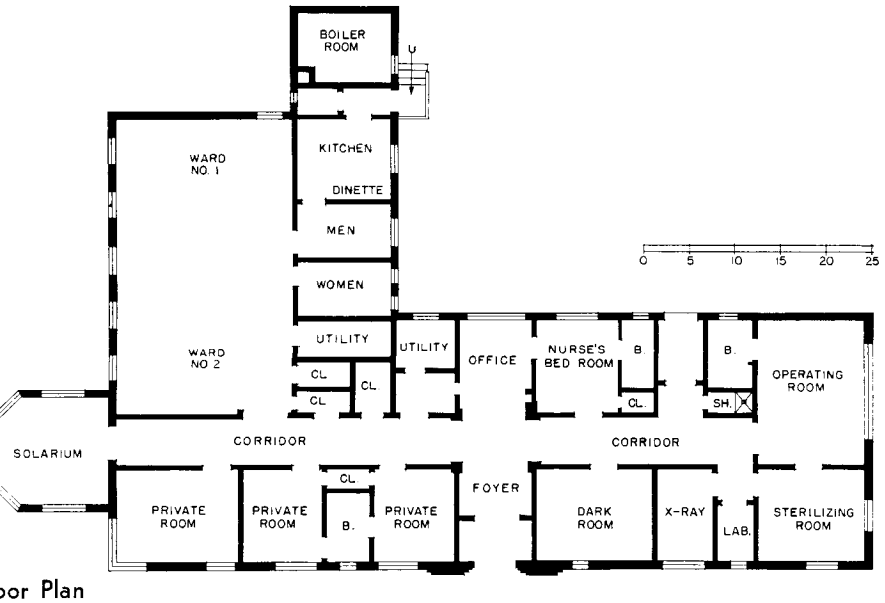
MALL GENERAL HOSPITAL—16 BEDS

OSEDALE HOSPITAL
OSEDALE, MISSISSIPPI

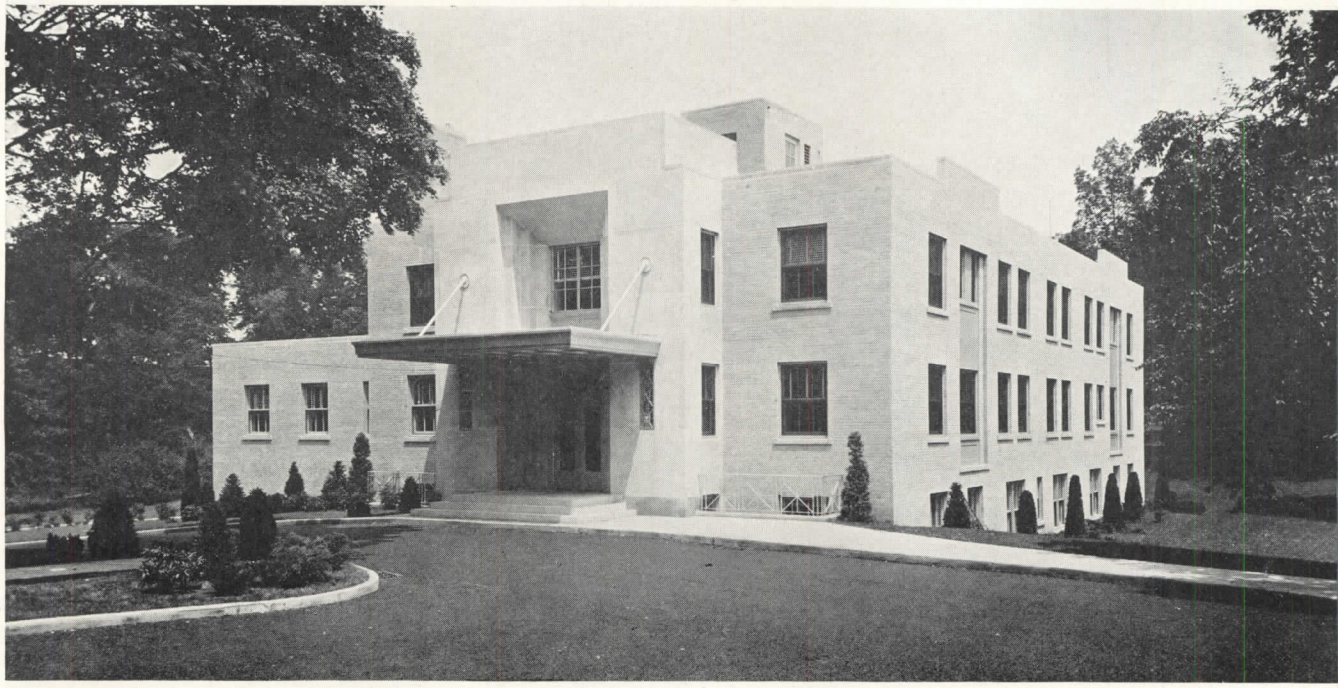
N. W. OVERSTREET
and A. H. TOWN
Architects

NE OF THE many hospitals erected with WPA funds, is structure has double walls, and floor and roof slabs of Super-Rock concrete. Floors are finished with phalt tile; walls are plastered. Conditioned air is sup- ied through ducts in corridor ceilings, with returns at or level.

Though small, the building includes operating, ward y-room facilities located at "dead ends" of corridors, as commended for chronic hospitals.



oor Plan

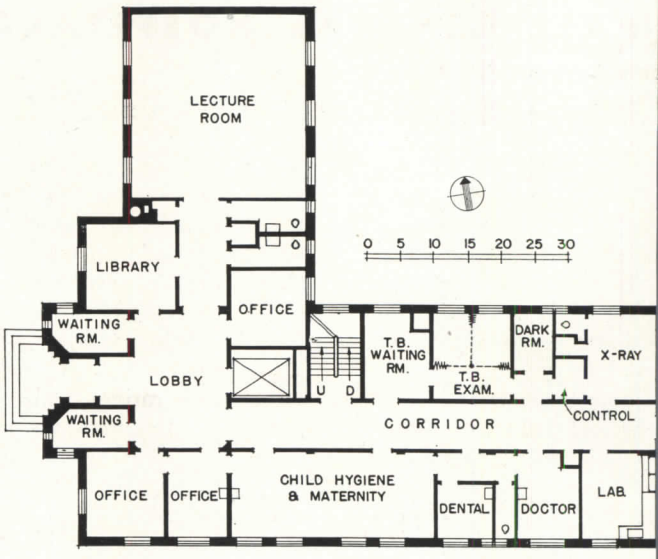


Photos by Shaw Studio

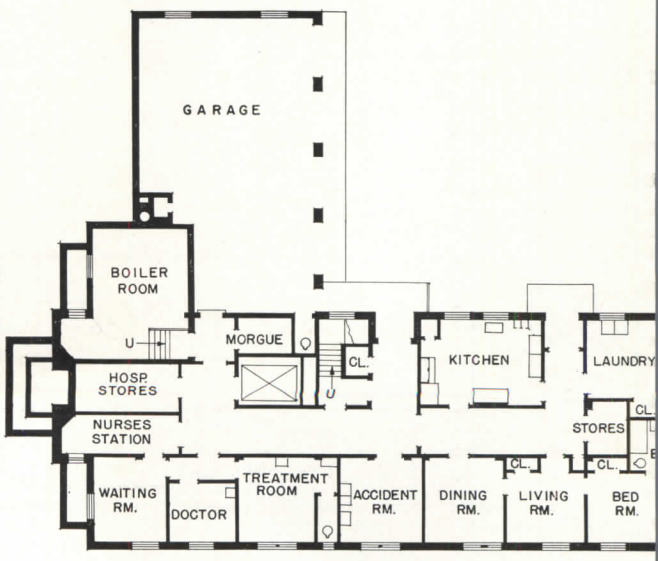
10-BED EMERGENCY HOSPITAL AND HEALTH CENTER

BRADLEY MEMORIAL HOSPITAL
SOUTHINGTON, CONN.

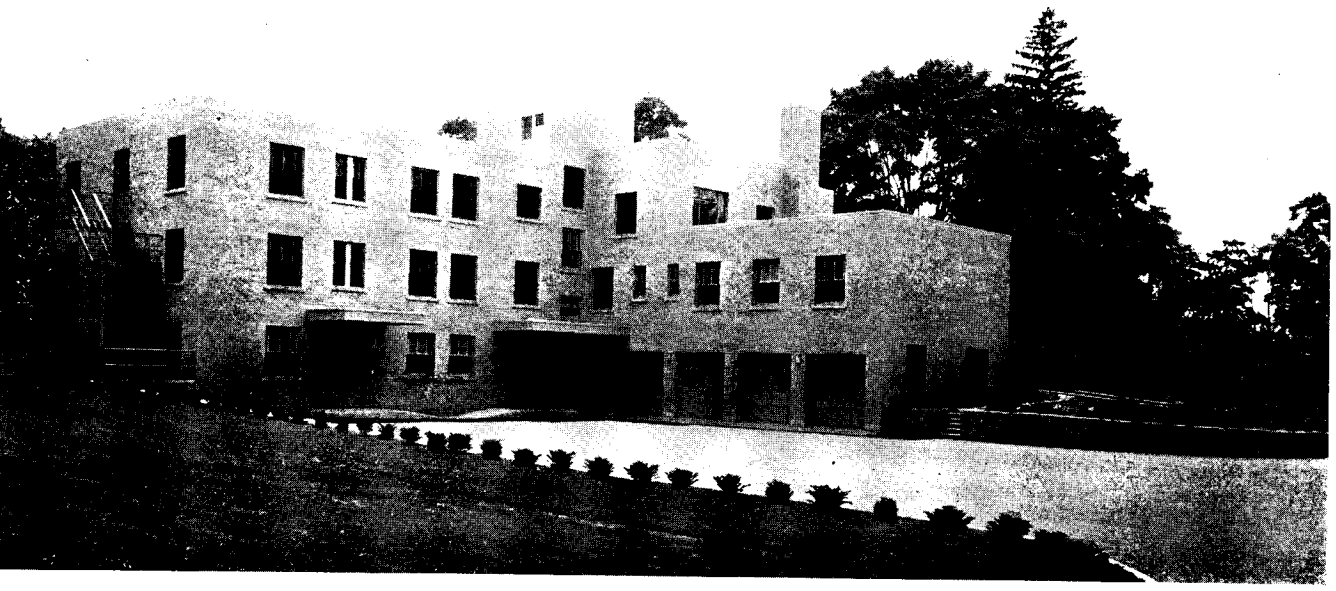
LESTER BEACH SCHEIDE, INC.
Architects



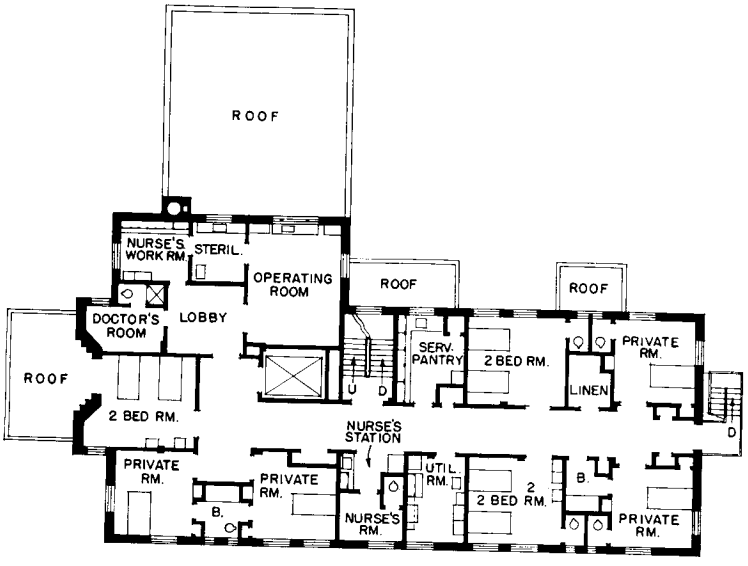
PLANS: at right, first floor; below, basement



FOLLOWING A program prepared by Ira V. Hiscock, Professor of Public Health, Yale University, and Dr. Benjamin G. Horning, Health Officer of the City of Hartford, Bradley Memorial is designed as a community health center, giving emphasis to preventive medicine, with emergency hospital provisions. This combination of facilities for chronic cases with those for acute patients brings under one roof the various public health agencies requiring separate buildings in large communities.



n opposite page, entrance front; ove, rear, showing ambulance rance



Second floor

HEDULE OF EQUIPMENT AND MATERIALS

NDATION

crete

UCTURE

ctural steel, Carnegie Steel Co.; rein- ed concrete, reinforcing steel, Republic l Co.

ERIOR

s: Common brick, Stiles and Reynolds; brick, Belden Brick Co.; limestone, In- Stone Co.; granite, John Swenson Gran- Co.; damp-proofing, Tremco Mfg. Co. Steel, Truscon Steel Co.

ior doors: Aluminum, Bradley & Hub- Mfg. Co.; hollow metal, Reliance Bronze eel Co., Inc.; garage, Overhead Door .

: Built-up, Barrett Co., 20-year type s: Libbey-Owens-Ford Glass Co.

INTERIOR

Floors: Tile, American-Franklin-Olean Tiles, Inc.; terrazzo, De Paoli Mosaic Co.; cement finish, Lapidolith, L. Sonneborn Sons, Inc.; rubber tile, Armstrong-Stedman rubber flooring; asphalt tile, Uvalde Rock Co.

Walls: X-ray proof lead-lined block, Bar-Ray Products, Inc.; terra-cotta partition tile, National Fireproofing Corp.; metal base, Knapp Bros. Mfg. Co.; tile finish, Cambridge Tile Mfg. Co.; Flexwood, U. S. Plywood Corp.; metal partitions, Henry Weis Mfg. Co., Inc.

Ceilings: Plaster; acoustical material, Norristown Asbestos Mfg. Co.

Doors: Elevators and dumbwaiters, Dahlstrom Metallic Door Co.; interior wood, Crooks Door Co.; combination steel frames and trim, Reliance Bronze and Steel Co.; door louvers, Ellison Bronze Co.

Paint: Pittsburgh Plate Glass Co.

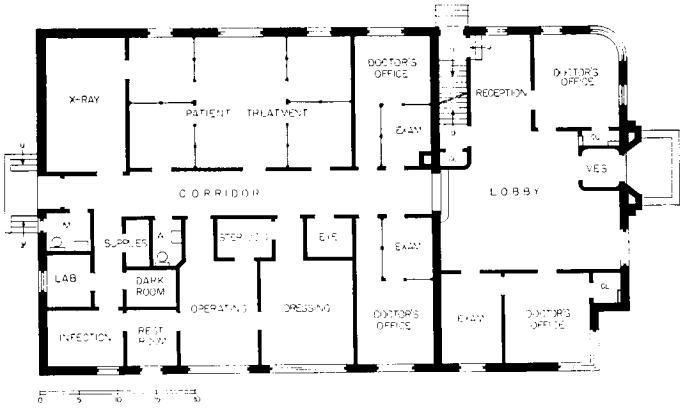
EQUIPMENT

Hardware: Russell & Erwin Mfg. Co.
Screens, shades: Kane Mfg. Co.
Venetian blinds: Acirema Metals Corp.
Cabinets: Medicine, Charles Parker Co.; steel dressers, Art Metal Construction Co.
Dumbwaiters, elevators: Otis Elevator Co..
Plumbing: Fixtures, Standard Sanitary Mfg. Co.
Lighting fixtures: General, Bradley & Hubbard Mfg. Co.; special, Cecil K. White, Inc.; operating, Scanlon-Morris Co.
Transformers: General Electric Co., Pyranol.
Heating: Oil-burning, air-conditionng, boiler-burner units, General Electric Co.; hot-water supply, Everdur tanks.
X-ray equipment: Buck-O-Graph X-ray Co.. Kelley-Koett Mfg. Co., Inc.
Sterilizers: Wilmot Castle Co.
Hospital furniture: Hill-Rom Co.

INDUSTRIAL CLINIC

DETROIT INDUSTRIAL CLINIC
DETROIT, MICHIGAN

CHARLES N. AGREE
Architect



The second story covers only the front portion of the building, and contains living quarters for staff members. First-floor plan at left shows clinical facilities.

SCHEDULE OF EQUIPMENT AND MATERIALS

FOUNDATION
Poured concrete footings and walls

STRUCTURE
Steel frame, brick and cement-block walls

EXTERIOR
Walls: Brick facing, two-story portion, Kittanning No. 2 face brick; one-story portion, sand-lime brick; glass masonry, Owens-Illinois Glass Co.; trim, yellow Kasota stone, Acme Cut Stone Co.; tablets and name plates, aluminum, Detroit Mausoleum and Equipment Works

Sash: Steel, Truscon Steel Co.

Roof: Wood deck on wood joists; built-up roofing, Flintkote Co.

Marquise: Aluminum, Sioux Metal Products Co.

INTERIOR
Floors: First floor, two-story portion, 4-in. concrete slab on earth; one-story portion, 2-in. concrete slab on steel joists; lobby finish, terrazzo; operating, dressing and sterilizing rooms, Magnesite, Wenzel Floor Co.; laboratory, darkroom, toilets, tile; all other first-floor spaces, rubber tile, Royalite, Paul Coste, Inc., or asphalt, Accotile, Armstrong Cork Products Co.; second floor, wood on wood joists

Walls: First and second floors, painted plaster; tile in operating, dressing and sterilizing rooms

Trim: Wood generally; some metal casings, Milcor Steel Co.

Ceilings: First and second floors, plaster on rock lath, insulated with 2½-in. rock wool fill on one layer of Air-O-Cel board, Air-O-C Industries, Inc.

HEATING
Oil-burning direct-fired air conditioning co plete with blower, filters, humidifier, hot-wa heating coil; duct work, galvanized iron g erally, vitrified pipe in unexcavated are all by Gar Wood Industries, Inc.

PLUMBING
Piping: Galvanized steel
Fixtures: Vitreous china, Standard Sanit Mfg. Co.

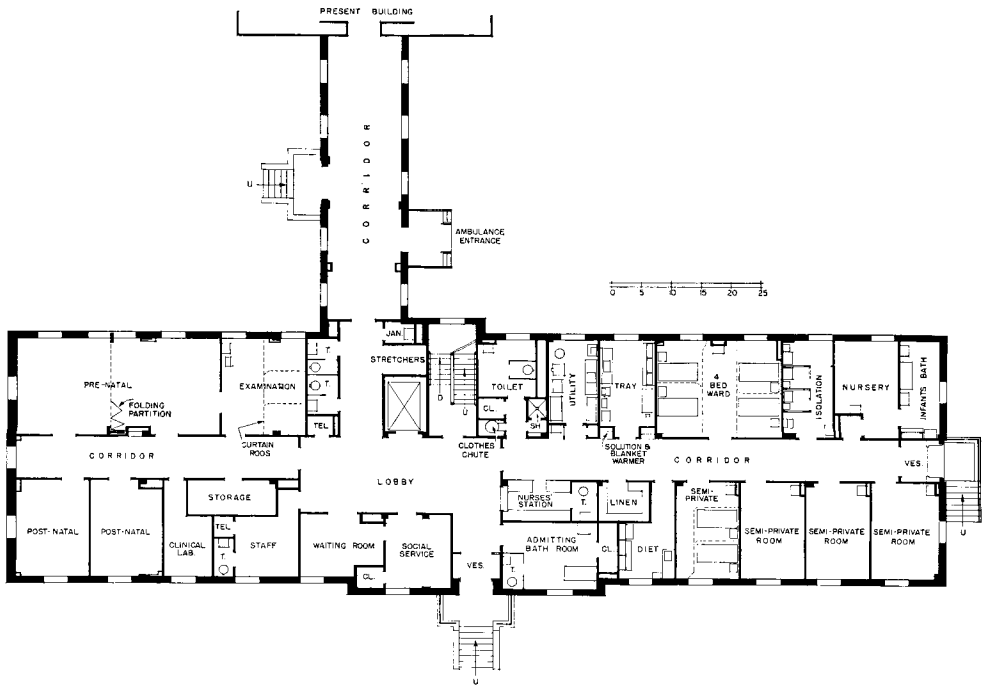
EQUIPMENT
Kitchen: Parsons Co.
Incinerator: Detroit Incinerator Co.

ATERNITY BUILDING—109 BEDS

LMINGTON GENERAL HOSPITAL
LMINGTON, DELAWARE

G. MORRIS WHITESIDE, 2nd
Architect

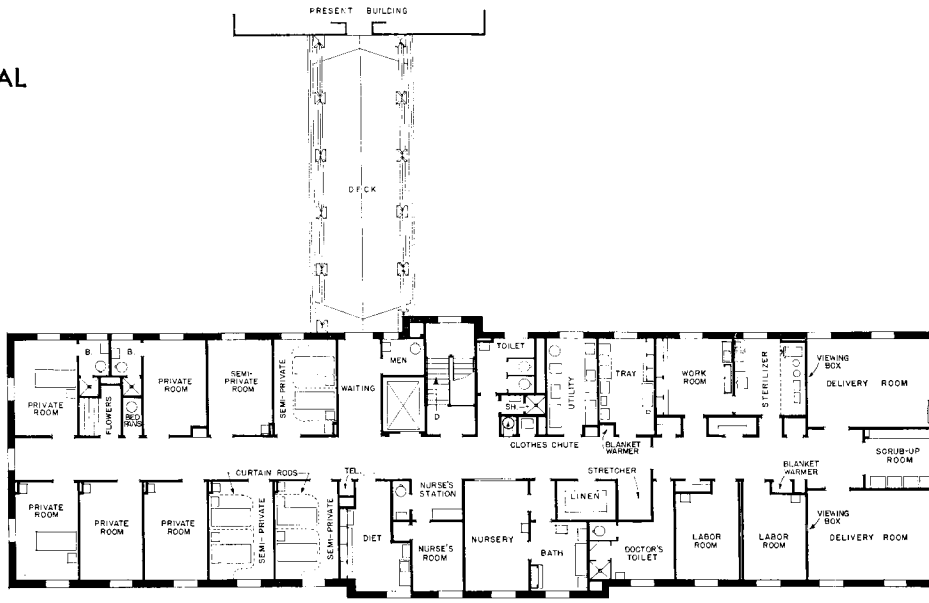
ACCOMMODATIONS are divided as follows: for adults, 48 beds, including 14 private rooms, 26 semiprivate and 2 four-bed wards; bassinettes, 61, including a general nursery for 51, premature, 4, and isolation, 6. The planning consultant was Dr. Frank M. Houck of Johns-Hopkins.



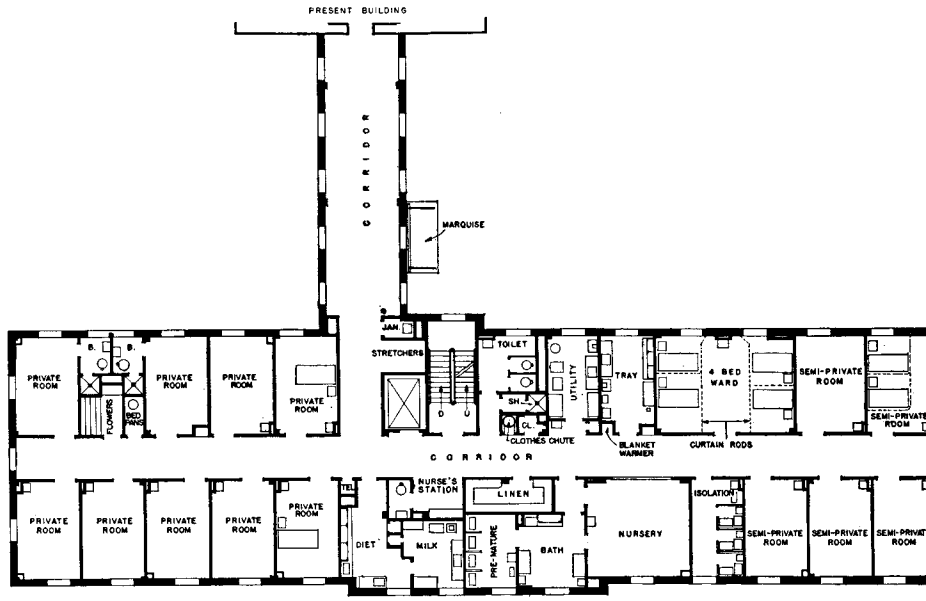
First Floor Plan

MATERNITY BUILDING

WILMINGTON GENERAL HOSPITAL
WILMINGTON, DELAWARE



Third Floor



Second Floor

SCHEDULE OF EQUIPMENT AND MATERIALS

FOUNDATION

Poured concrete; metallic waterproofing, Master Builders Co.

STRUCTURE

Concrete; roof framing, steel, Bethlehem Steel Co.

EXTERIOR

Walls: Brick, cinder block backup; Virginia face brick; marble trim, Green Mountain Marble Corp.; sculpture, Joseph H. Bass

Sash: Double-hung, Northeastern Lumber Co.; glass, Pennvernon, Mississippi Glass Co.; weatherstripping, Pyramid Metals Co.

Roof: Slate on cement slab, Federal-American Cement Tile Co.

Insulation: Eagle-Picher Sales Co.

INTERIOR

Floors: Terrazzo generally, Vesta-Gloss finish; asphalt tile in basement, Durite; Sealex linoleum in corridors, Congoleum-Nairn, Inc.; ceramic tile in toilets, Penn Tile Works

Partitions: Gypsum block; folding partitions, Fairhurst Unitfold Partition; bed screening, Day's Curtain Screening Equipment, H. L. Judd Co.

Wall finishes: Ceramic tile wainscots, Mosaic Tile Co., Franklin Tile Co.; rubber wainscot, Hamilton Rubber Mfg. Co.

Ceilings: Acoustic plaster in corridors, waiting rooms, labor, delivery and isolation rooms, Gold Bond Macoustic, National Gypsum Co.

Interior doors: Wood, W. D. Crooks & Sons; millwork, Northeastern Lumber Co.; metal, Jamestown Metal Corp.

HEATING

Radiation, U. S. Radiator Corp.; unit heaters, Newbitt; convectors, Trane Co.; registers, Tuttle & Bailey, Inc.; heating-system specialties, Warren Webster & Co.; gauge board, Schade Valve Mfg. Co.; temperature controls, Minneapolis-Honeywell Regulator Co.; fans, American Blower Co.; vacuum pumps, Nash Engineering Co.; hot-water heater, Patterson-Kelley Co., Inc.

PLUMBING

Fixtures, Crane Co.; stainless steel sin
Elkay Mfg. Co.; hose cabinets, Knox M
Co., Inc.

LIGHTING

Fixtures: General, Erikson Co., Edwin F. G
Co., Lightolier Co., Westinghouse Electric
Mfg. Co.; special, Chester W. Snyder &
Associates, Victor and Shields, Inc.; operat
room, American Sterilizer Co.

EQUIPMENT

Venetian blinds: Western Venetian Blind
Refrigeration: System, Frigidaire; refrigera
C. V. Hill & Co., Inc.
Metal cabinets: H. D. Dougherty Co.
Clothes chute: M. O. Sundelius
Elevators: Otis Elevator Co.
Hardware: P. & F. Corbin
Hospital equipment: Nurses' call system,
wards & Co., Inc.; X-ray viewing box, E
X-Ograph