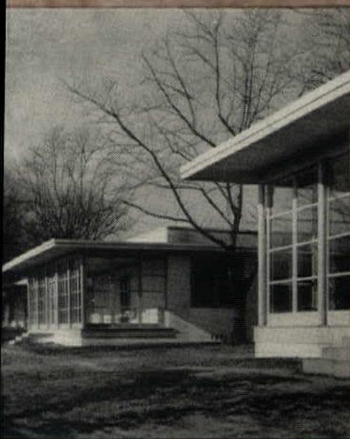
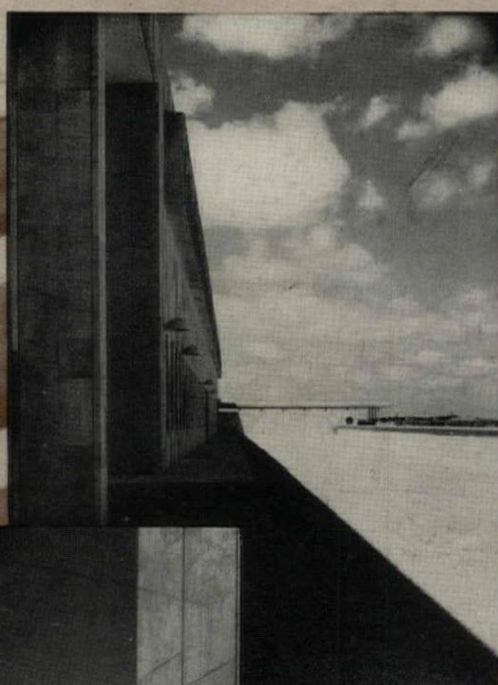
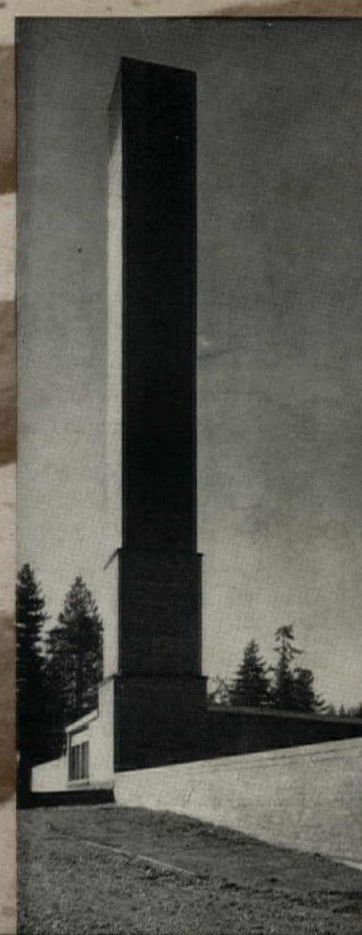
Pencil Points

THE MAGAZINE OF ARCHITECTURE







April, 1944

Normalcy Won't Do

The forthcoming A.I.A. meetings at Indianapolis should find the delegates in a sober mood. They will be conscious of the many problems the profession must solve if it is to re-establish itself as a significant and effective force in postwar society. While the meetings themselves cannot reach final decisions, they will indicate the official position of the national body of architects on many vitally important topics.

This being the case, it is regrettable that the percentage of younger men among the delegates will be smaller than usual due to the war, and that, consequently, there will be a more than usual tendency toward conservatism. To say this is not to deny the valuable qualities of older minds which are always needed as a balance for the impetuosities of youth. But the older heads, if as wise as reputed, will remember that the world has been violently changing and that it will continue to change (less violently, we hope), whether they like it or not. They will have the responsibility of representing not simply themselves, but also the young men who will be returning from the wars one day, and who will be impatient with any rigid patterns that may have been set for them during their absence. It is a time to establish flexibility in policies for the future rather than rigidity.

One of the important things to be considered will be ways and means of reabsorbing the erstwhile architectural men who have been in the armed forces or in war activities outside of architecture. We believe that the Institute, both from its central headquarters in Washington and acting through its several chapters and affiliated associations, should soon set up some form of placement service which would undertake to help the men to find jobs as expeditiously as possible. This service should be open to both architects and draftsmen. The reasons for setting it up are not simply to find jobs for the men, but to find men for the jobs, which we suspect will be rapidly materializing in many centers throughout the country as the postwar building program gets under way. It seems very possible that there may develop an actual scarcity of men in some sections at that time.

In line with this thought, the Institute at Indianapolis may well consider the possibility of asking the army and navy authorities to put architectural men at or near the top of the list for quick post-victory demobilization. Such a request, we understand, has already been made in England in anticipation of an urgent early need for architectural and planning technicians to prepare plans which will provide work for millions.

We believe the Institute should also adopt a policy of encouraging architects to expand their services to society through increased participation in some of the fields akin to architecture. We do not advocate undue encroachment into fields already preempted by engineers, planners, decorators, and industrial designers (even though representatives of these groups have not been hesitant about poaching on the architects' preserves). We do, however, feel that the architect has capacities in these directions which he has too frequently and too long neglected, and which could perfectly well be exercised for the benefit of society as well as for his own profit. Official recognition and sanction would clear the way.

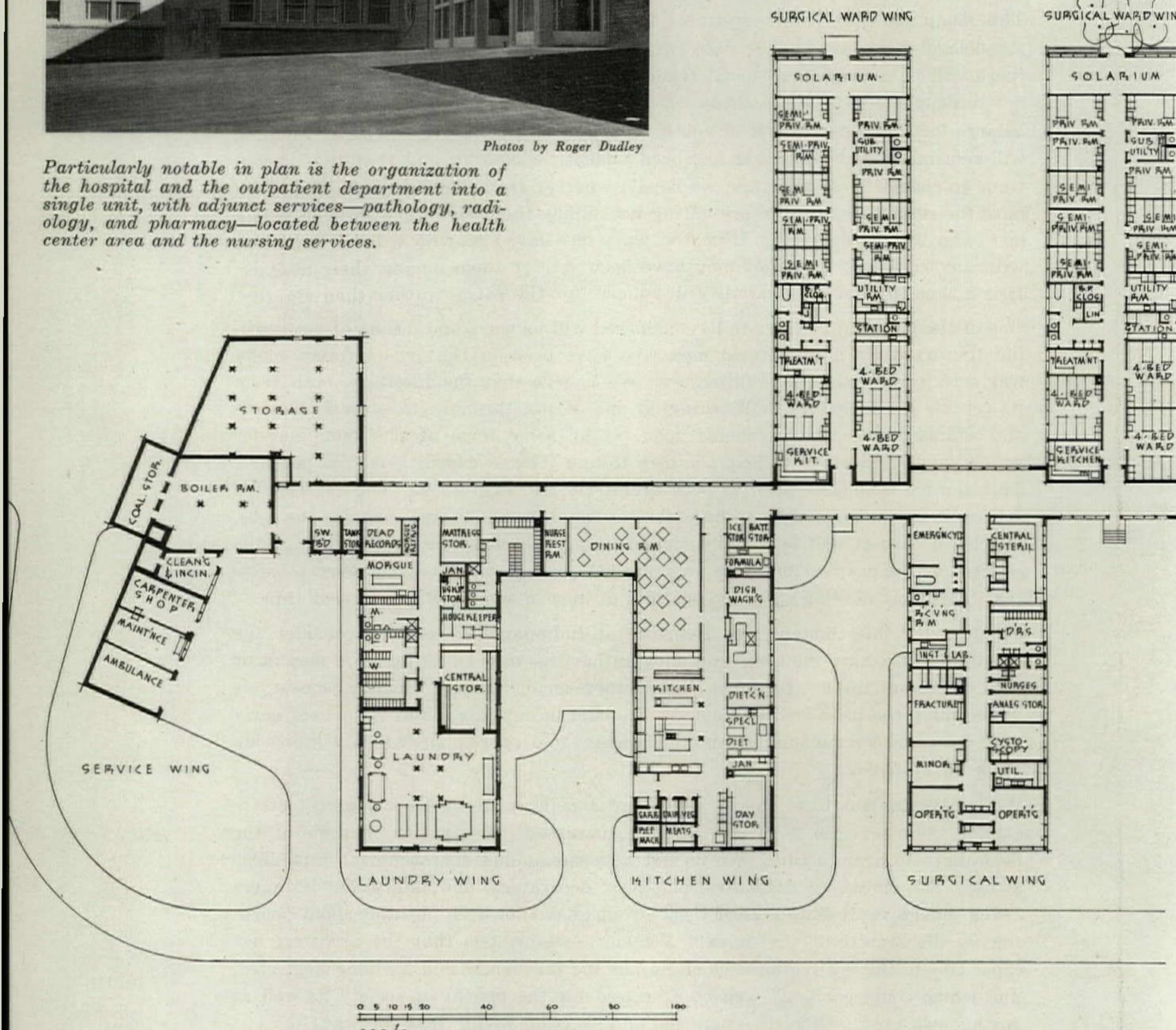
The delegates should properly be concerned with the future of architectural education; with changes that may be desirable in the architect's way of doing business; with the possible undertaking by the Institute of new methods of obtaining and disseminating reliable technical information; with projects (similar to those of the RIBA) for public education in regard to the nature and necessity of thoroughgoing replanning and rehabilitation of cities. These and other things that come readily to mind are challenges to the sense of responsibility of a really vigorous national body of architects such as the Institute intends, we take it, to become. Action on these matters rather than inconclusive debate will be evidence of the sincerity of this intention.

Kenneth Reid

Franklin D. Roosevelt

Photos by Roger Dudley

Particularly notable in plan is the organization of the hospital and the outpatient department into a single unit, with adjunct services—pathology, radiology, and pharmacy—located between the health center area and the nursing services.



COMMENT* by Thomas Parran, M.D., Surgeon General, United States Public Health Service

"Before the war, many urban areas in the United States lacked adequate, safe water supplies, sewage disposal systems, and other sanitary facilities. The war intensified these needs and created new demands in areas where large military and industrial installations were constructed. Through the provisions of the Lanham Act, only the most urgent of these needs have been met, and our public health engineers estimate that it will take an expenditure of about $300 million annually for 10 years to correct present deficiencies in sanitation facilities of all types.

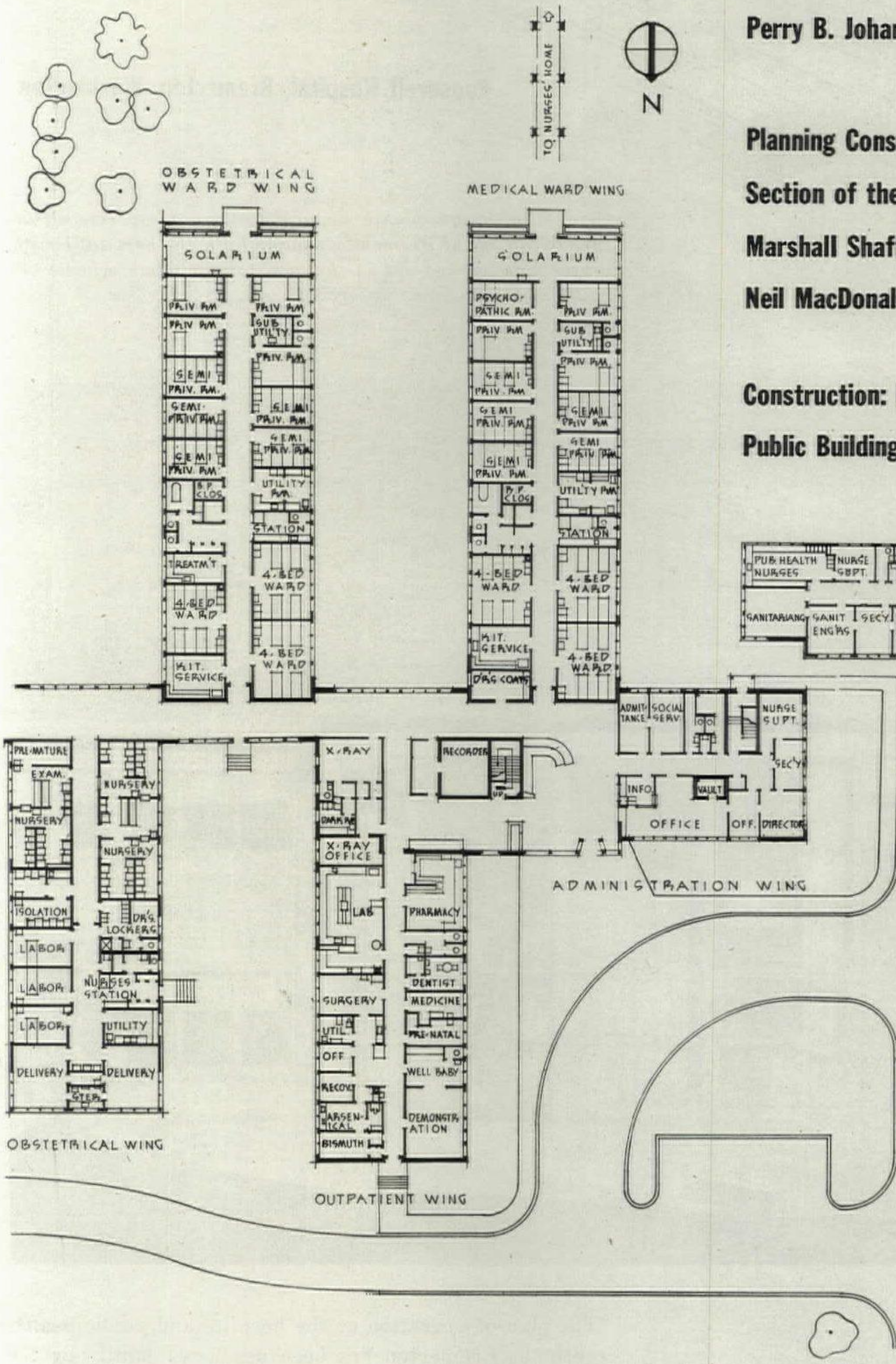
* *Excerpts from a speech, "The Expanding Field of Public Health and Preventive Medicine," delivered before the 40th Annual Congress on Medical Education and Licensure, American Medical Association, Chicago, Feb. 14, 1944.*

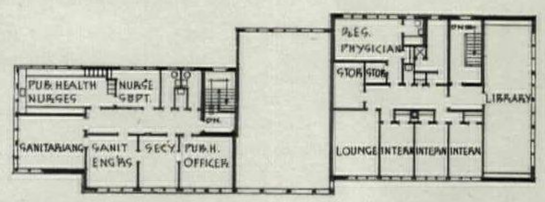
Hospital, Bremerton, Washington

Architects: F. A. Naramore & Associates, Clyde Grainger, A.I.A., Clifton J. Brady, A.I.A., Perry B. Johanson, A.I.A.

Planning Consultants: Hospital Facilities Section of the U. S. Public Health Service; Marshall Shaffer, Chief Architect; Neil MacDonald, Consultant

Construction: Emergency Operations Unit, Public Buildings Administration

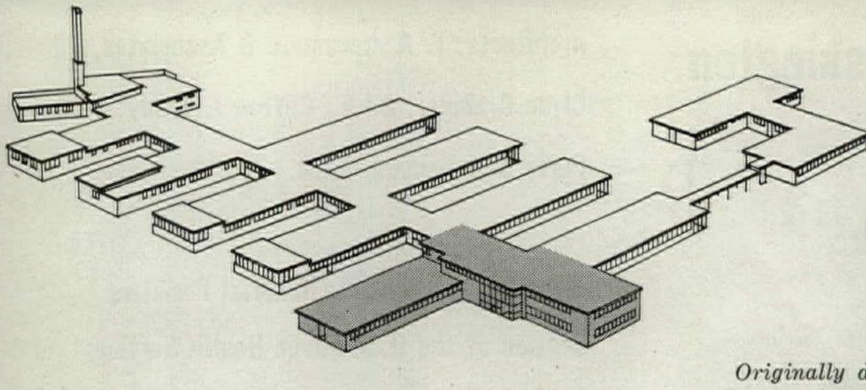




Second Floor Administration Wing

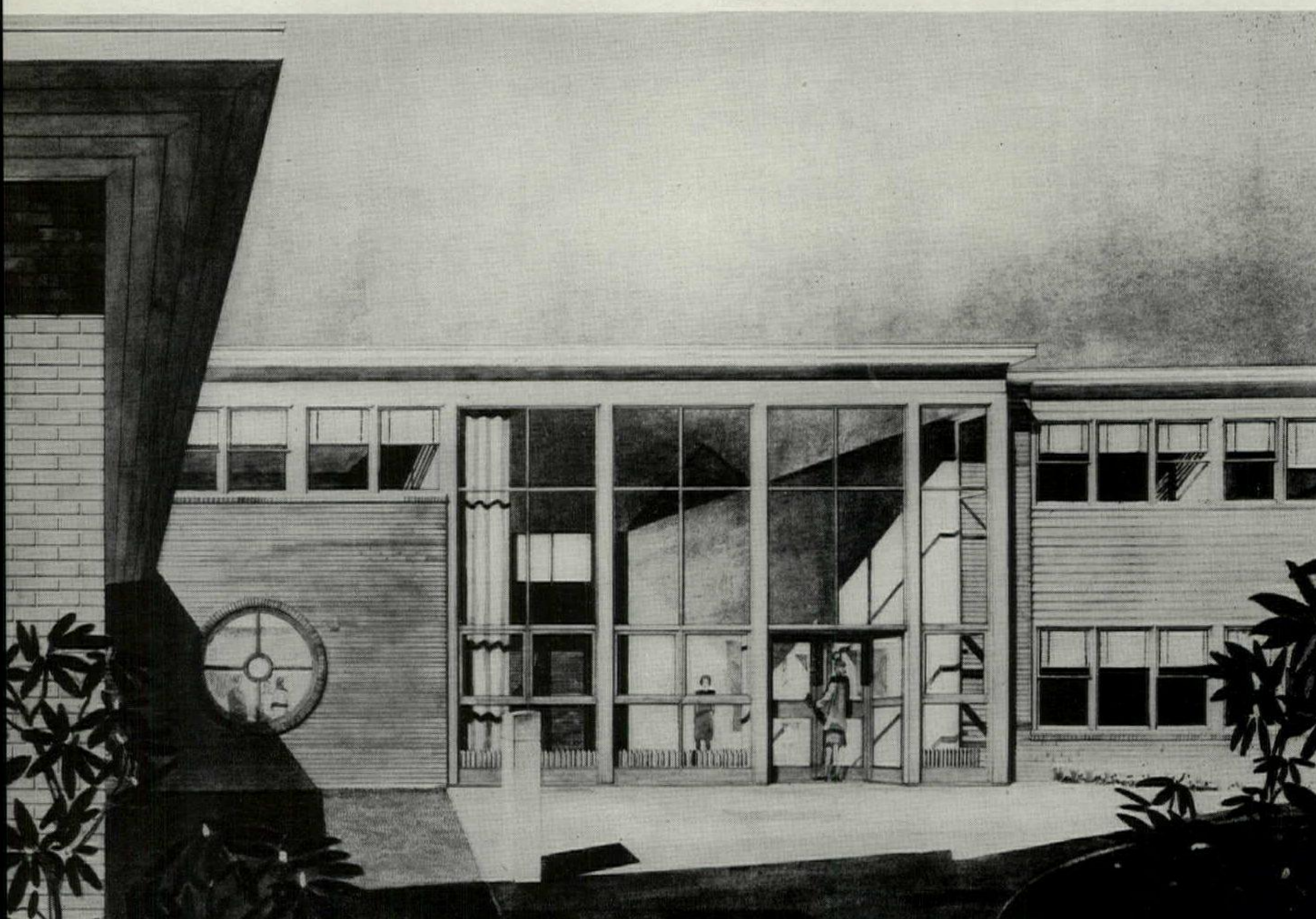
"Even more acute has been the shortage of hospitals and health centers. To date, under the Lanham Act, administered by the Federal Works Agency, hospitals with a total bed capacity of about 10,000 have been constructed or converted. Health centers, designed to house local health departments as well as clinical and diagnostic facilities, have been constructed in a number of communities. The provision, in Federal Public Housing projects, of infirmaries, health centers, and office quarters for private physicians has also helped to alleviate the shortage of health and medical facilities in war industrial areas.

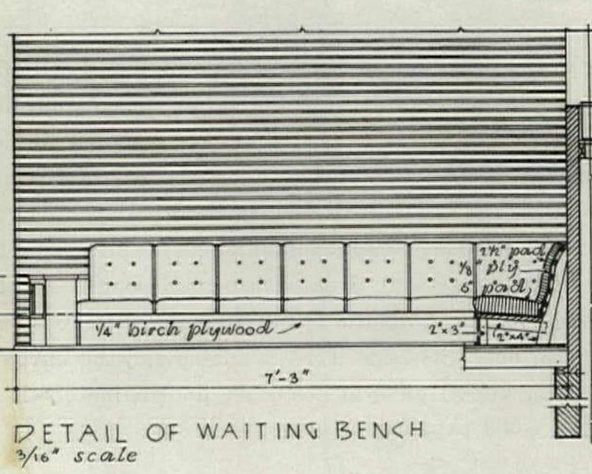
"In the operation of the new type of facility, there is a splendid opportunity for the closer integration of preventive and curative medicine. Let me give you an example. With Lanham Act funds, the city of Bremerton, Wash., and the Kitsap County Health Department have constructed a combined municipal hospital and health center, to serve an area with a total population of over 106,000. Prior to the opening of the new 106-bed hospital, only 153 beds were available for the entire area in registered general hospitals, approximately 1.4 beds per 1,000 population.



Roosevelt Hospital, Bremerton, Washington

Originally designed as a 6-story reinforced concrete structure to top one of Bremerton's many hills, the hospital-health center was worked out in the one-story pavilion scheme because of the ban on reinforcing steel.



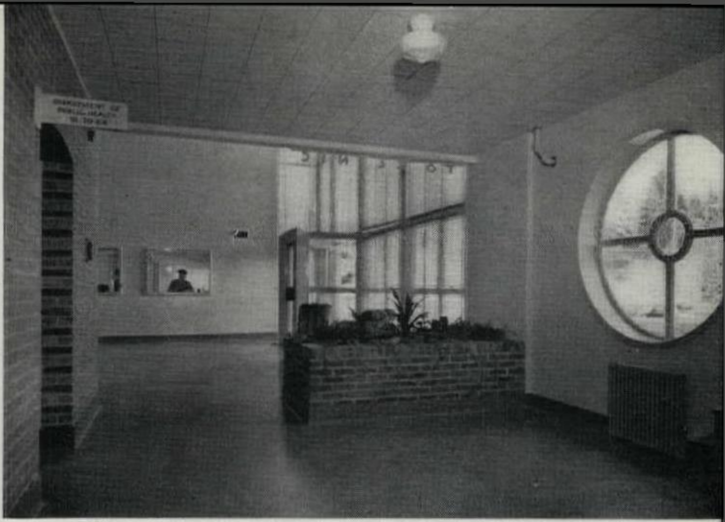


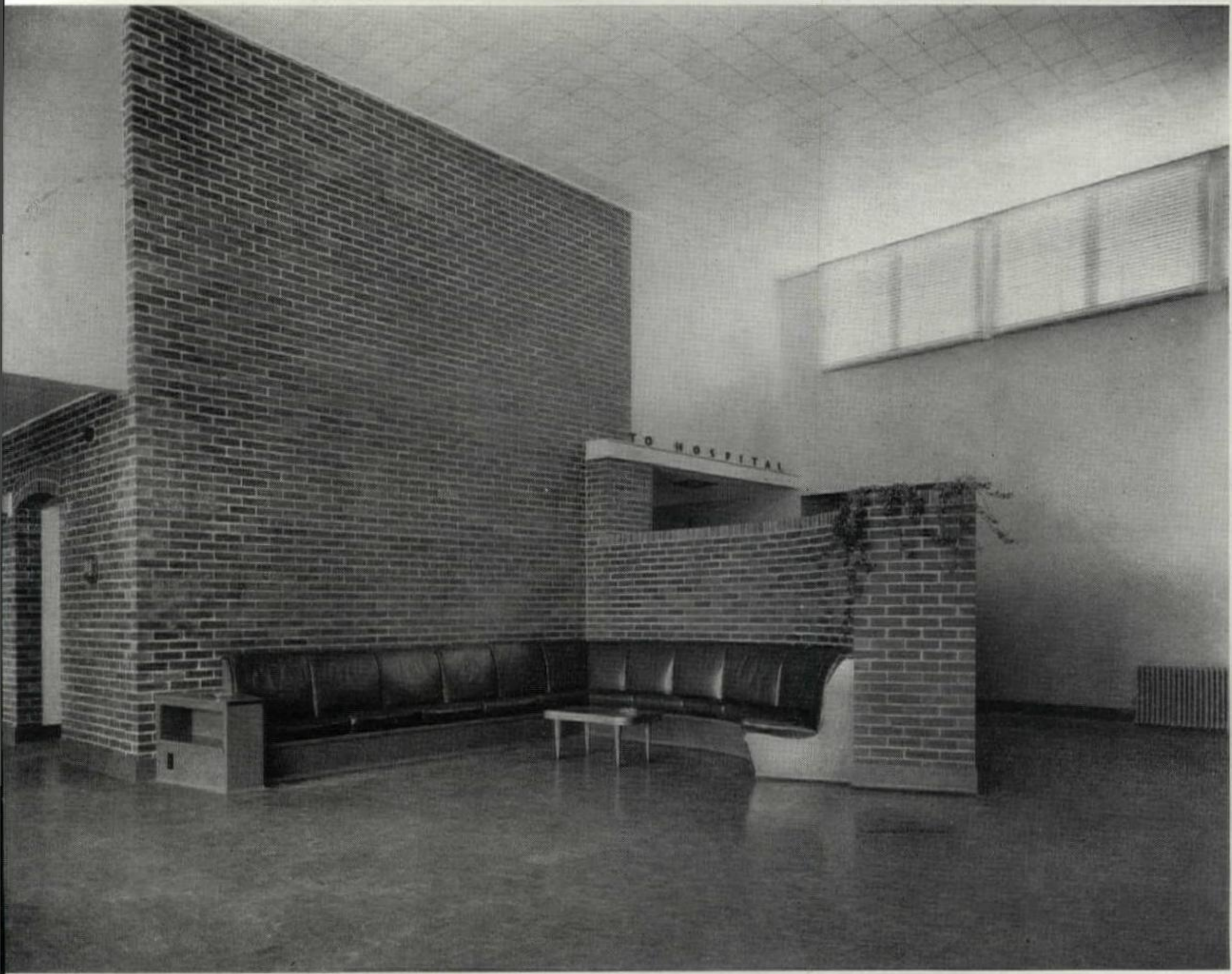
DETAIL OF WAITING BENCH
3/16" scale

"The plan of operation of the hospital and public health center at Bremerton has been developed jointly by the local medical society and the local health department.

"Laboratory and X-ray facilities of the institution are used jointly by the hospital and the health department, thus making available good diagnostic facilities for the private practitioner and the public. Through the coordinated program, the medical profession and the health department staff are working together to bring potential patients to early, preventive hospitalization. Since the Blue Cross Plan has been widely adopted in the area, there is no economic barrier between the patient and necessary hospital care. The physicians also make use of the nutritionists and nurses of the health department

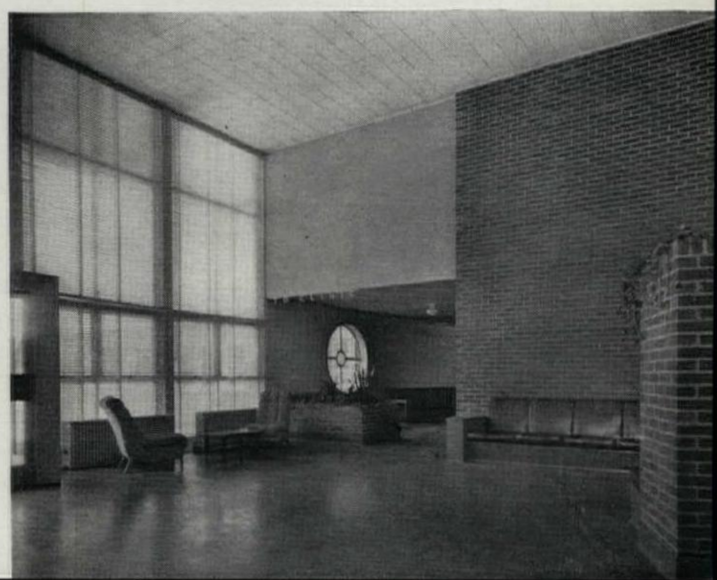
The adopted structural system employs a minimum of critical materials. Foundation walls are concrete. Exterior walls are brick veneer, with occasional areas (particularly adjacent to window strips) surfaced with lap siding or flush boarding. Trim is of wood throughout. The roof is 4-ply roofing.

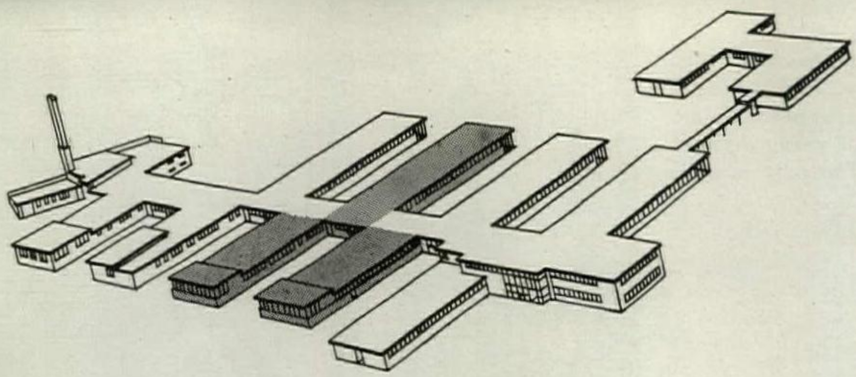




in the instruction of patients while they are in the hospital and in the follow-up of discharged patients. The maternity and infant care programs are closely integrated with the work of the hospital and the physician.

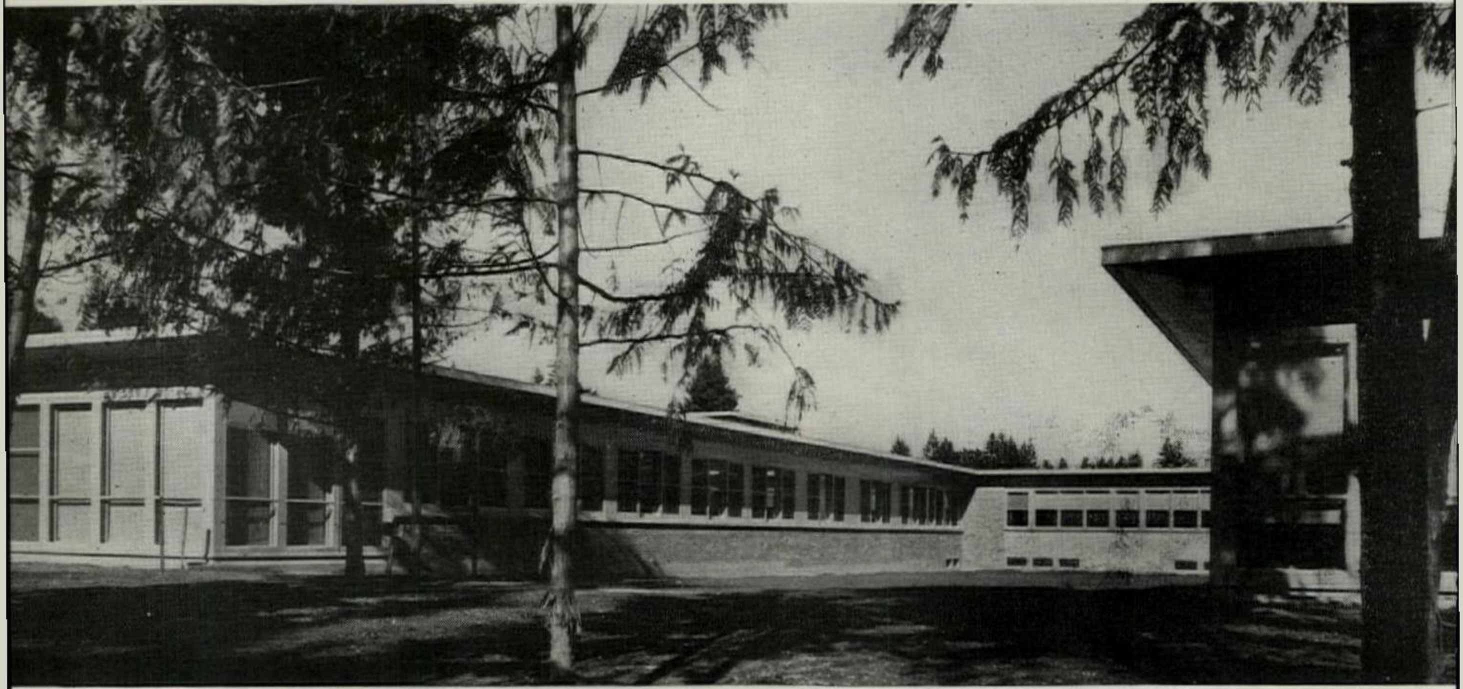
"The tuberculosis clinic, open both to private and non-paying patients, affords the practitioner the opportunity for X-ray diagnosis of patients and their contacts. It is planned to make available certain consultant services at the hospital-health center. For example, the hospital expects to have a physician specially trained in the new intensive treatment techniques for syphilis. A few beds will be designated for syphilis patients, in order that the local physicians may take advantage of the opportunity to learn and use the rapid treatment methods.

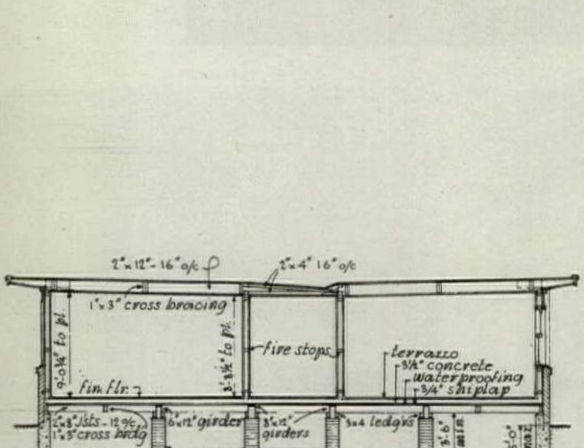




Roosevelt Hospital, Bremerton, Washington

Each nursing wing provides for 26 beds normal capacity, with 34 beds maximum capacity. Walls are plastered and painted; ceilings are surfaced with acoustic board. Main floors are asphalt tile, with hardwood cove base, except in the obstetrical and surgical wings where terrazzo floors and base are used. In the kitchen and laundry, the floors are concrete.

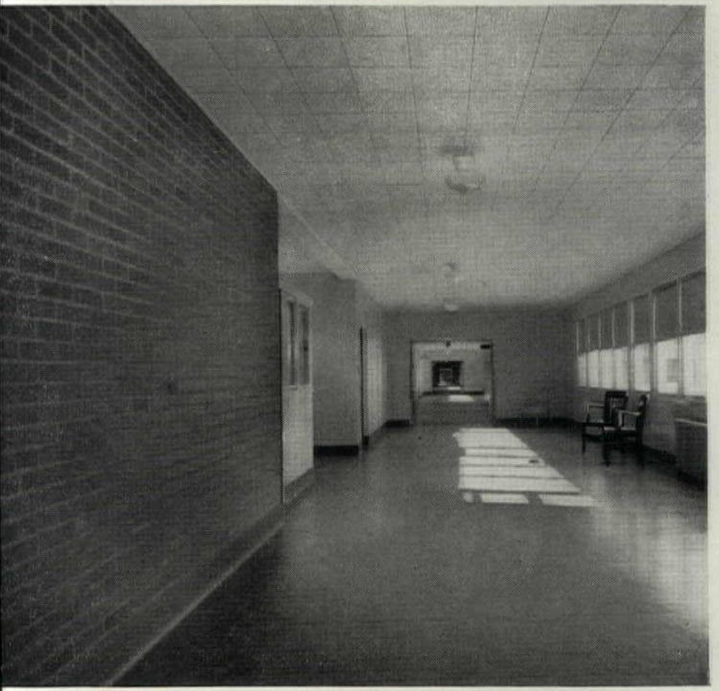




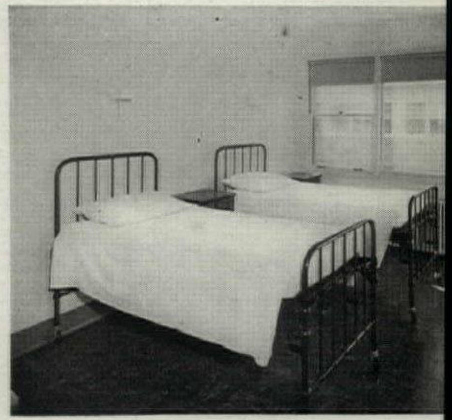
SECTION SURGICAL & OBSTETRICAL WINGS
scale

"I have gone into some detail about the Bremerton program because heretofore we have talked about the construction of hospitals and health centers in needy areas thoughout the country without having much to say specifically as to how they would operate for the benefit of medical practice and of the community as a whole. . . . More facilities of this type are needed now and will be in great demand after the war. Properly located, scientifically equipped, and adequately maintained, they should aid importantly after the war in helping to attract some of the physicians now serving in the armed forces, to areas most in need of their services. Doctors from the small towns, who were the first to go, will not be willing to return unless better facilities are available in their communities. Men who went straight into the services after interneship will not be drawn to areas needing medical service unless they can be assured of the good facilities they have been accustomed to."

Nursery

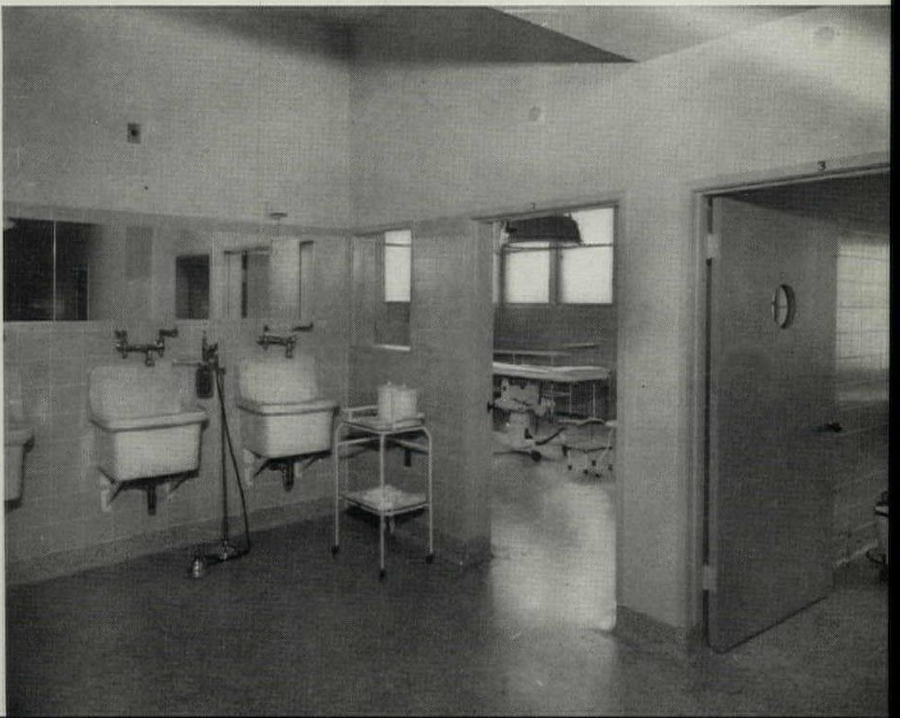


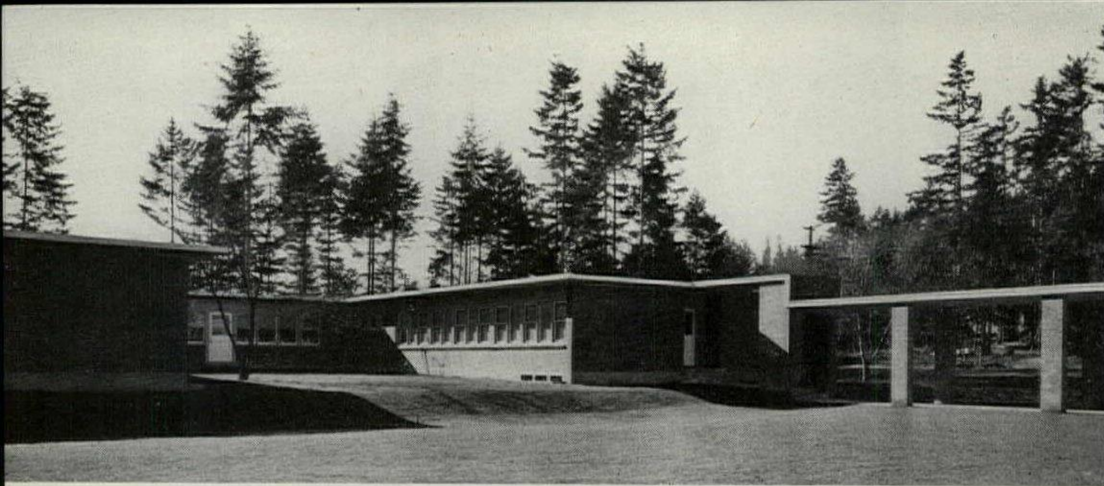
Main Corridor



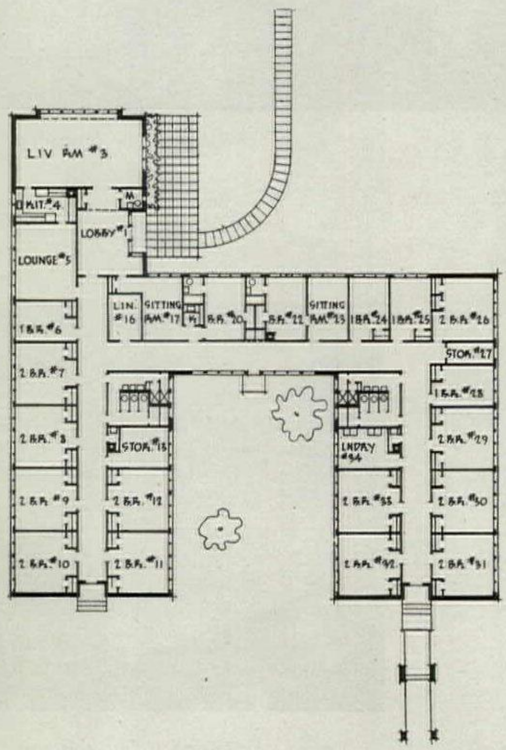
Semi-private Room

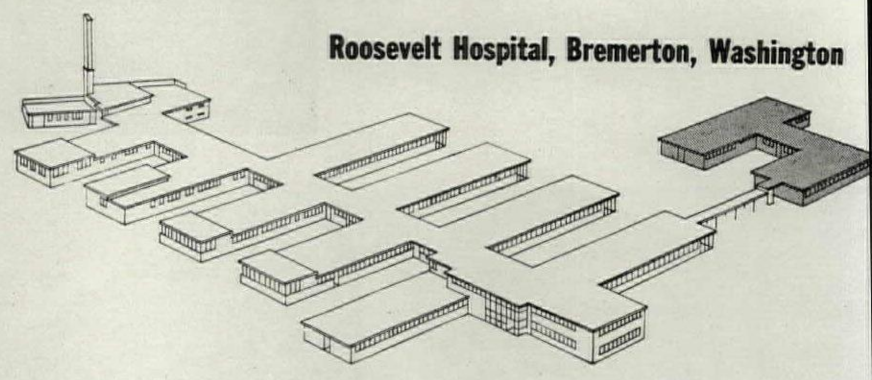
Wash-up and Operating Rooms





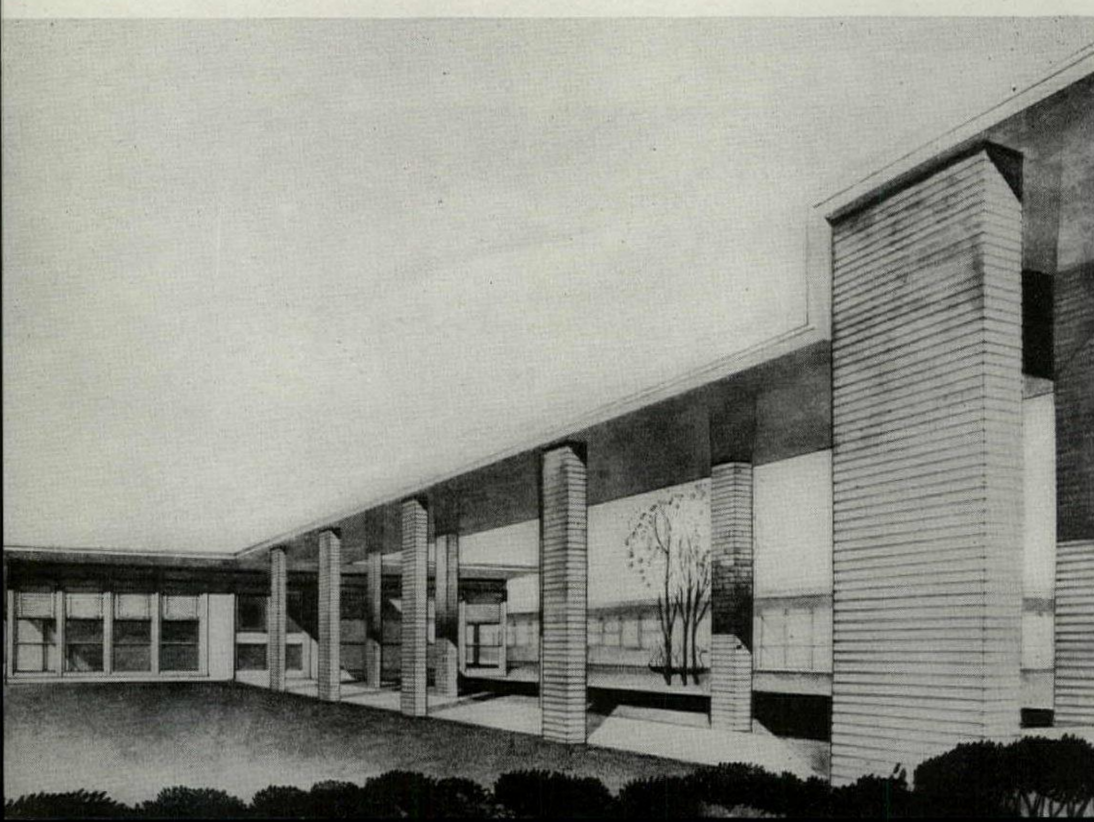
Roosevelt Hospital, Bremerton, Washington





Nurses Home

The nurses home is connected to the main group by a covered walk from the Medical Ward Wing. In addition to the bedrooms and toilet facilities, the U-shaped building contains a laundry, sitting rooms, lounge and general living room, and small service kitchen. The structural system is the same as that of the hospital.



Perspectives

Shy Missionary: Marshall Shaffer

One day during the winter of 1937 a group of young men were prowling among the exhibits in the Museum of Natural History in New York, under the guidance of a stocky, mild mannered, stutteringly enthusiastic instructor. *Les anciens élèves* would never have believed that the young men were studying architecture, but they were. Marshall Shaffer was teaching the senior architectural students at Pratt Institute to design houses by showing them skulls. Shaffer, now chief hospital architect for the U. S. Public Health Service, is still teaching. The Service calls it "consultation and planning service for local communities and government agencies on hospital and related health facilities." In simple words, that means Marshall Shaffer explaining the elements of social planning to anyone who will listen.

Marshall is such an enthusiast that he embarrasses himself. His apparently retiring nature is a self-restraint, imposed as a kindness to those odd creatures who are not willing to talk modern architecture twenty-four hours a day. He has discovered that there are such people; he has found that there are some men, calling themselves architects, who will not even *practice* modern architecture. To correct this condition is his aim, with a full, if unwilling, realization of the size of the job. He is a shy missionary.

Marshall began practicing architecture long before he was old enough to have a license. A roller coaster in his own back yard in southern Ohio, conceived, designed empirically, and built by himself (financed by his father, who was a banker and dealer in building materials) was the first project. It was strictly functional—no Coney Island influence—and it worked. From then on it was inevitable that the boy would study architecture and engineering, if only to find out why that first structure hadn't fallen down.

At Penn State he studied with enough diligence to make an honorary fraternity, read avidly in many subjects besides architecture, and pondered very deeply on the status of design. Graduating, the ardent young Shaffer migrated to southern California.

When he graduated from Penn State, the ardent young Shaffer migrated to southern California. The Okies, who came later, were driven from their native states by soil erosion. Marshall and some others were fleeing, they felt, an eroded creative instinct caused by successive plantings of the same architectural ideas. In California he came under the influence of such master preparers of the soil as Myron Hunt and Bertram Goodhue. At just this time a new seed was brought from Central Europe, carefully wrapped in obscure terminologies, by one Richard Neutra, who, after a brief, vain attempt to cultivate it in the east, dropped it in the receptive California soil. Marshall and a few other young men "gathered around Neutra," as he modestly expresses it, and helped nurture the new plant. He has been displaying several of its large blossoms ever since and saying to the rest of us, "Look what *you* could grow if you'd do a little spade work and throw some manure around."

Shaffer's responsibilities increased, he won several competition awards, and with Neutra he was American delegate to the Third International Congress of Modern Architecture at Athens in 1932. Coming back to the east, his missionary ardor led him to educational work. He designed some very successful exhibit material, was consulting designer for the Federal Works Agency, wrote a book which has never satisfied him sufficiently to warrant letting it brave a publisher's scrutiny, and taught "socio-economic architecture" at Pratt Institute.

Shaffer is one of the increasing number of architects who regard their professional work as part of a larger problem—the better adjustment of our economic structure. At one stage in his career he worked with Stuart Chase searching for "the root causes of economic depressions." Like many technical people who indulge in economic or political thinking, he has a bias—Thorstein Veblen has influenced him considerably. Charles Beard, Lewis Mumford, Patrick Geddes, also occupy space on his book shelves. Again like many technical pundits, he tends to becloud perfectly lucid thoughts by the use of techno-mystical words. Marshall must write of "getting the machine under control" when he deals with the social problems caused by modern industrial methods. Our uneasy eclecticism he ascribes to the fact that "the mores of earlier cultures have been completely uprooted, and today we are living on fragments of the old and pieces of the new." That is the way he writes. Given a good bull session, the Mumfordinate appraisals drop away and Marshall can express himself in common, if not basic, English.

The essential soundness of his thinking, bolstered by his enthusiasm, makes him a good speaker and a persuasive teacher. The astounding thing about that course at Pratt was the way the boys ate it up. It started from the premise that "many of our existing building patterns have become obsolete, and their persistence today makes for a maladjustment of urban and industrial life." Obviously then, Marshall taught, to find correct patterns one must study man. Man not only in his present environ, but in his development—particularly his technological development. Hence the visit to the Natural History Museum. This was, to the students, an exciting concept; instead of a stodgy academic subject, architecture became something vital.

Marshall's course made his boys intellectually curious, and they formed a club and invited other people to talk to them in a basement restaurant. Meeting with them was almost furtive, yet all they wanted to hear was that architecture is related to human life. They were so ardent that they felt like conspirators, and they were just ordinary guys from Brooklyn. What he had done was to teach them that modern architecture, in the age of modern machine production, was *exciting*. They got excited—about modern architecture and about Shaffer. Some of them are still working with him in Washington.

Marshall is vice-president of the Association of Federal Architects. His work as a government employee is a result of his belief that acceptance of contemporary design must come about largely through the work of the design bureaus in the government agencies. Good government work, well publicized, can wield a lot of influence, and the N.Y.A. publication, "Design and Standards," for which he was largely responsible, as well as the many published examples of his hospital standards for the Public Health Service, have done just that. Marshall points not only to his own work; a generous soul, he can hardly wait to call attention to the many government agencies where good architecture is being done. Visit him today in Washington and he will first show you, eagerly, how he and his staff are making Lanham Act hospitals look like something that belongs in this century, and then he will tell you, with equal glee, of the fine jobs Koch and De Mars are doing for the National Housing Agency, and how Sullivan and Delamar are doing some pretty advanced things for the Navy in the Bureau of Yards and Docks, even if they are just hung up on the wall. He will take you down to the Potomac and show you what a clean job the Federal Works Agency turned out in the barracks for government girls, and he will pull out of his file and compliment the standards turned out under Rosenfield in the Department of Hospitals in New York. "Those boys are throwing a lot of weight around," he says. Marshall is not puny.

Married and living on the outskirts of Washington, Marshall each evening stumbles over a kiddy car into a sensibly furnished, delightfully cool apartment. His attractive wife—who was in the State Department not so long ago—will whip up a tasty Southern meal for any guest who looks as though he would enjoy an evening of talk—preferably about modern architecture, though economics, politics, or the war will do. His year-old son is not yet completely articulate, but there is no doubt that his first complete sentence will be an exposition of the fact that design requires a generic rather than an eclectic expression.

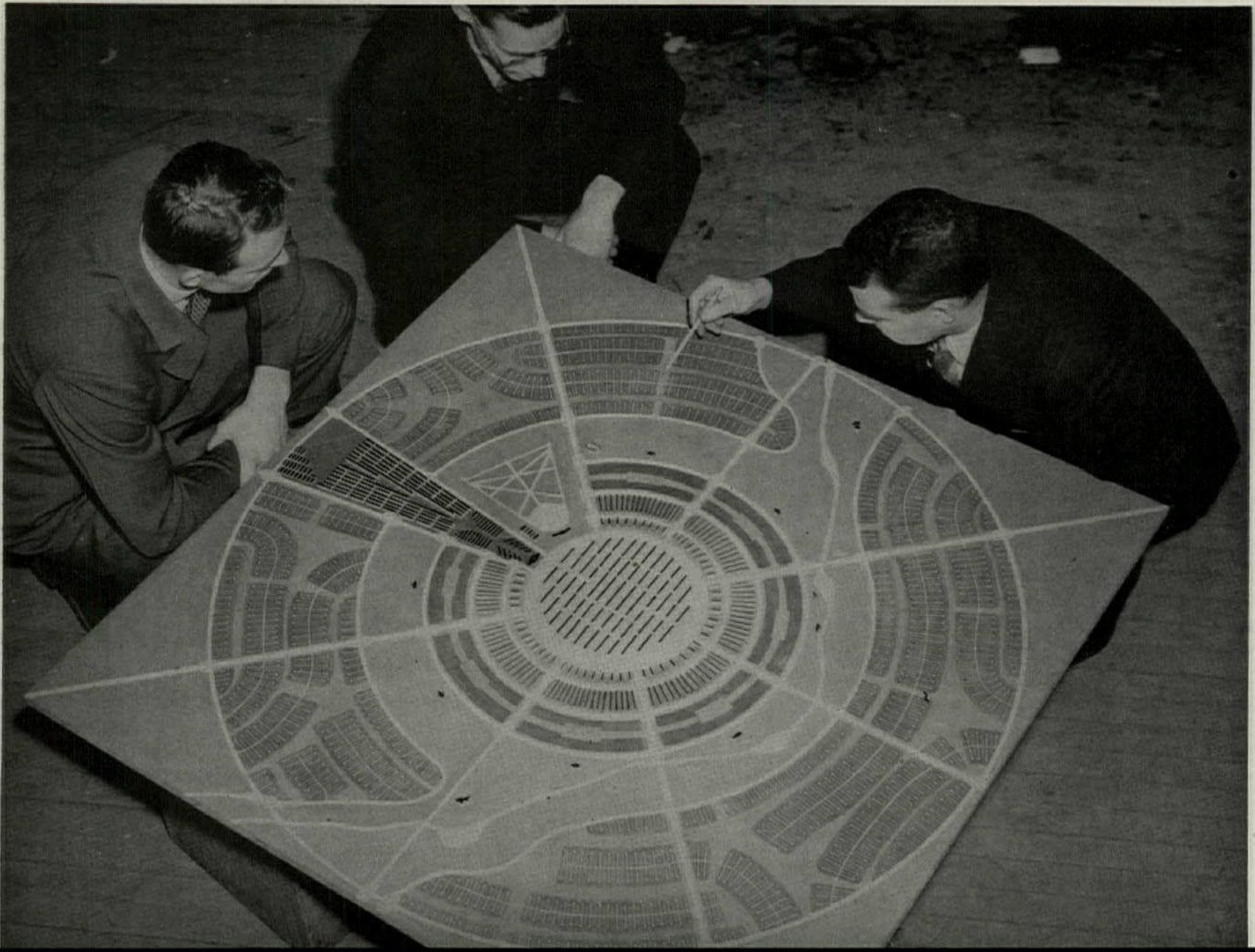
Hospital architecture is a logical field for Shaffer to have chosen. His first contact with hospital design, in California made him feel that there was much room for improvement in the traditional plans. In the Public Health Service the advice of medical, administrative, and nursing specialists has been combined with open planning and an emphasis on light and air to produce "standards." These, Marshall insists, shall not be inflexible; he regards them as a starting point, and hopes to continue revising and improving them. He is as regular an attendant at sessions of the American Hospital Association, of which he is a member, as he is at meetings of the architectural societies.

He points to certain factors which govern hospital design: a strict necessity for economy because the normal cost of hospital construction is high; a need for sanitary, durable finishes; an unusual emphasis on adequate natural lighting and exposure; the necessity for economical plant operation; and a pattern of recognizable functions.

"This adds up," says Marshall, "to the basic principles of modern architecture." Q.E.D.

THOMAS H. CREIGHTON

Marshall Shaffer (right) discussing a problem with students



Photos by Rodney McCay Morgan

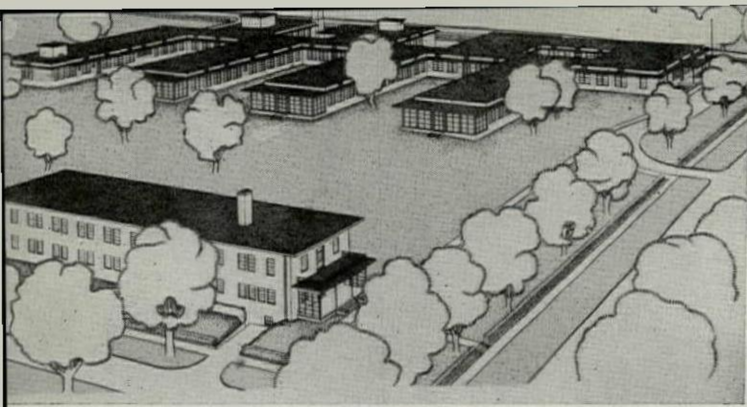
Suburban Hospital, Bethesda, Md.

Faulkner & Kingsbury, Architects

John W. Stenhouse, Associate

The architects had to run a veritable obstacle course of wartime limitations and restrictions in order to work out the design and construction of this 100-bed hospital, located in a suburb of overcrowded Washington, and built with Lanham Act funds. For one thing, no fire-resisting materials were available, and this led to the adoption of the one-story scheme. No lintels were forthcoming for brick openings; hence these were built with flat arches, either with relieving arches behind them or framed in wood. Fire walls and fire doors had to be provided to isolate the units into fire areas; lumber was available for short spans only, and the corridor partitions became bearing walls as a result. To save metal, windows have sash balances instead of weights. Stokers were "out"; so the boilers are hand fired. No copper and brass pipe; hospital equipment,

In collaboration with the Hospital Facilities Section, United States Public Health Service
Marshall Shaffer, Chief Architect; and Emergency Operations Section, Public Building Administration, Federal Works Agency



Suburban Hospital, Bethesda, Md.

Administration Building and Health Center

difficult to obtain. That the finished group is as good as it is reflects much credit on the architects' ingenuity; the plan has many unusual features which we present in considerable detail. For these, the architects modestly tell us, "the U. S. Public Health Service was responsible."

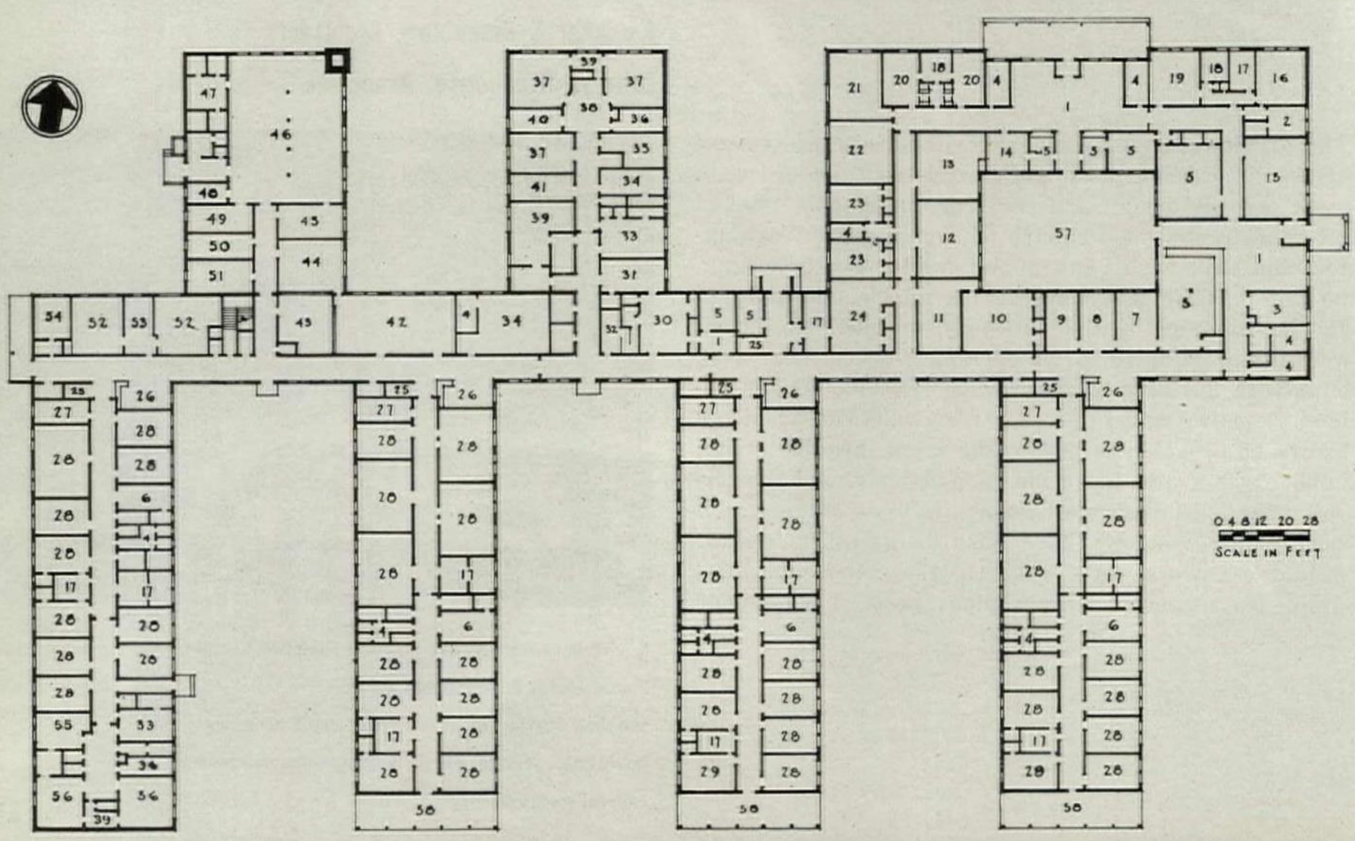
In addition to the special-use areas, which are detailed with separate plans and equipment keys, there are several relationships in the master plan that we should like to point out. See how the laboratory and pharmacy are located so that they are equally accessible to the hospital proper and the Outpatient Department. Note, too, that the X-ray, while organized as part of the operating suite, is close to the emergency group. The handling of the separate main entrances—one to the hospital, the other to the Health Center and Outpatient Department—is also noteworthy. Although they open onto different streets, their relation is such that they are essentially adjacent, and overlapping work is readily accommodated.

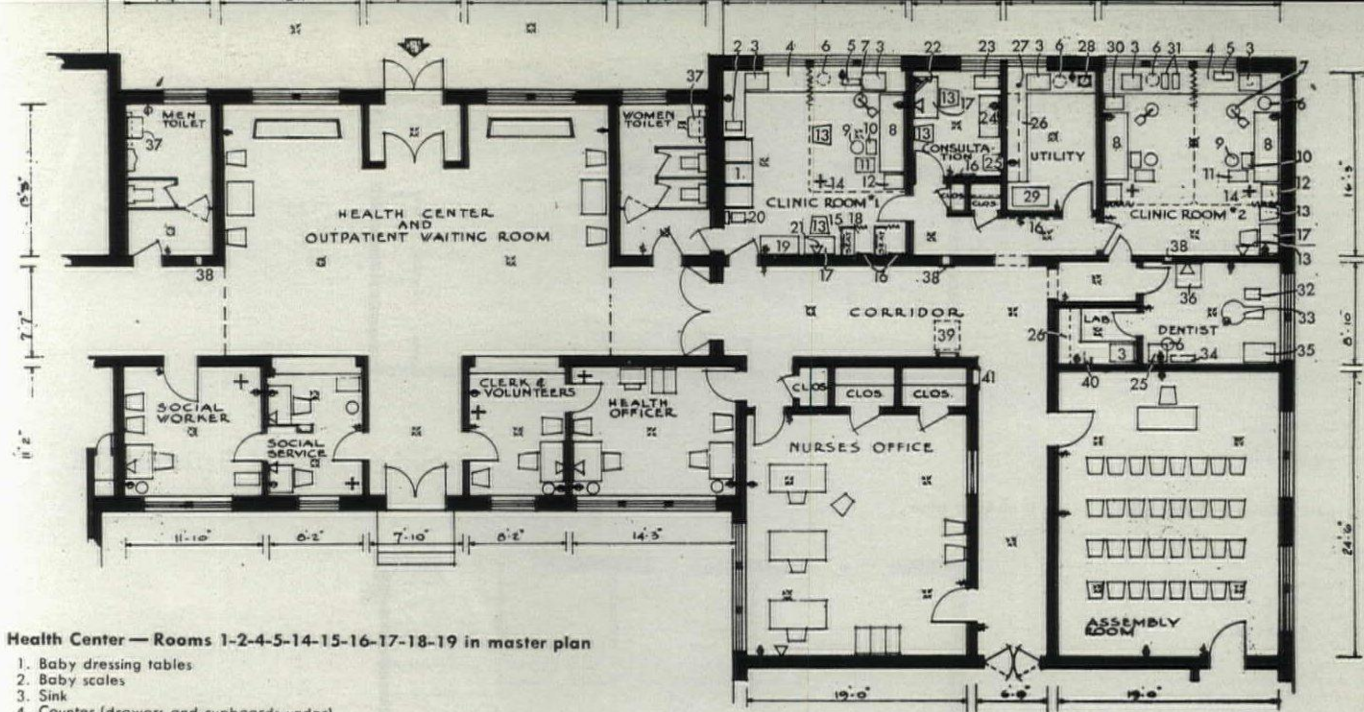
Structurally, the hospital is a masterpiece of compromise. An absolute minimum of metal is used—even to excluding sash weights. Exterior walls are 13-inch common brick, painted on the outside, and, above grade, damp-proofed, gritted and plastered on the interior. At basement level, the walls are parged and damp-proofed; the basement floor is concrete on gravel fill. Fire walls and the corridor bearing partitions are of brick or T.C. tile, plastered and equipped with metal-sheathed doors.

Wood joists support the main floor—wood rough, surfaced with linoleum or asphalt tile, except in operating and delivery rooms where conductive rubber flooring is used, and for the kitchen floor, which is finished with quarry tile. The roof is wood framed and sheathed and topped with tar and gravel. Sash are wood, double hung.

General Plan

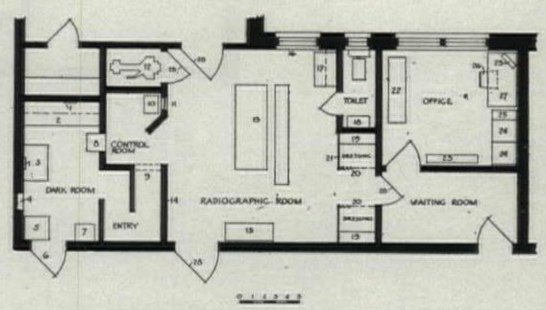
1. Waiting X-Ray
2. Dentist
3. Admittance
4. Toilets
5. Office X-Ray
6. Nurse Stations
7. Superintendent
8. Secretary
9. Director of Nurses
10. Doctors' Lounge
11. Medical Records
12. Laboratory
13. Pharmacy
14. Social Service
15. Assembly
16. Venereal and T. B. Clinic
17. Utility
18. Consultation
19. Maternal — Child Health
20. Examination
21. Treatment
22. Physical-therapy
23. Interne Bedroom
24. Emergency Room
25. Stretcher Alcove
26. Visitors' Alcove
27. Pantry
28. Bedroom Patients' Room
29. Nervous and Mental
30. Radiographic Room
31. Cast Room
32. Dark Room and X-Ray
33. Surgeons' Lockers
34. Nurses' Lockers
35. Surgical Laboratory
36. Clean-up, Surgery
37. Major Surgery
38. Scrub-up, Surgeons'
39. Sterilizer
40. Anaesthesia
41. Cystoscopy
42. Staff Dining
43. Cafeteria
44. Help Dining
45. Dish Washing
46. Kitchen
47. Preparation
48. Dietitian's Office
49. Special Diets
50. Formula Laboratory
51. Stores, Kitchen
52. Nursery
53. Nursery Examination
54. Suspect Nursery
55. Labor
56. Delivery
57. Court
58. Solarium





Health Center — Rooms 1-2-4-5-14-15-16-17-18-19 in master plan

1. Baby dressing tables
2. Baby scales
3. Sink
4. Counter (drawers and cupboards under)
5. Instrument sterilizer
6. Waste can
7. Lamp
8. Examination table
9. Stool
10. Footstool
11. Instrument table
12. Instrument cabinet
13. Chair
14. Costumer
15. Mirror
16. Hookstrip
17. Desk
18. Dressing booths
19. Demonstration table
20. Adult scales
21. Phone jack
22. X-Ray viewer
23. File cabinet
24. Baby examination table
25. Lavatory
26. Counter (cabinets over, cupboards under)
27. Bunsen burner
28. Hot plate (open under)
29. Pressure sterilizer
30. Pneumothorax
31. Microscopes
32. Dental unit
33. Dental chair
34. Instrument sterilizer on stand
35. Supply cabinet
36. Table
37. Lavatory — shelf and mirror over
38. Fire extinguisher cabinet
39. Ladder and access door to roof
40. Air and gas supply
41. Elec. panel

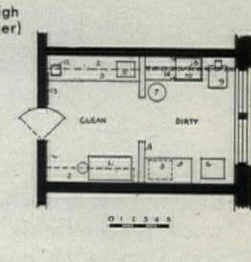


X-Ray Suites — Rooms 1-5-30-32 in master plan

1. Safe light
2. Loading bench (cabinet over)
3. Developing tank
4. In wall illumination
5. Dryer — vented through roof
6. Light-proof door
7. Sink
8. Pass box
9. Opening 6'-6" high
10. Control panel
11. View panel
12. Mobile X-Ray machine
13. X-Ray machine and table
14. Lead lining 7'-0" high
15. Cassette changer
16. Lightproof shade
17. Instrument and scrub sink (cabinet over)
18. Lavatory
19. Seat
20. Curtain rods
21. Wood partition
22. Stereoscope
23. View box
24. Film file
25. Letter file
26. Chair
27. Desk
28. 1/16" Sheet lead core

Typical Utility Room — Room 17 in master plan

1. Dressing cart
2. Wall cabinets
3. Ice bin under
4. Frame partition 4'-7" high
5. Counter (cupboards under)
6. Utensil sterilizer
7. Laundry hamper
8. Shelf and rod
9. Clinic sink
10. Laundry tray
11. Sink
12. Hot plate
13. Bulletin board
14. Drainboard

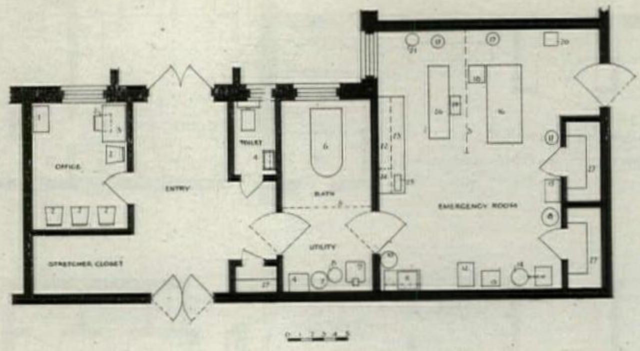


Typical Floor Pantry — Room 27 in master plan

1. Hot plate
2. Sink
3. Toaster
4. Bulletin board
5. Linen hamper
6. Garbage can
7. Refrigerator
8. Counter (cupboards under)
9. Counter (open under)
10. Wall cabinets

Outpatient Examination Rooms — Rooms 18-20-21 in master plan

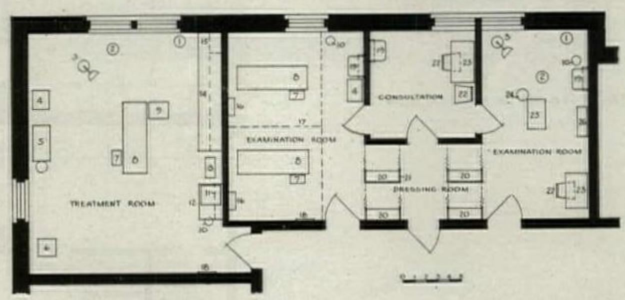
1. Kick bucket
2. Operator's stool
3. Lamp
4. Instrument table
5. Dressing cart
6. Treatment chair
7. Footstool
8. Examination table
9. Mayo table
10. Waste can
11. Glass shelf
12. Instrument and scrub sink
13. Electric instrument sterilizer
14. Counter (cupboards under and cabinets over)
15. Narcotics locker
16. Shelf (5'-0" above floor)
17. Curtain rods, 7'-3" high
18. Hook strip
19. Lavatory (glass shelf over)
20. Seat
21. Wood partition
22. Chair
23. Desk
24. Cuspidor stand
25. Specialist chair
26. Treatment cabinet

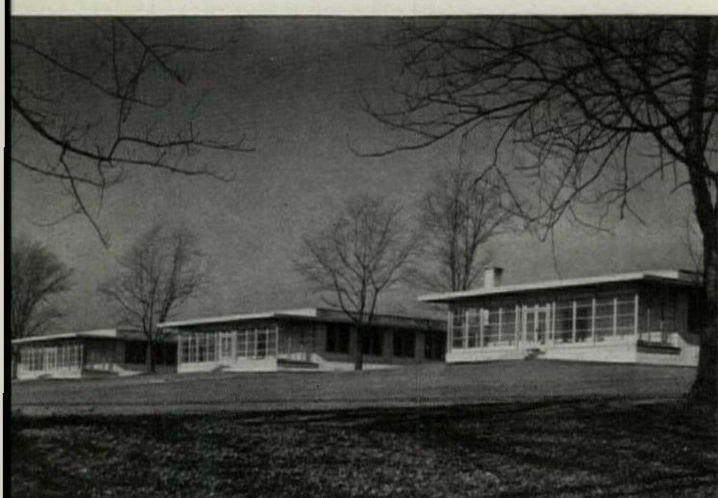


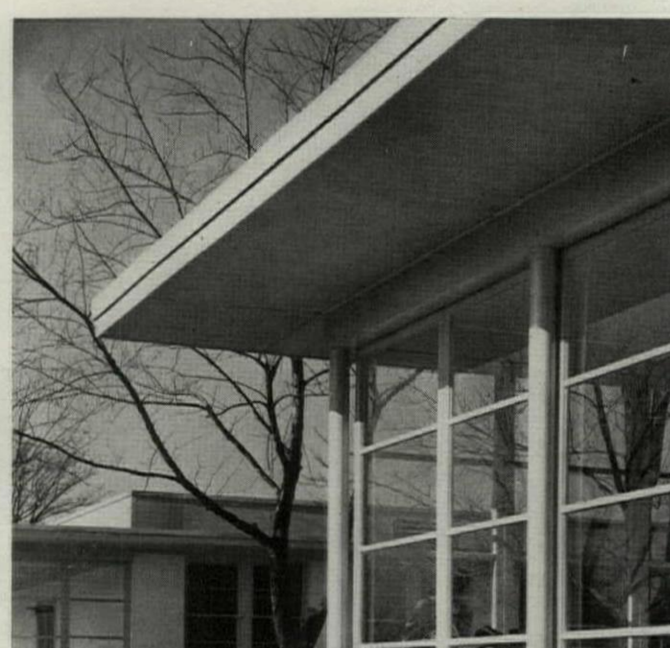
Suburban Hospital, Bethesda, Md.

Emergency Suite — Rooms 5-17-24-25 in master plan

1. File
2. Chair
3. Desk
4. Lavatory
5. Curtain rod
6. Receiving bath
7. Laundry hamper
8. Waste can
9. Clinic sink
10. Alcohol dispenser
11. Instrument and scrub sink (glass shelf)
12. Pressure sterilizer
13. Mayo table
14. Portable light
15. Instrument table
16. Bed
17. Operator's stool
18. Bed stand
19. Footstool
20. Resuscitation apparatus
21. Kick bucket
22. Wall cabinets
23. Counter (cupboards under)
24. Narcotics emergency locker
25. Instrument sterilizer
26. Operating table
27. Shelves

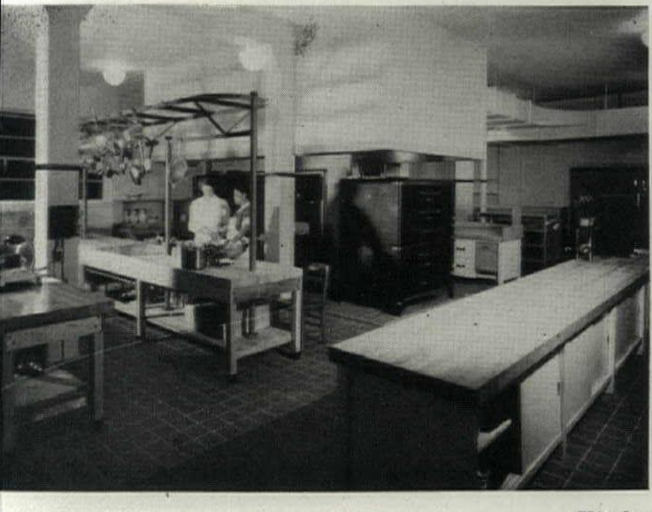




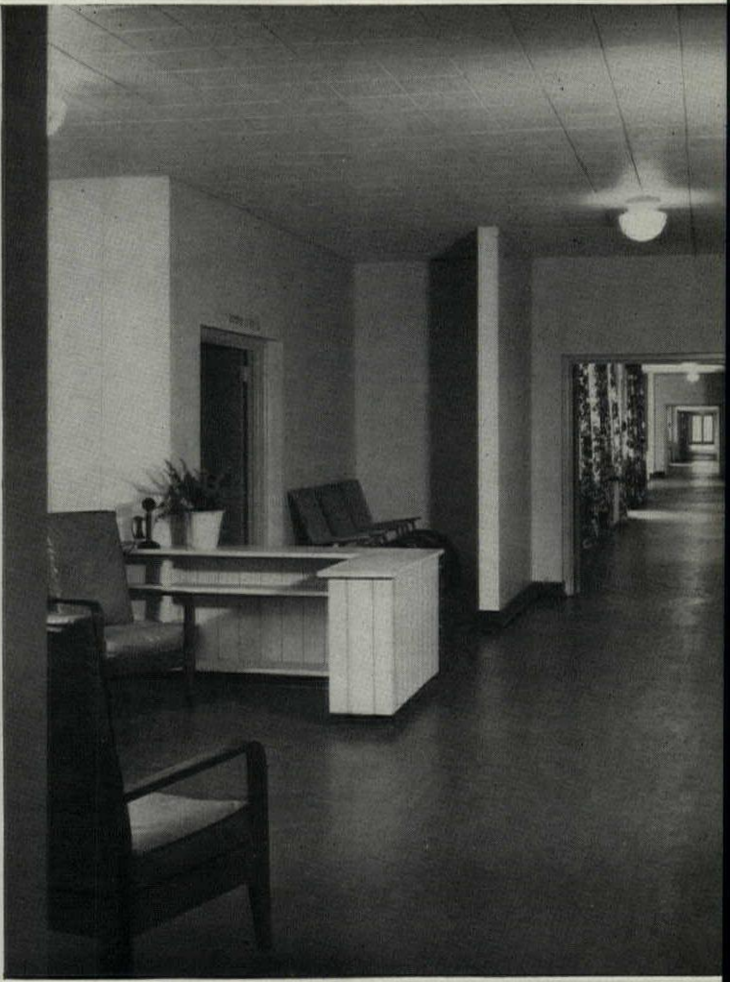


The detail of the roof is somewhat unusual. "In order to avoid brick arches," the architects report, "the brickwork reaches only to the heads of the windows. Construction is wood above this point, marked by an overhang—a projection of the ceiling joists—which varies in depth depending on the orientation."

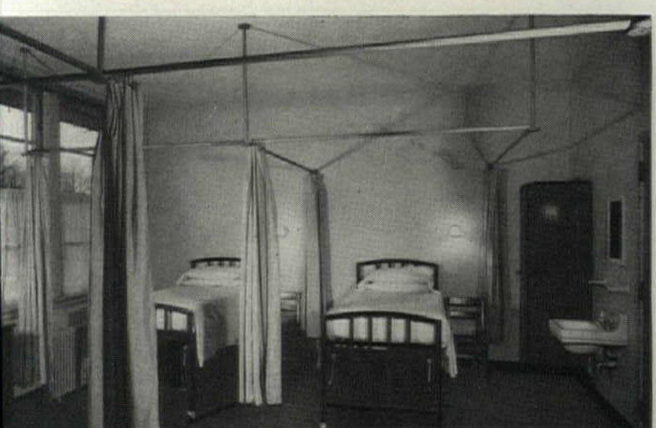
Interior walls of operating, delivery, bath, toilet, utility rooms, etc., have tile wainscots. Ceilings are of gypsum lath, plastered and insulated with 4-inch wool-type material, except in such areas as corridors, nurseries, labor rooms, kitchen, etc., where acoustic tile is used.



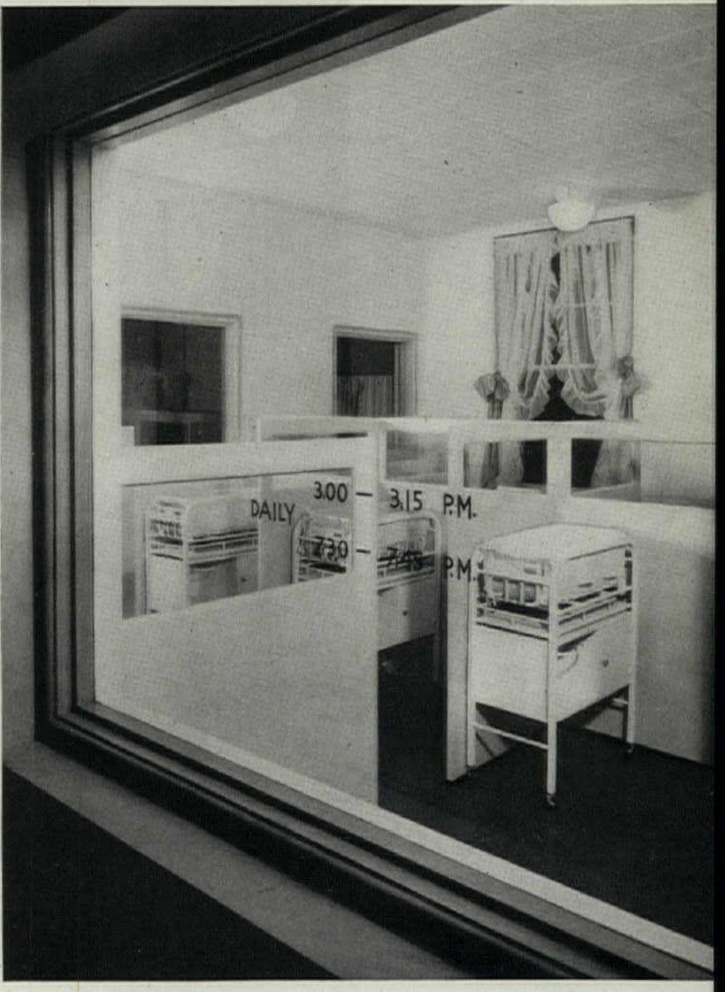
Kitchen



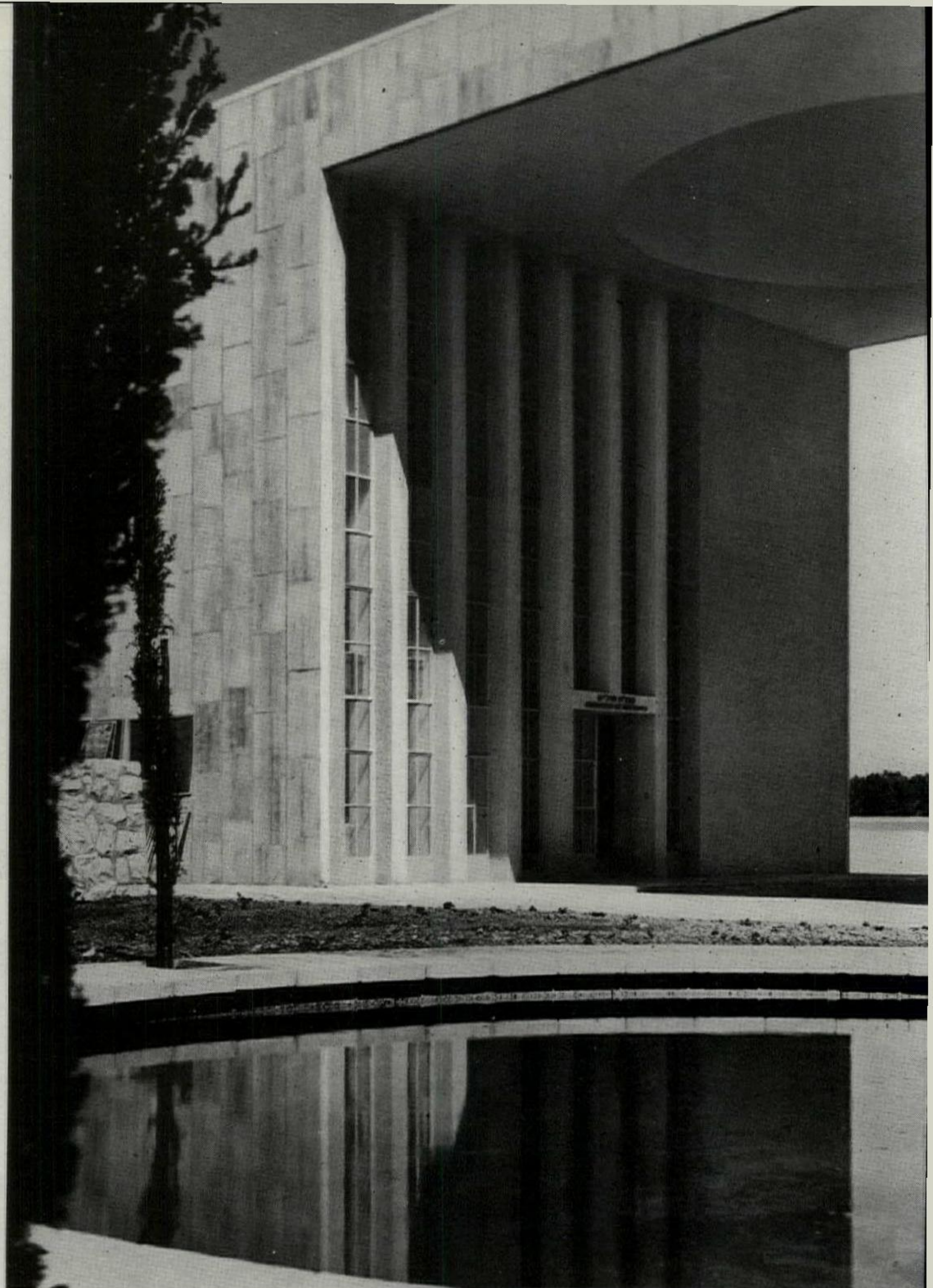
Visitors' alcove

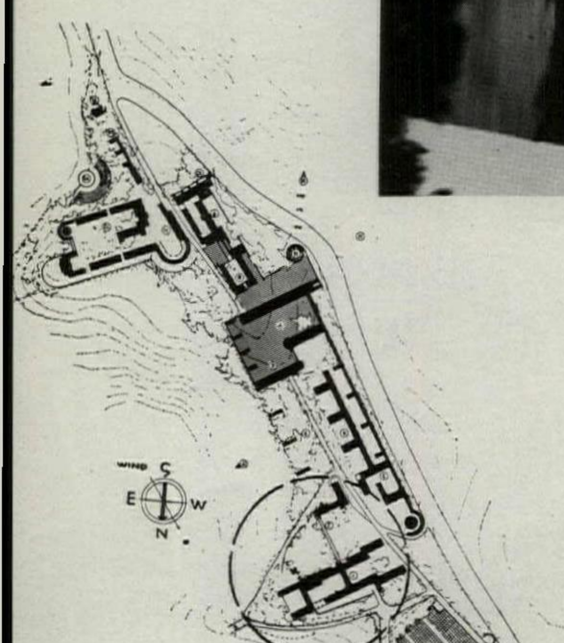


Typical patients' room



Nursery





University Medical Center
Jerusalem

Eric Mendelsohn, A. I. A., Architect

The Center, the first completed unit of the Hebrew University, comprises about one third of the total scheme.

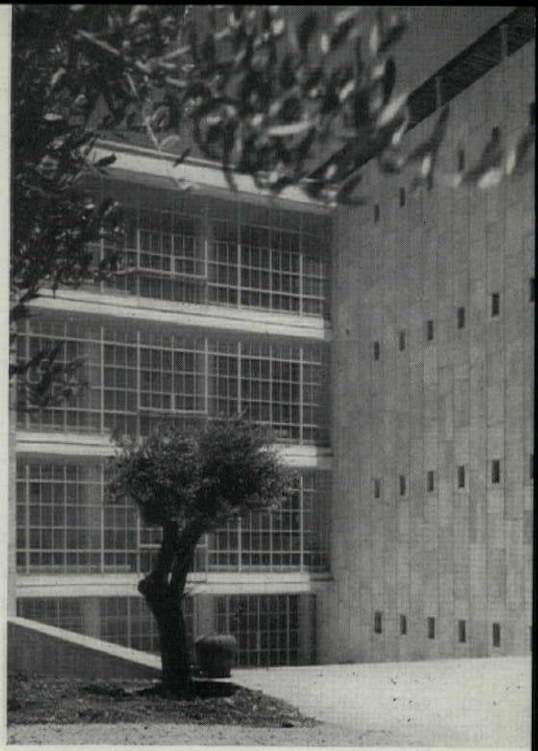
The site of the present Medical Center and the future University development is on a ridge of Mount Scopus, approximately 150 feet above the town. Extremes of temperature—excessive heat in summer and biting cold in winter—form the climatic pattern of the region. A basic consideration in the design of buildings, therefore, was some scheme to avoid the northeasterly winter winds, yet catch the sun and, in summer, to invite the cooling west winds while excluding the hot solar rays.

In the Medical Center group, this has been worked out by placing the major axis of the group approximately in a west-to-east direction and by developing the units around courtyards.

As to the surface or esthetic design of the buildings, one British critic has commented: "Mendelsohn's triumph is that he has designed monumental buildings, incorporating all the up-to-date European building techniques, yet which are native in spirit at the same time." Window areas on the south are kept to a minimum consistent with adequate light, except in those areas where patients need the sun for its health-giving properties; here windows are grouped. The photo at the top of this page clearly demonstrates each aspect.

Structurally, the buildings are of reinforced concrete, provided with extra reinforcing and expansion joints to accommodate earthquake stresses. Insulation and weather protection is furthered by the use of cavity-wall construction, with interior walls of pumice stone or brick. Exterior surfacing is of machine-cut stone slabs. The latter were selected in preference to hand-cut stone to insure speedy deliveries. Placement of the stones just as they came from the gang saw produced a rich pattern of varying tones and textures.

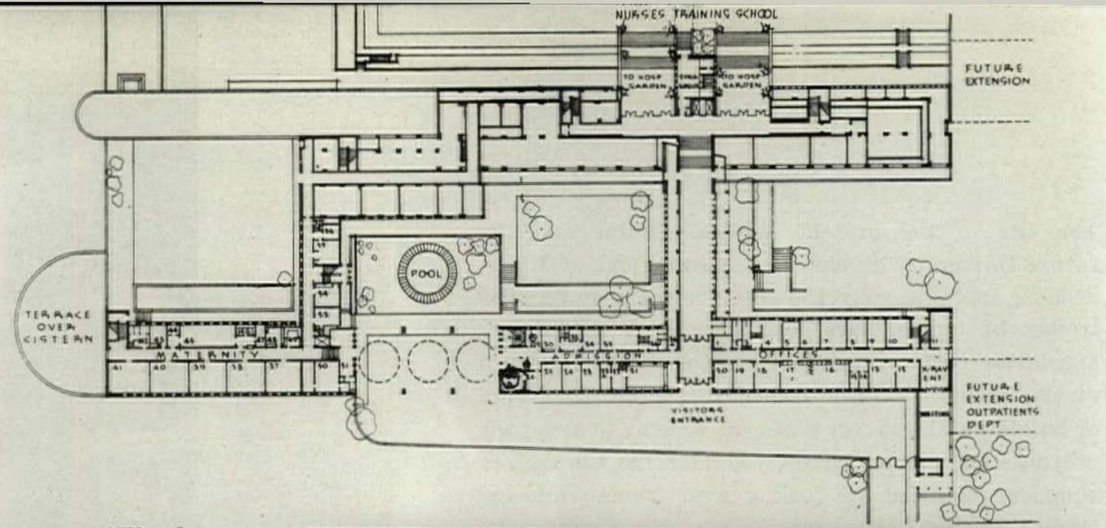
Funds for the Medical Center were contributed by numerous individuals and institutions headed by Hadassah of America.



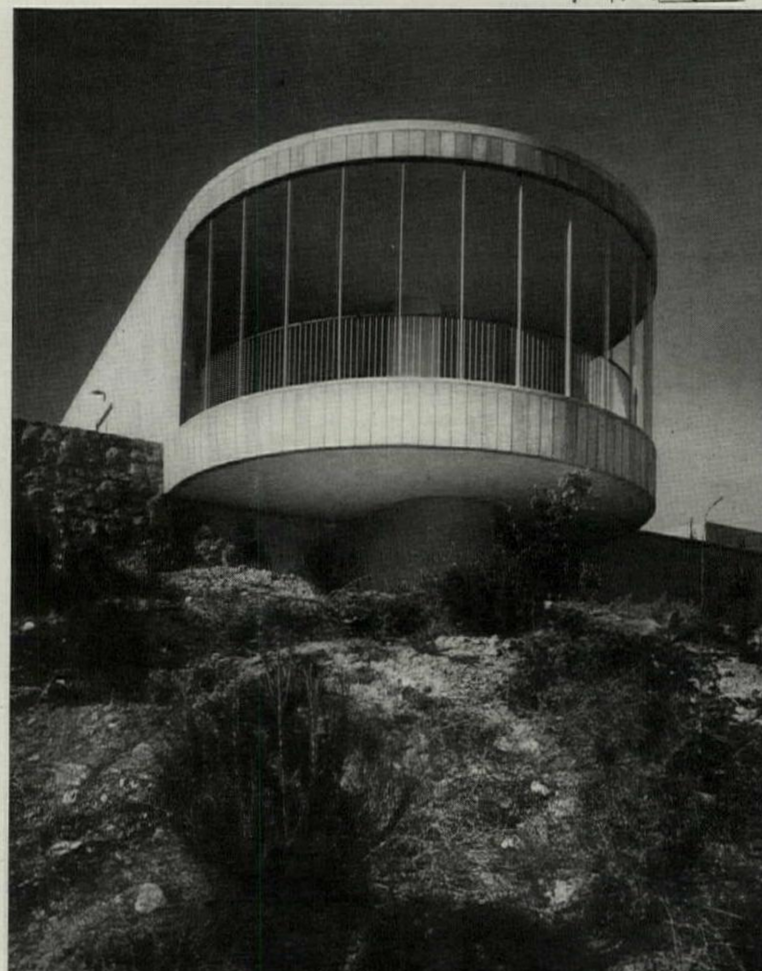
Large window areas are restricted to special sun rooms (above) or use in such public spaces as the visitors' entrance gallery (below) which is flanked by courtyards.

Ground Floor

0. Gatekeeper
1-15. Offices
16. Board Room and Director's Office
21-22A. Pharmacy
23-36. Admission
36A. Patients' and Staff Corridor
37-69. Maternity
50. Circumcision



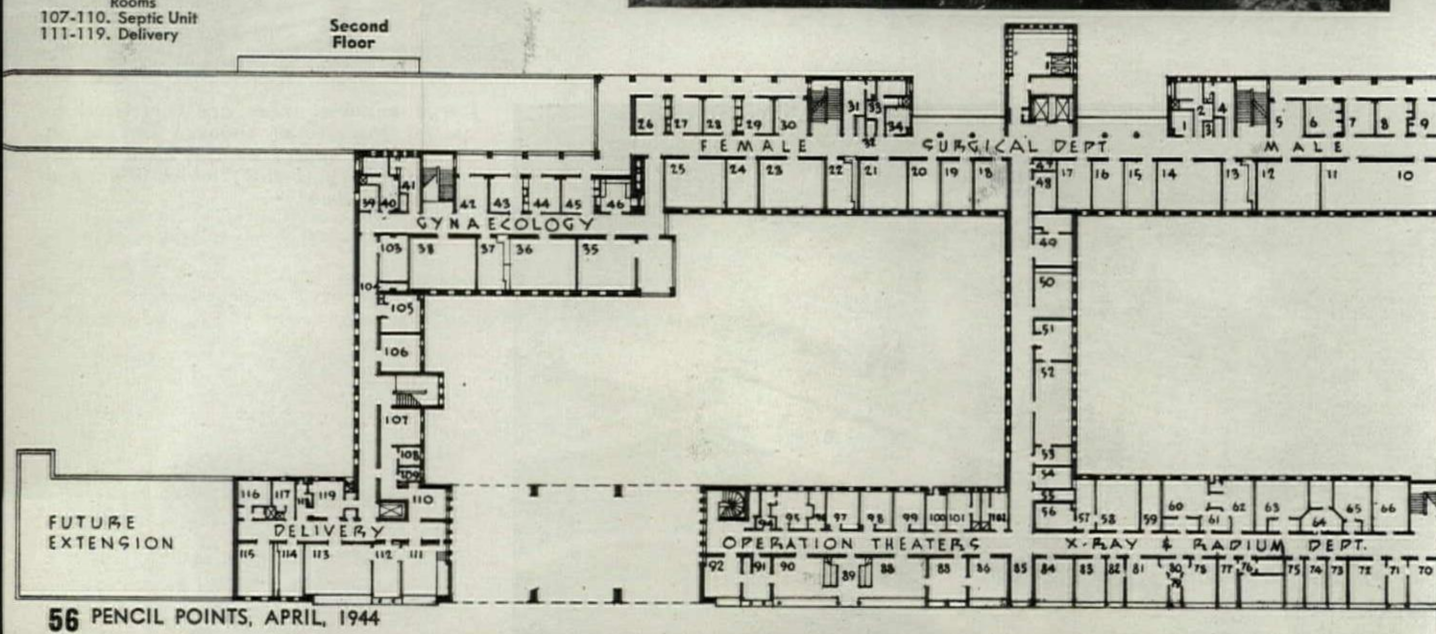
The architect's own comment: "The layout and architecture of the buildings are bound to disappoint the layman who expects either England's domestic and baronial splendor or America's ambitious and imposing verticals. But no one will be disappointed who regards it in the light of the monumental austerity and serenity of the great spiritual creations of this part of the world—the Bible, the New Testament, and the Koran. And no one—of my colleagues—should compare University buildings with the architectural exuberances of a commercial center. For commerce requires change and advertisement, while a University lives on continuously and is built for the ages."

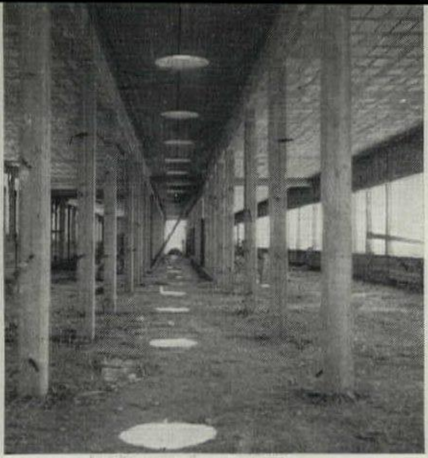


The hospital chapel, located at the far eastern end of the lower ground floor (not shown) overlooks the Judean desert.

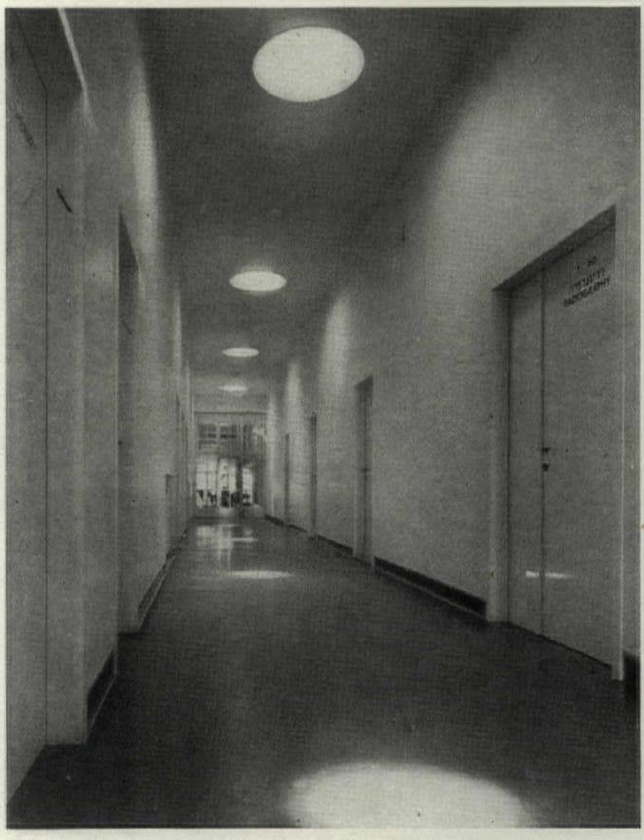
0-000. Tea Kitchen
1-3. Patients' Accommodations
4. Utility Room
5. Day Room
6-17. Male Surgical Department
18-34. Female Surgical Department
35-46. Gynecology
47-51. Surgical and Ophthalmological Examination Rooms
52-56. Physical Therapy
57-84. X-Ray Department and Radium Institute
85. Students
86-92. Operating Theaters and Sterilization
93-102. Work and Preparation Rooms and Operating Theaters
103-106. Gynecological Examination Rooms
107-110. Septic Unit
111-119. Delivery

Second Floor

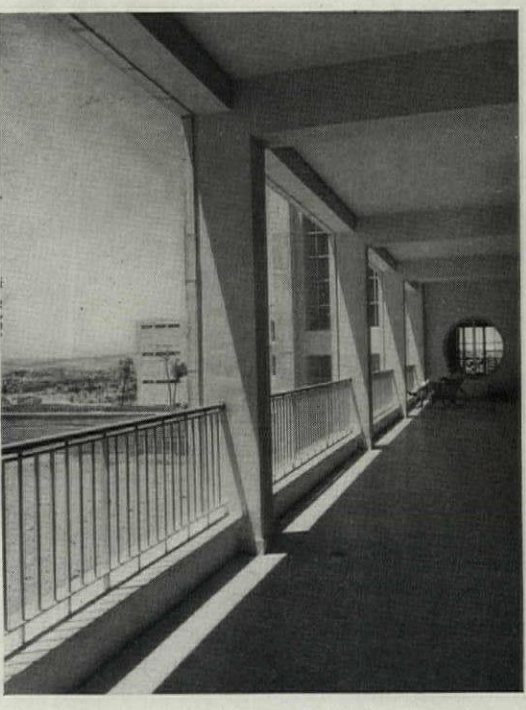


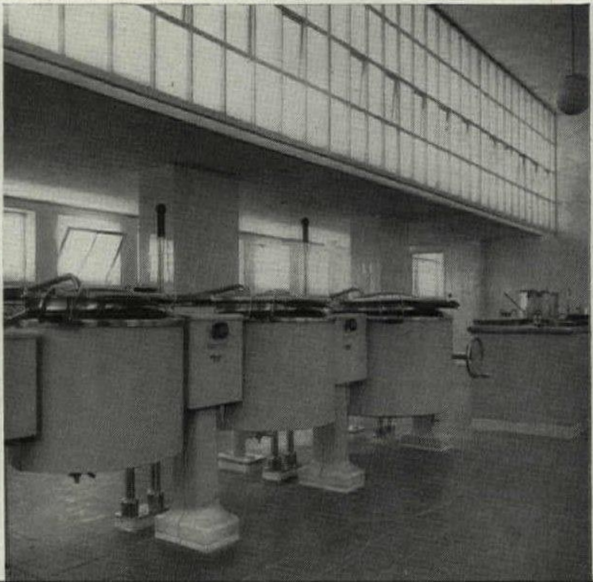


Reinforced concrete construction evolves naturally to form both the finished structure and its expressive surface treatment.



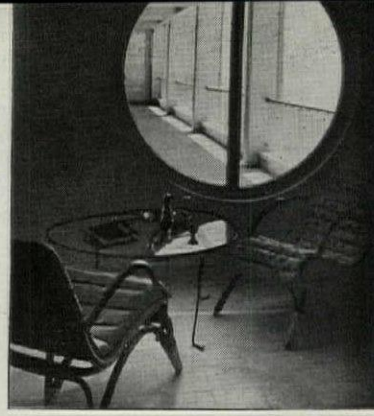
Balconies for the patients are contrived for outdoor recuperation without direct sun.





A wall of the main kitchen

Eric Mendelsohn, A. I. A., Architect
School of Nursing

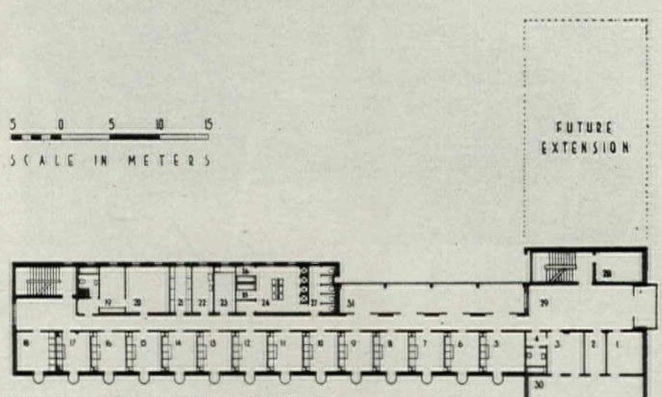


One of the upper terraces

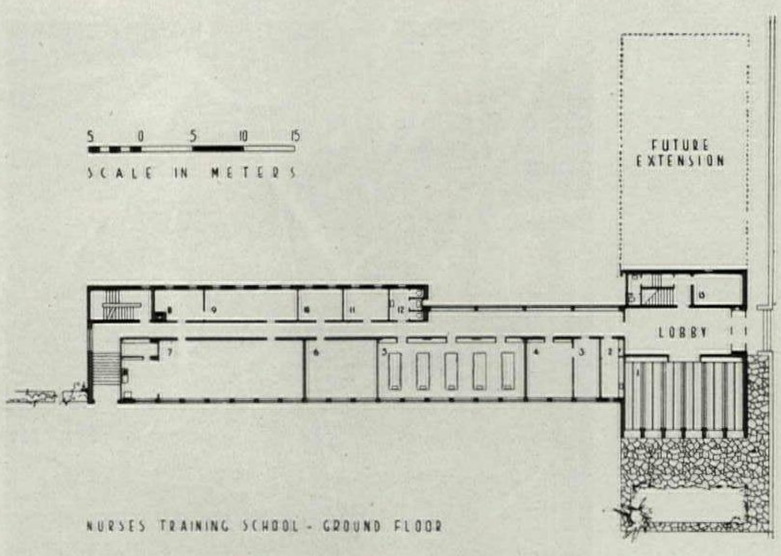
Reception Room

Behind the main block of the hospital and connected to it by a covered walk (see cover picture) is the nursing school, with reception room and school facilities on the ground floor and living quarters on the two upper floors.

The deep gallery terraces provide outdoor sitting space where there is always an area shielded from the direct rays of the sun. The structural system is the same as that used for the hospital proper.



NURSES TRAINING SCHOOL - FIRST FLOOR



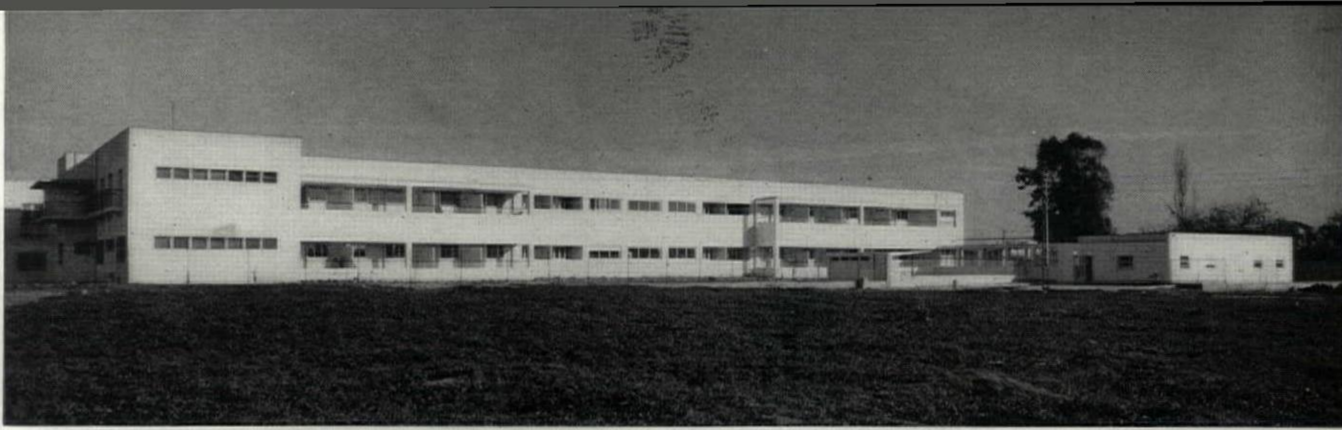
First Floor

- 1-4. Infirmary
- 5-18. Nurses' Living Quarters
- 19-20 Assistant Matron
- 21. Linen Store
- 22. Laundry
- 23. Tea Kitchen
- 24-27. Nurses' Accommodations
- 28. Maid
- 29. Lounge
- 30-31. Terraces

Ground Floor

- 1. Reception Room
- 2. Tea Kitchen
- 3-4. Matron's Office
- 5. Laboratory
- 6. Lecture Room
- 7 Demonstration Ward
- 8-9. Library Store and Library
- 10-12. Stores and Lavatories
- 13 Gatekeeper

NURSES TRAINING SCHOOL - GROUND FLOOR



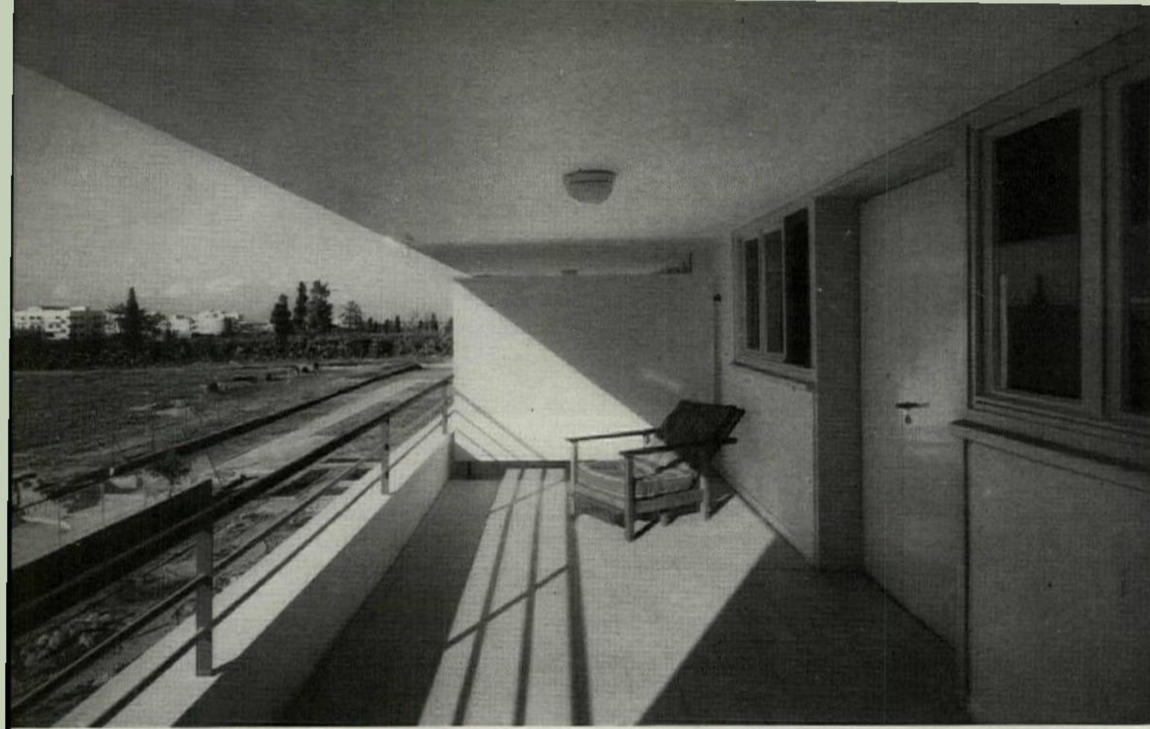
Assutah Private Hospital
Tel Aviv, Palestine

Joseph Neufeld, A. I. A., Architect

Built to serve the rapidly expanding northern portion of Tel Aviv, this 120-bed hospital was privately financed by some 30 members of the medical profession. A co-operative venture, it early enlisted the support of local labor groups and, when completed (See Fig. 15 in plan), will include complete out-patient services. Other expansion is expected in the addition of a third floor throughout the group.

The climate is a fundamental design factor in planning a structure for this region; unusual consideration must be given to cross ventilation and provision of good light, shielded from excessive sun. The sectional drawing shows the structural method employed in obtaining cross ventilation for rooms that border a corridor. A slit above first-floor ceilings and a setback at roof level provides clerestory windows above the corridor height. The spacious landscaped gardens are quite as much a ventilating device as they are a pleasant amenity for the enjoyment of patients.

Four major units comprise the group; the main block on a north-south axis, with general hospital services on the ground floor and a maternity floor above; an administrative and entrance building, organized with a flower shop around a court quite apart from the hospital proper; an isolation or "clearing station" building in the southeast corner, where suspect communicable diseases are temporarily housed, and a service and post mortem unit, located in the northeast corner, with street and driveway



The depth of balconies restricts the intense sun

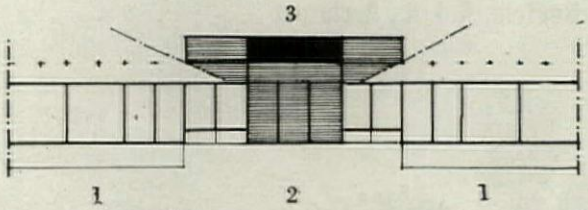
entrance entirely divorced from the ears and eyes of the hospital patients.

A notable plan feature is the organization of service facilities at the center of the hospital block (see diagram). Facing these are nurses' station and work rooms. At either side of the latter, air and light conditions progressively improve as the building wings extend, and this is reflected in the placement of private rooms, two- and four-bedroom units.

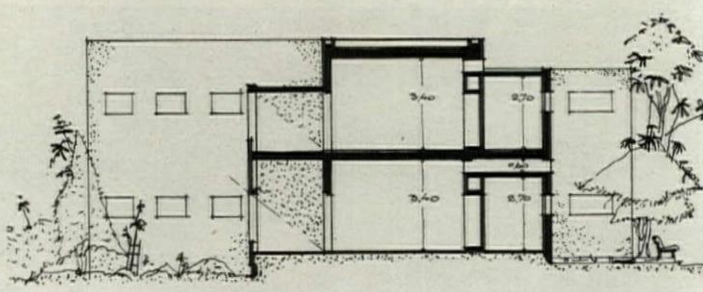
Another feature of the four-bed wards is that there is sufficient depth so that the beds may be pushed apart to go against the corridor and balcony walls, gaining enough space for a third bed between them, forming 6- instead of 4-bed rooms.

Construction is of reinforced concrete, with walls of pumice brick treated with a weather-resistant coat and stuccoed. Floors are ribbed, thin-section concrete slabs. Interior surfaces are plastered, with easily cleaned, rounded corners. Floor surfaces are linoleum.

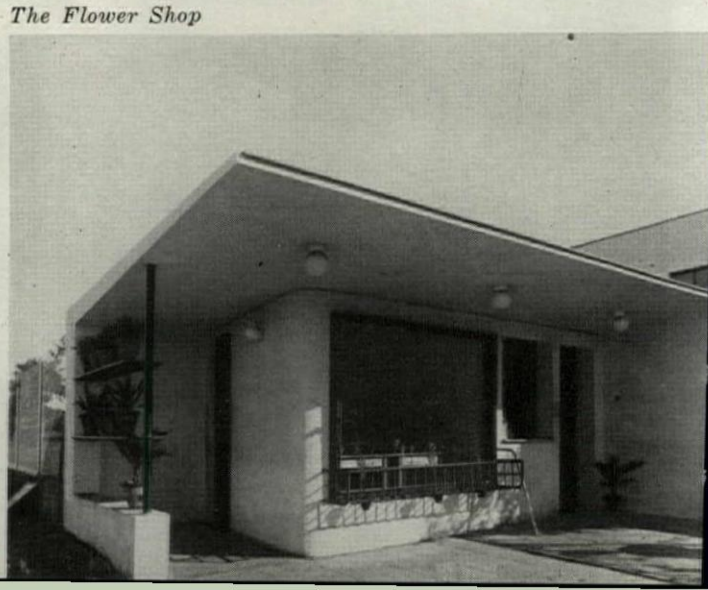
Considerations of cleanliness and cheerfulness dictated use of a warm, gray-white paint on all interior wall surfaces. The wood sash are a combined double-hung and pivot type. When raised, the lower sash locks with a central pivot or axle, and the pair of sash may then be tilted inward from the pivot to provide nearly 100 per cent opening.

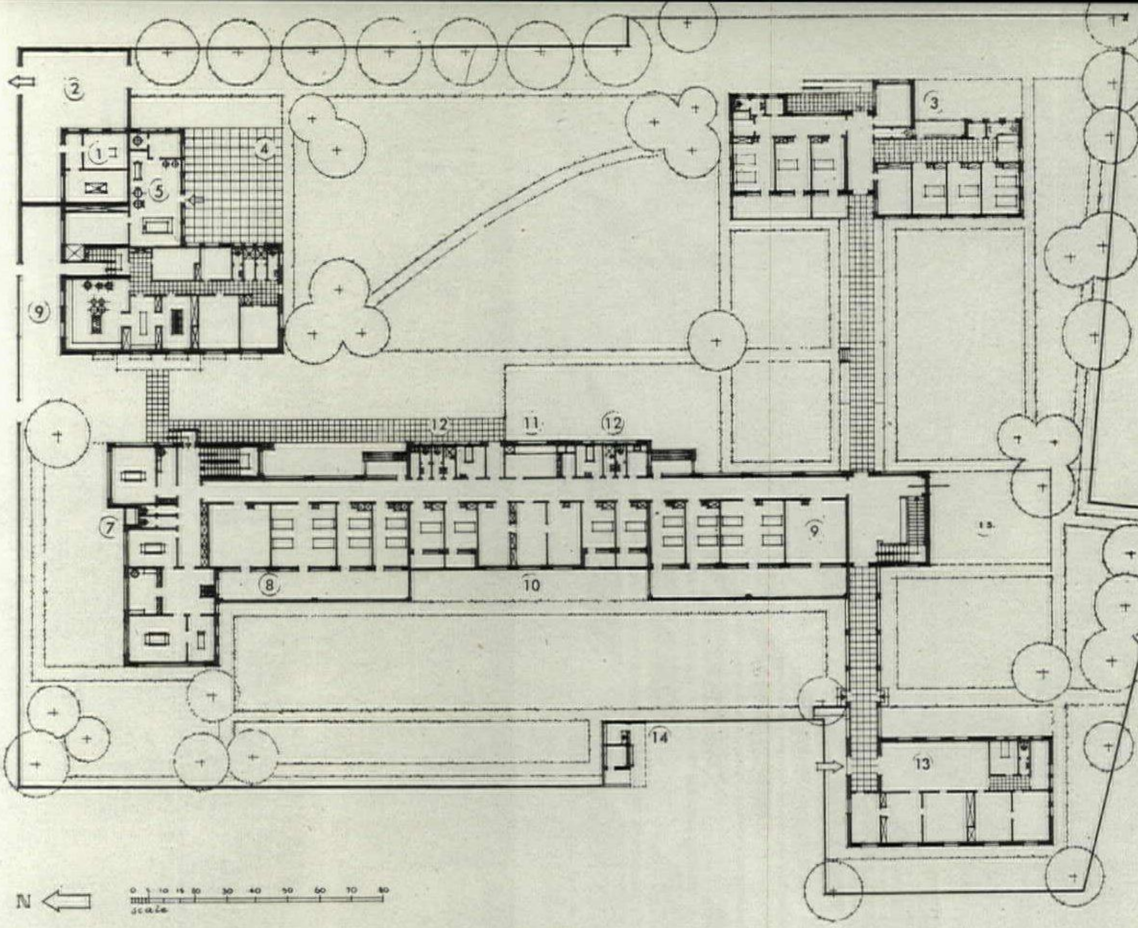


1. Bed area: cross-ventilated, sun-protected, unobstructed from east to west.
2. Concentrated medical, sanitary, and nursing facilities: centralized supervision; short distances; close contact with patients; dividing unit between male and female wings.
3. The floor pantry, source of noise and odors; apart from patients' rooms.

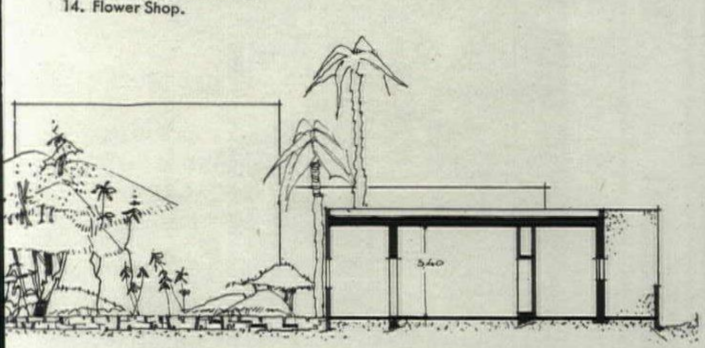


The Flower Shop





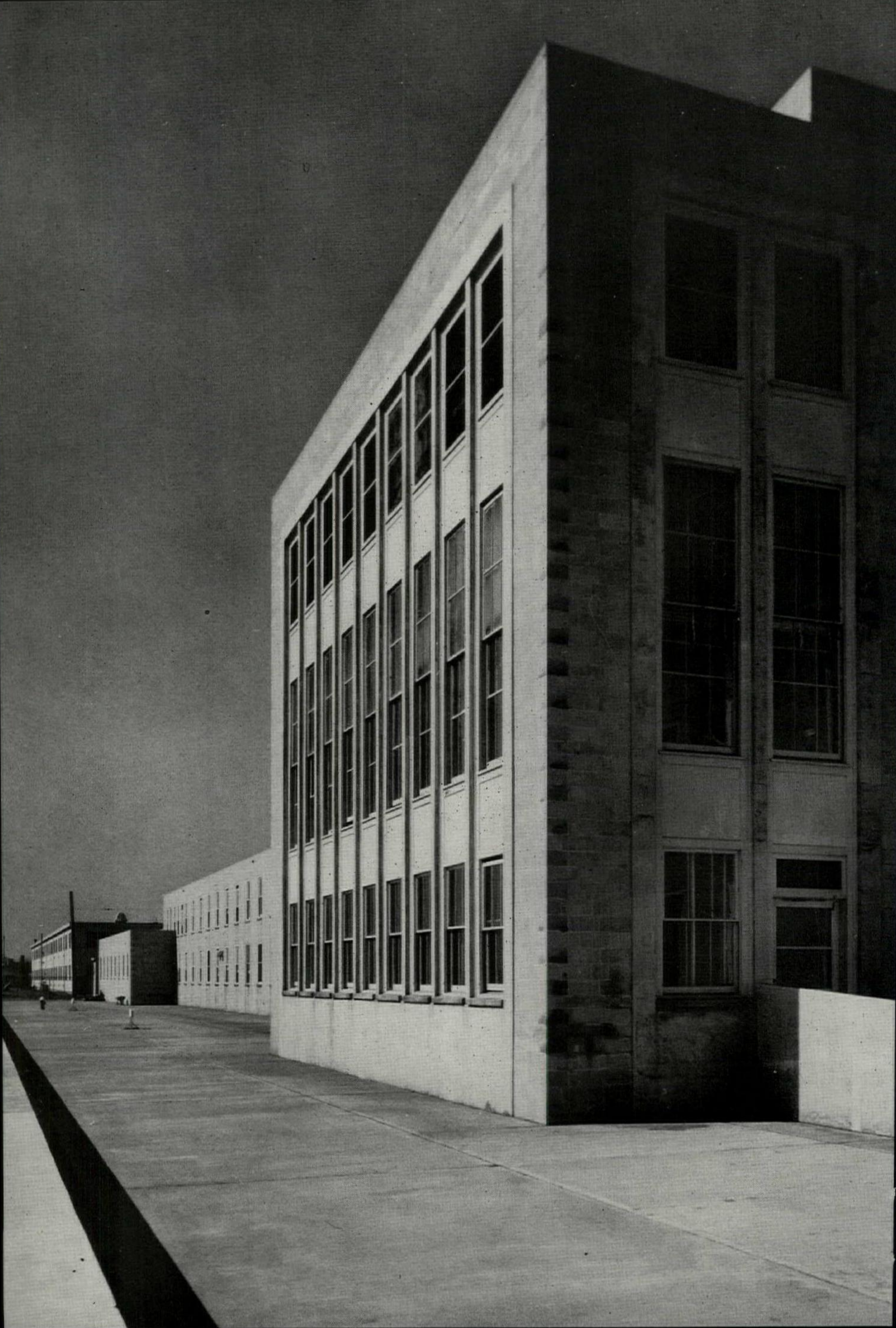
1. Post Mortem
2. Court
3. Isolation
4. Laundry Court
5. Laundry
6. Kitchen Wing
7. Surgical and Nursery Wing
8. Open Terrace
9. Day Room
10. Nursing, Sanitary, and Medical Facilities (rooms and wards at either side)
11. Tea Kitchen
12. Wash Rooms, Toilets
13. Administration Building
14. Flower Shop.

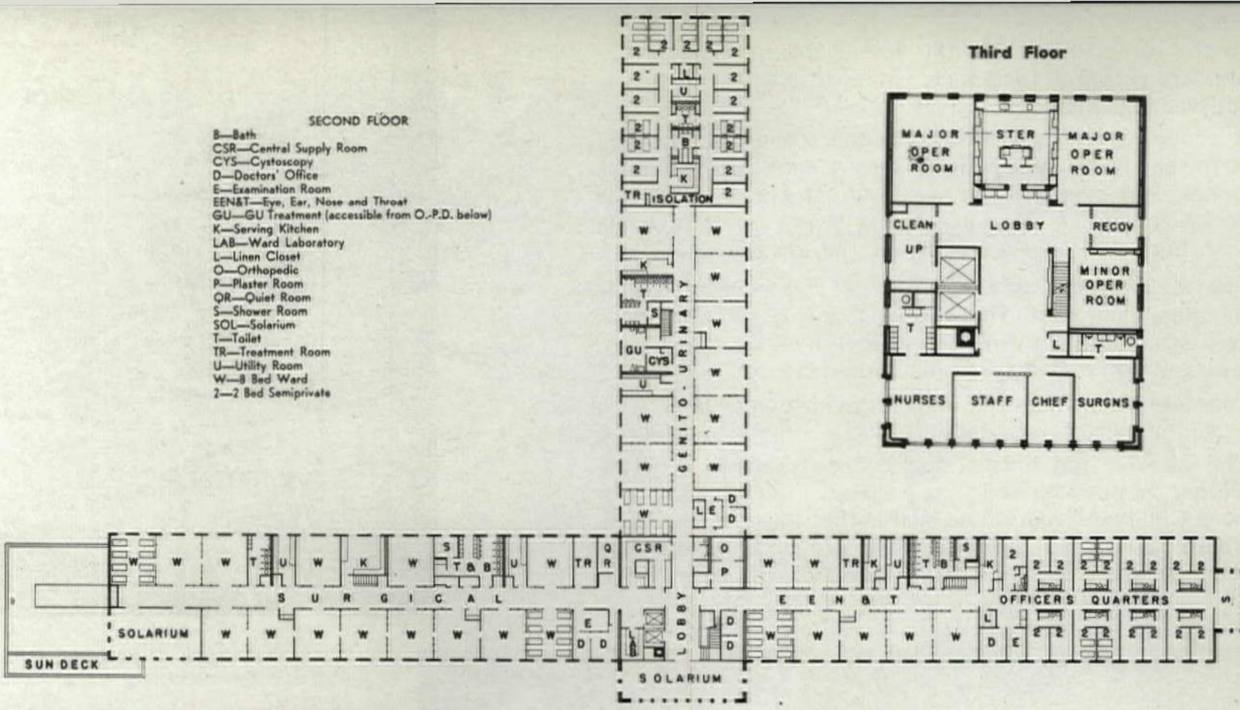


Stair hall

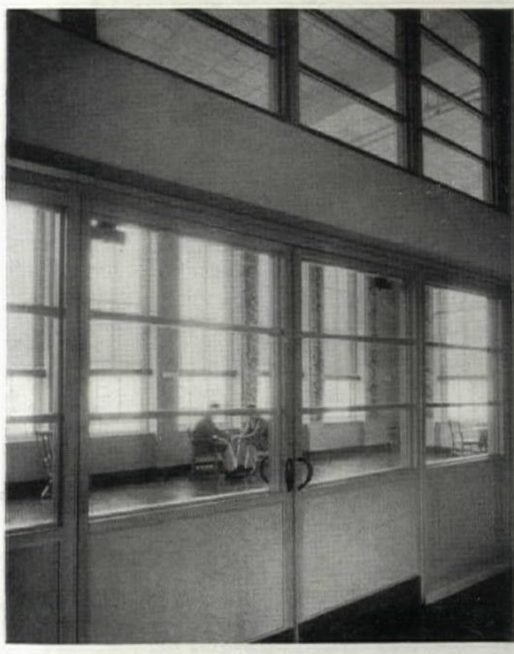
Joseph Neufeld, A. I. A., Architect

Looking from sterilizer room through pass-window instrument case to the operating room





SECOND FLOOR
B—Bath
CSR—Central Supply Room
CYS—Cystoscopy
D—Doctors' Office
E—Examination Room
EEN&T—Eye, Ear, Nose and Throat
GU—GU Treatment (accessible from O.-P.D. below)
K—Serving Kitchen
LAB—Ward Laboratory
L—Linen Closet
O—Orthopedic
P—Plaster Room
QR—Quiet Room
S—Shower Room
SOL—Solarium
T—Toilet
TR—Treatment Room
U—Utility Room
W—8 Bed Ward
2—2 Bed Semiprivate



Photos by P. A. Dearborn

Solarium

U. S. Public Health Service Hospital

Sheepshead Bay, N. Y.

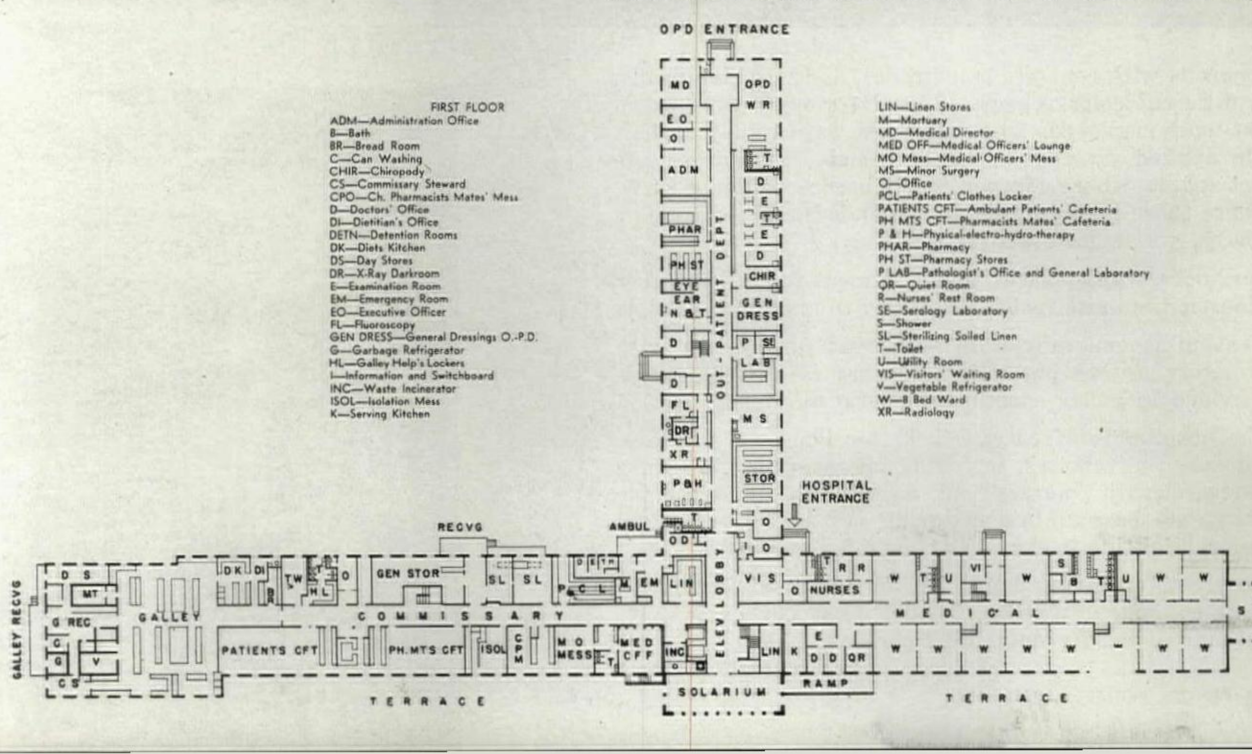
Alfred Hopkins & Associates, Architects

This hospital was built under the supervision of the U. S. Coast Guard, to serve the medical needs of service men in two adjacent training centers. A 400-bed hospital, it cares for acute ailments and handles the out-patient or "sick call" requirements of 18,000 men.

Facing south on a paved promenade along the waterfront where ambulant and wheel chair patients can enjoy the ocean sun, it is planned to take full adantage of the prevailing southeast and northwest winds.

Speed was a primary consideration; only seven months elapsed between the beginning of conferences in April 1942 and the occupancy of the building by patients.

An 8-bed, Rigs-type of ward is the standard unit, with a segregated isolation section for all suspects and communicable disease cases at the end of the north wing



FIRST FLOOR
ADM—Administration Office
B—Bath
BR—Bread Room
C—Can Washing
CHIR—Chiropody
CS—Commissary Steward
CPO—Ch. Pharmacists Mates' Mess
D—Doctors' Office
DI—Dietitian's Office
DETN—Detention Rooms
DK—Diets Kitchen
DS—Day Stores
DR—X-Ray Darkroom
E—Examination Room
EM—Emergency Room
EO—Executive Officer
FL—Fluoroscopy
GEN DRESS—General Dressings O.-P.D.
G—Garbage Refrigerator
HL—Galley Help's Lockers
I—Information and Switchboard
INC—Waste Incinerator
ISOL—Isolation Mess
K—Serving Kitchen

LIN—Linen Stores
M—Mortuary
MD—Medical Director
MED OFF—Medical Officers' Lounge
MO Mess—Medical Officers' Mess
MS—Minor Surgery
O—Office
PCL—Patients' Clothes Locker
PATIENTS CFT—Ambulant Patients' Cafeteria
PH MTS CFT—Pharmacists Mates' Cafeteria
P & H—Physical-electro-hydro-therapy
PHAR—Pharmacy
PH ST—Pharmacy Stores
P LAB—Pathologist's Office and General Laboratory
QR—Quiet Room
R—Nurses' Rest Room
SE—Serology Laboratory
S—Shower
SL—Sterilizing Soiled Linen
T—Toilet
U—Utility Room
VIS—Visitors' Waiting Room
V—Vegetable Refrigerator
W—8 Bed Ward
XR—Radiology

on the second floor. On the second floor corridor, ceilings are raised to form a clerestory of glass block panels and vent openings.

A group of semi-private rooms for officers is provided at the end of the east wing on the second floor. Solariums looking out over the sea serve all categories. There is no basement, as the building is constructed on sand, with high tide only 5 feet below the grade.

The structural frame consists of reinforced concrete columns, floor, and roof slabs, using a two-way floor arch system. Bays were determined by a standard ward unit and not varied throughout the plan.

Concrete block was used in an exterior double wall, with a 2-in. air space (see details).

The interior finish is simply painted smooth concrete blocks. Similar block is used for all interior partitions except in "wet" rooms and spaces that must be scrubbed, where salt-glazed block is used. Concrete beams and columns are left exposed and painted. Stairs are cast concrete, with concrete balustrades, and wood handrails. A different color scheme is used for each wing, with flat tones employed. The floor finish is generally asphalt tile applied directly to concrete slab. Exceptions are wet spaces, where ceramic tile is used; operating suite, where there is terrazzo, with grounded grid; and galley spaces, which have quarry tile.

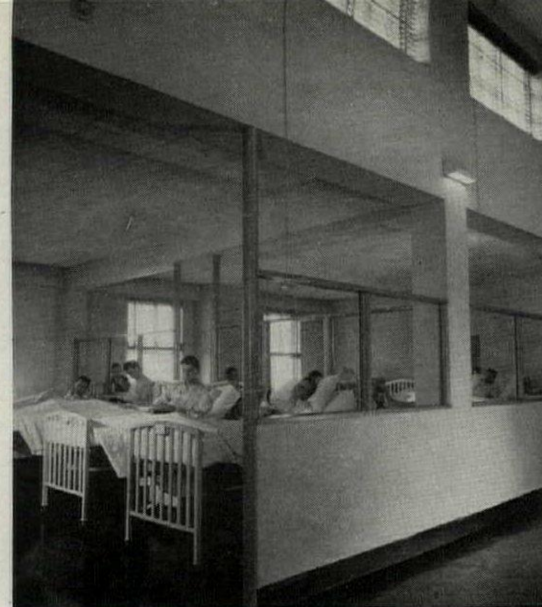
Corridors, wards, offices, and treatment rooms have fiber acoustic tile units fastened directly to underside of slab.

Heating is generally a two-pipe vacuum system with radiators as heating units. Mechanical ventilation is provided in galley spaces and operating rooms.

The hospital is wired especially for blackout purposes. All essential services, including operating suite, utility rooms, elevator, nurses' call, doctors' call, and bedside units, can be maintained during a blackout, while all general lighting is shut off at the main switch.

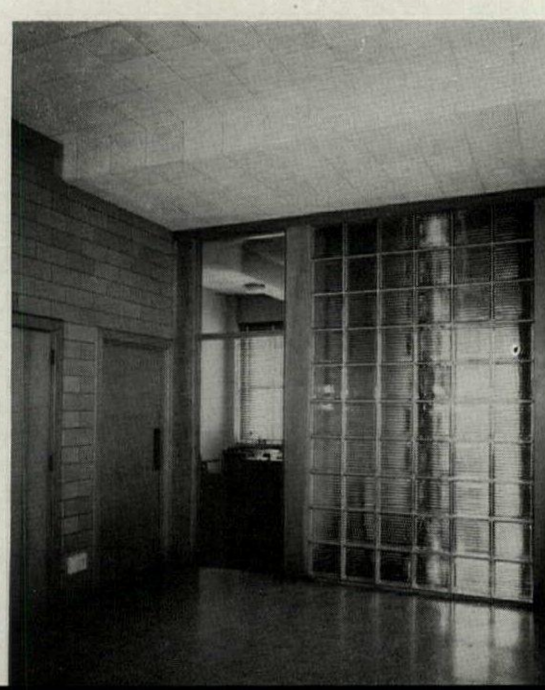
The cost, excluding land, but including all fixed and loose equipment was $1,176,000. Cost per cubic foot, building alone, 70 cents. Cost per bed, $2,100.

—by Gannett Herwig

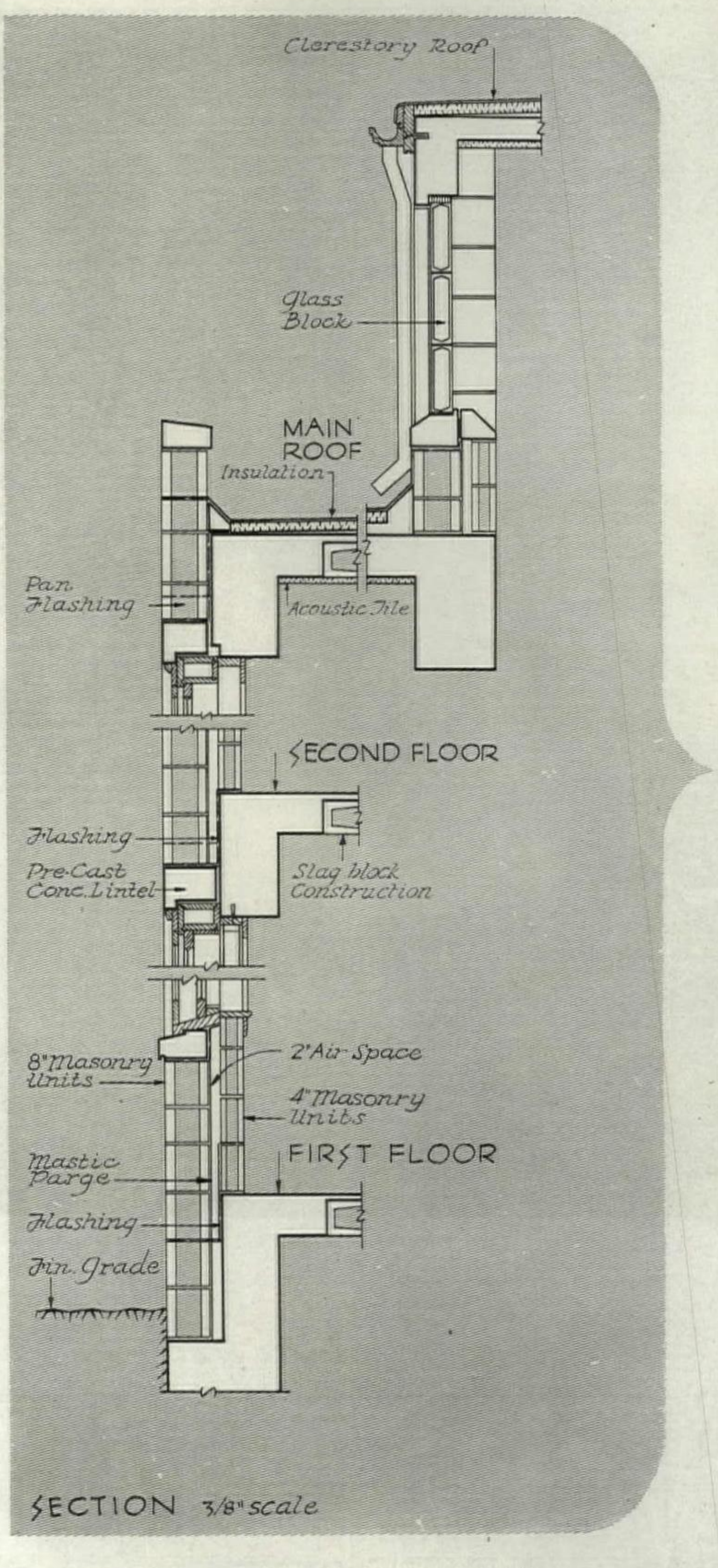


A typical, open Rigs-type ward. For details, see Page 67.

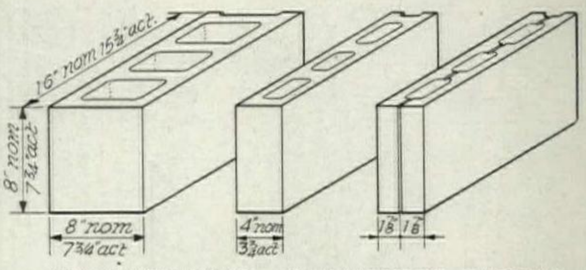
Two major operating rooms are located on the third floor. Drawings on Page 66 show details of wall and instrument-case pass window.



A glass block wall on the operating floor separates the staff office from the lobby.

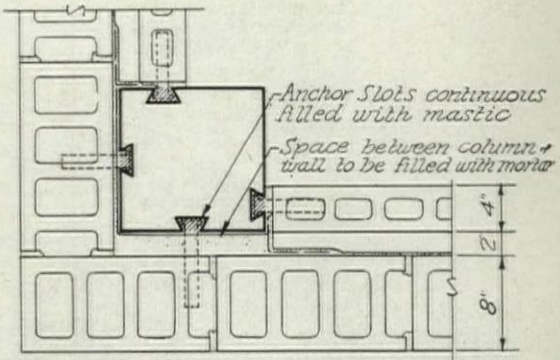


SECTION 3/8" scale

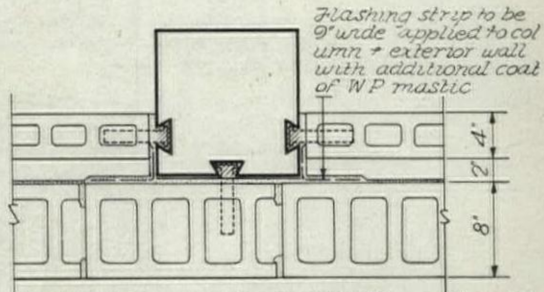


STANDARD UNITS of CONCRETE BLOCKS

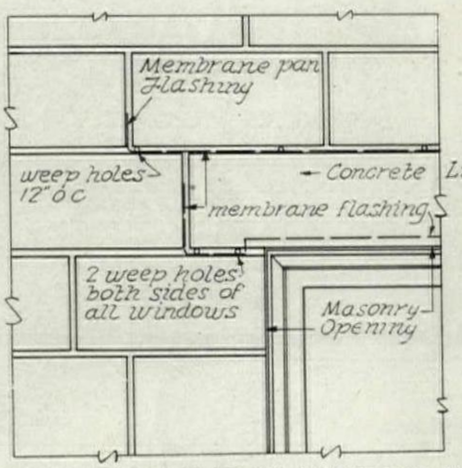
4" Interior block 18" nom 17¾" act



WATERPROOFING at CORNER COLUMN and END WALL

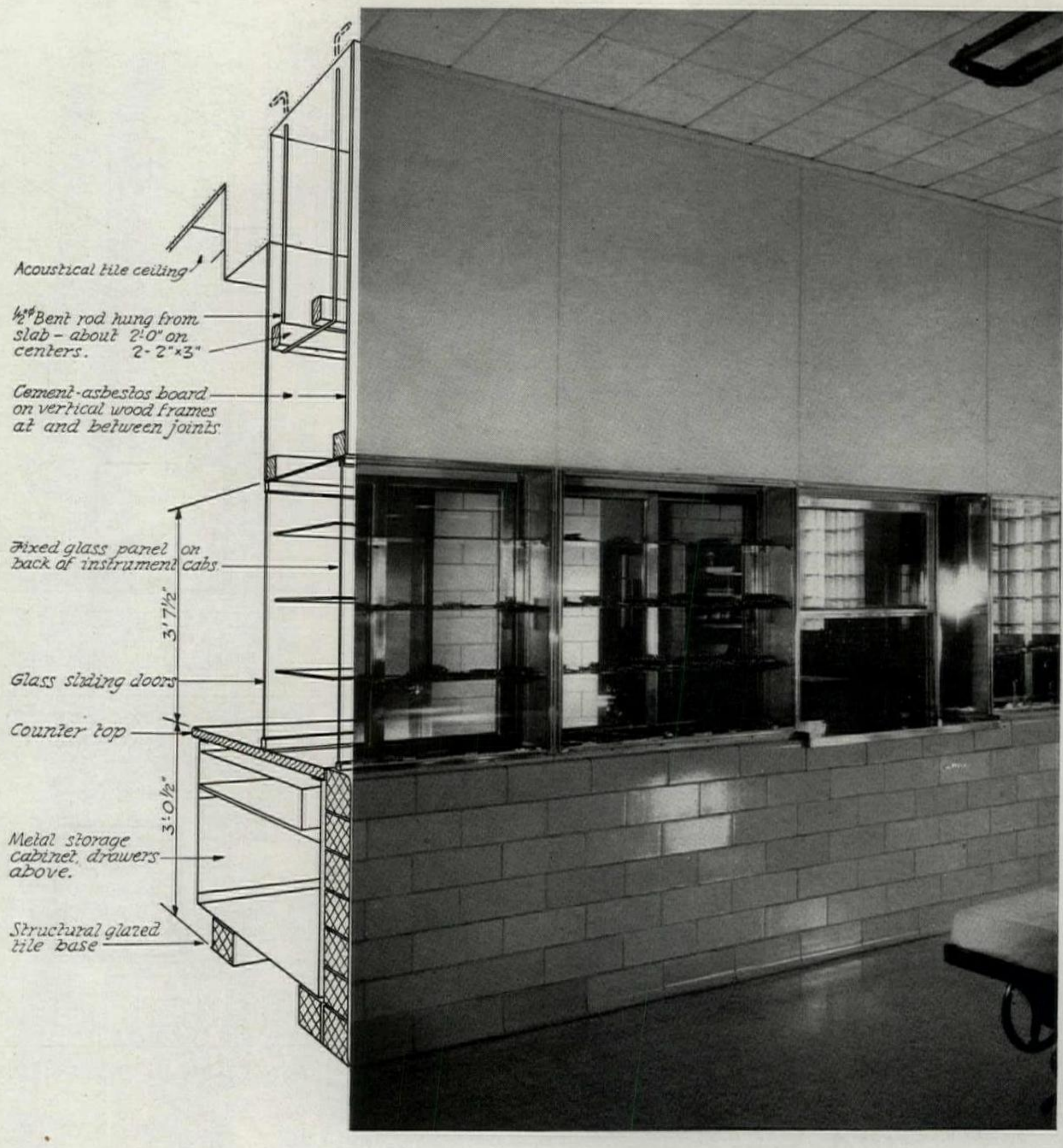


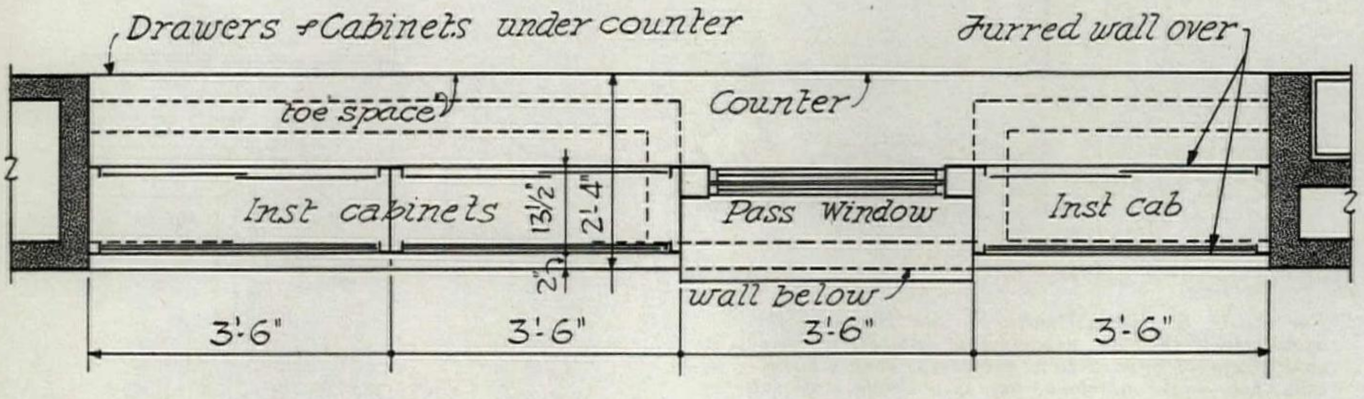
CONDITION at INTERMEDIATE COLUMN



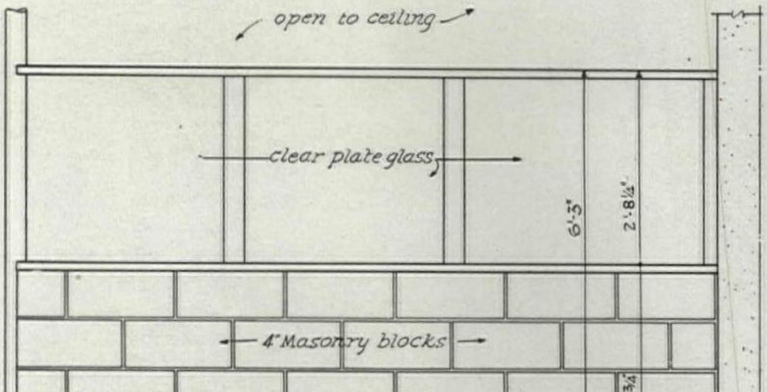
ELEVATION, TYPICAL WINDOW HEAD
3/4" scale

For the U. S. Public Health Service Hospital, the architects worked out a system of emergency, wartime, fireproof construction: reinforced concrete skeleton, floor and roof slabs; use of a single material (precast concrete) for exterior walls, interior furring and partitions, involving services of but one trade—masons. Extensive use of glass block, for monitor glazing as well as for partition panels, eliminated metal; special provisions for waterproofing (paper, membrane, and parging). Advance modular planning avoided all cutting of masonry units.



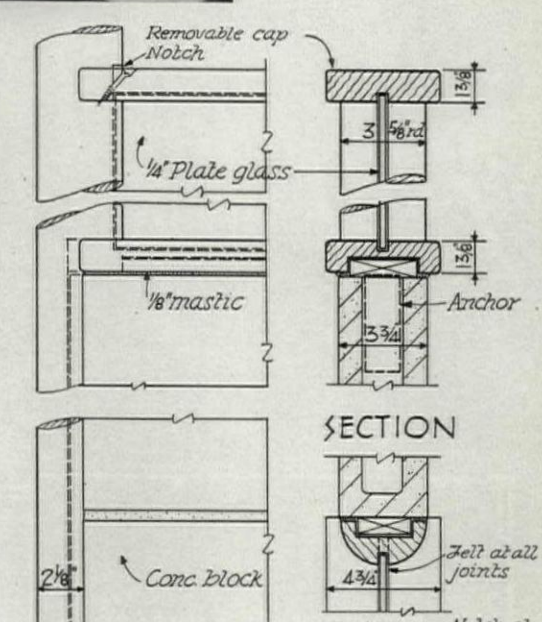


PLAN at CABINETS between STERILIZING & OPERATING ROOMS
1/2" Scale



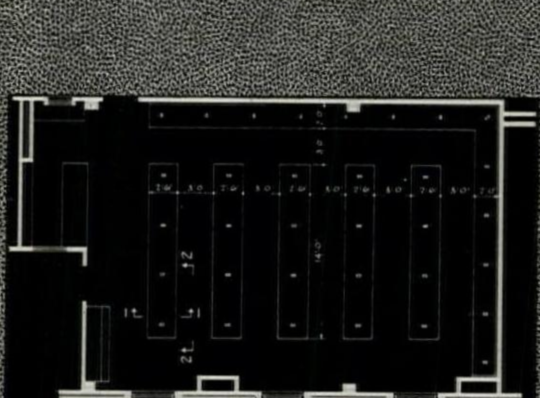
½ ELEVATION from WARD

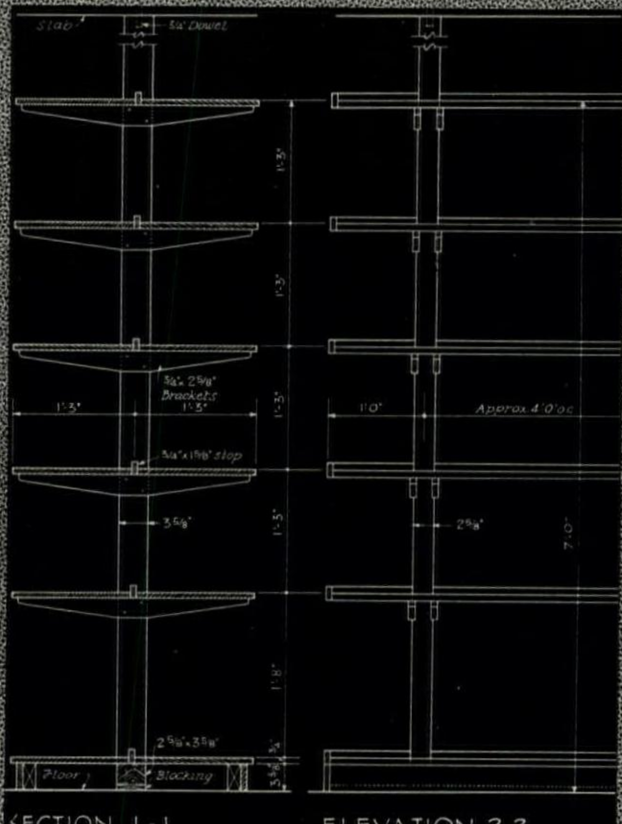
PLAN of TYPICAL WARD SCREEN
3/8" scale

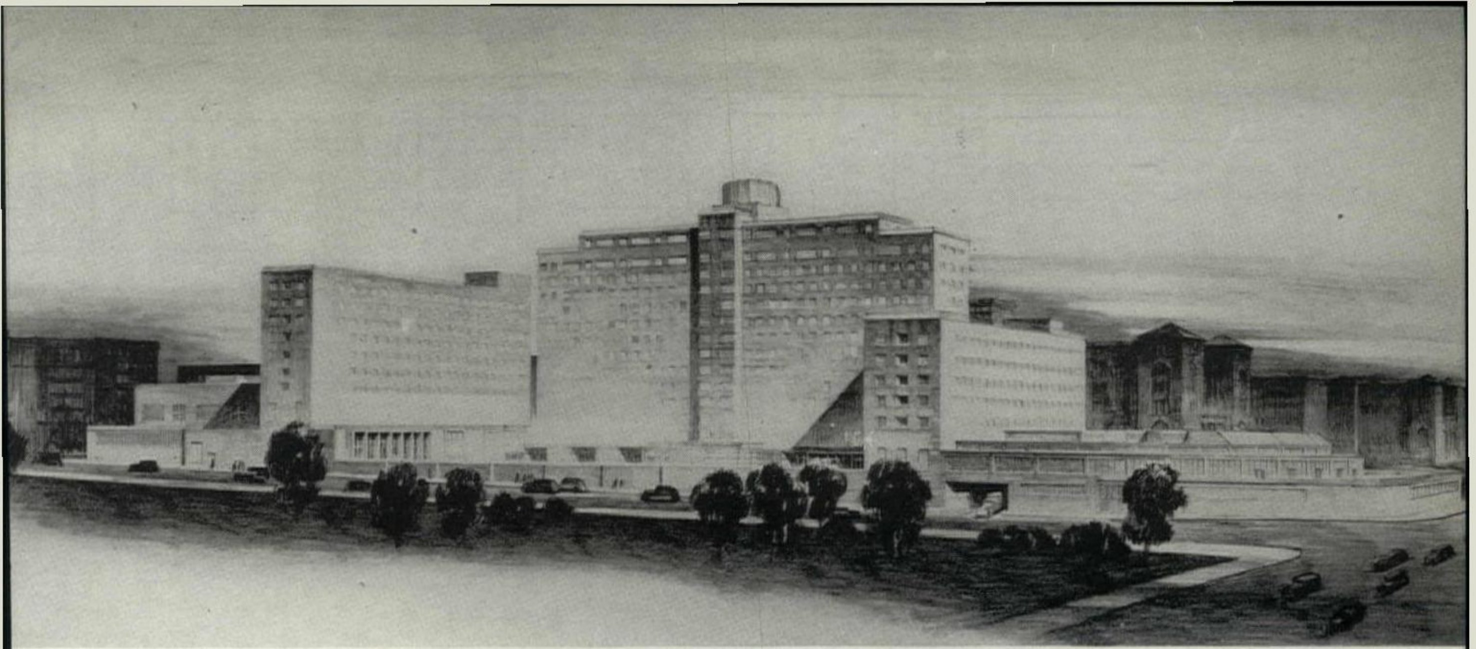


ELEVATION   PLAN
1½" scale

Wood Storage Shelving Designed to Eliminate Steel, U.S.P.H.S. Hospital, Sheepshead Bay, N.Y.; A. Hopkins & Assoc., Architects







Residence and School for Nurses

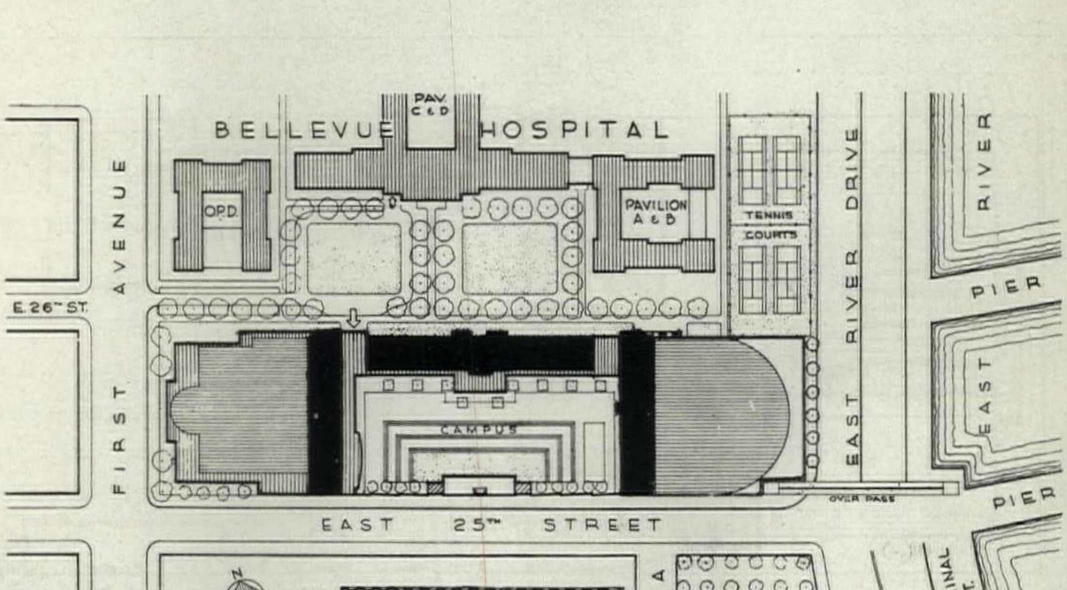
Bellevue Hospital, New York City

Alfred Hopkins & Associates, Architects

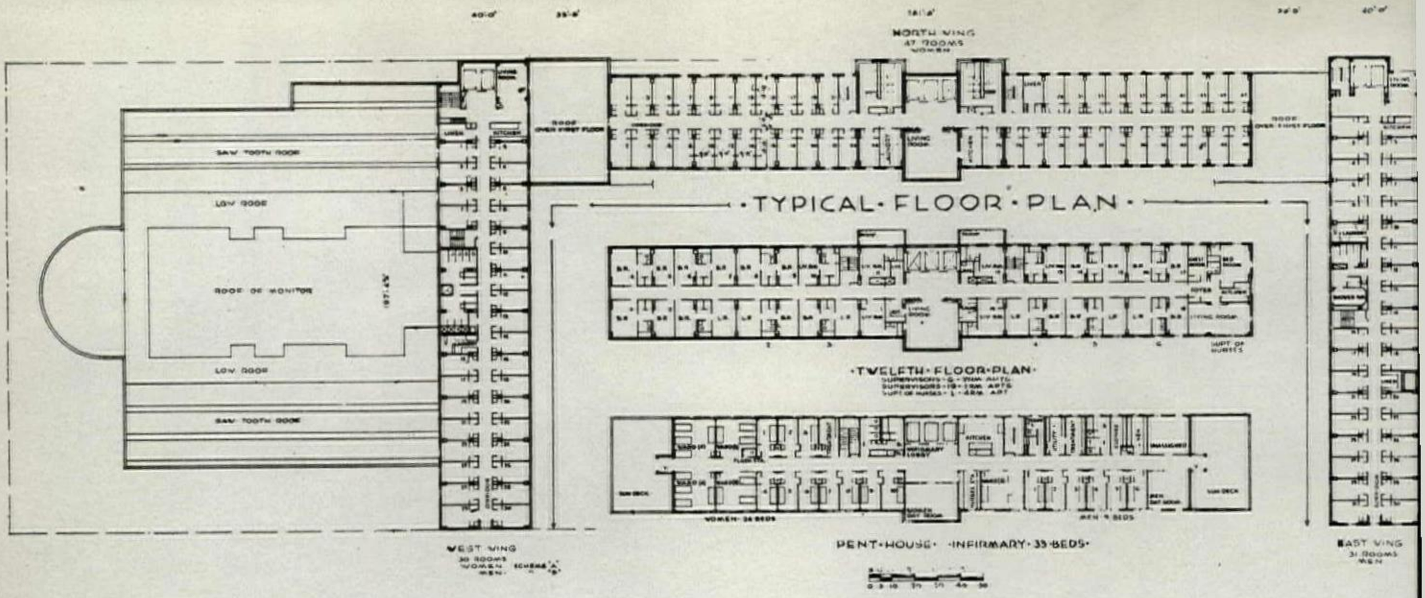
This great project, to occupy something more than an entire New York City block, is of interest on four major counts:

1. It is a large structural group that will actually be built after the war.
2. It represents a new approach to planning the training and residence facilities for the nursing profession.
3. The reinforced concrete structure employs a cavity-wall system and includes a three-dimensional modular unit—the individual student's room.
4. The plans include notable features in heating, sanitation, lighting, etc.

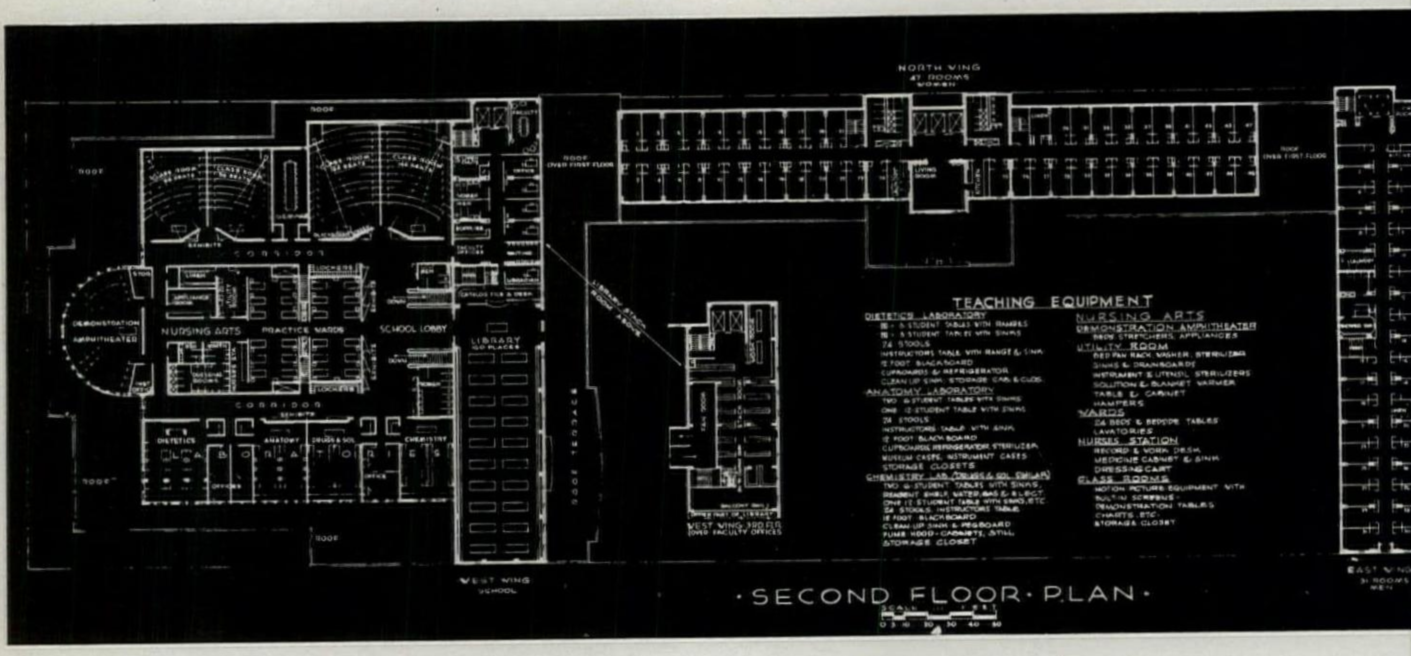
The group was designed by the architects under the direction of the Bureau of Architecture, Department of Public Works, City of New York; A. Gordon Lorimer, Chief of the Bureau; Isadore Rosenfield, Chief Architect, Hospitals.



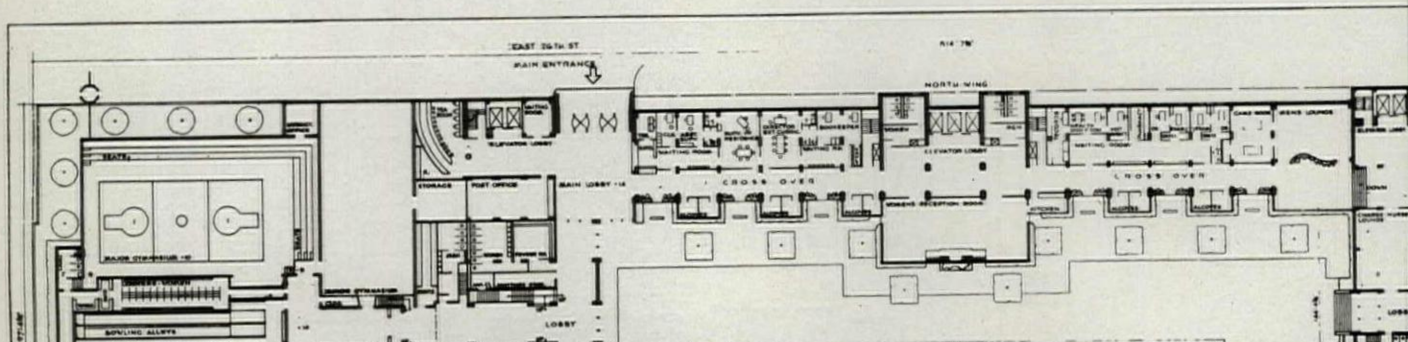
·PLOT PLAN·



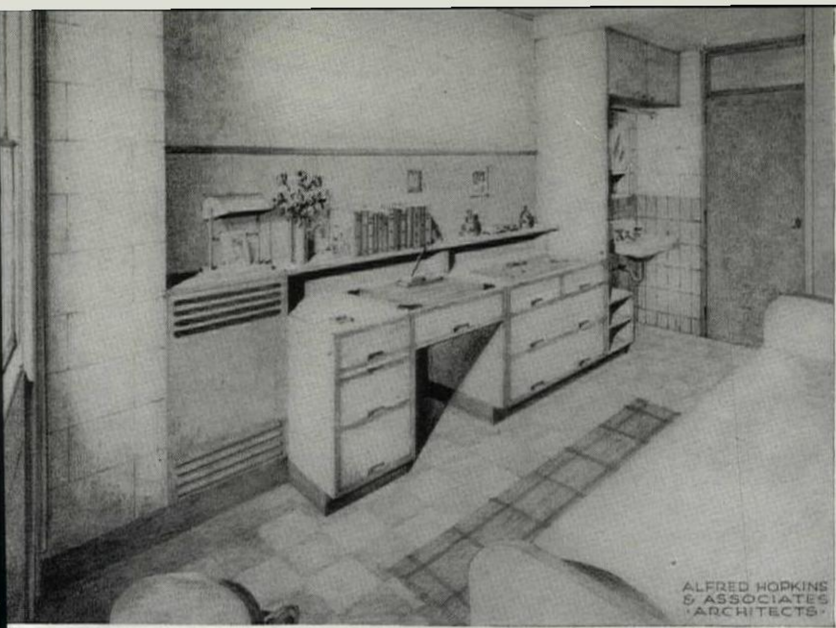
NORTH WING
47 ROOMS
WOMEN
SAW TOOTH ROOF
LOW ROOF
ROOF OF MONITOR
·TYPICAL·FLOOR·PLAN·
·TWELFTH·FLOOR·PLAN·
PENT·HOUSE· ·INFIRMARY·35·BEDS·
WOMEN·24·BEDS
MEN·9·BEDS
WEST WING
30 ROOMS
WOMEN
MEN
EAST WING
31 ROOMS
MEN

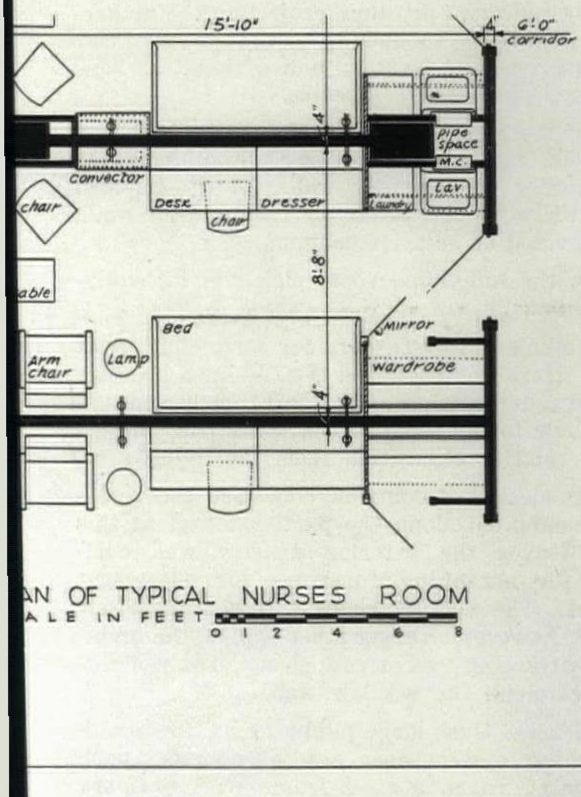


NORTH WING
47 ROOMS
WOMEN
NURSING ARTS
PRACTICE WARDS
SCHOOL LOBBY
LIBRARY
DEMONSTRATION AMPHITHEATER
LABORATORIES
TEACHING EQUIPMENT
DIETETICS LABORATORY
74 STOOLS
INSTRUCTORS TABLE WITH RANGE & SINK
CUPBOARDS & REFRIGERATOR
ANATOMY LABORATORY
TWO 6-STUDENT TABLES WITH SINKS
STORAGE CLOSETS
CHEMISTRY LAB.
12 FOOT BLACKBOARD
CLEAN-UP SINK & PEGBOARD
STORAGE CLOSET
NURSING ARTS
DEMONSTRATION AMPHITHEATER
UTILITY ROOM
SINKS & DRAINBOARDS
INSTRUMENT & UTENSIL STERILIZERS
SOLUTION & BLANKET WARMER
TABLE & CABINET
HAMPERS
WARDS
24 BEDS & BEDSIDE TABLES
LAVATORIES
NURSES STATION
RECORD & WORK DESK
MEDICINE CABINET & SINK
DRESSING CART
CLASS ROOMS
MOTION PICTURE EQUIPMENT WITH
DEMONSTRATION TABLES
CHARTS, ETC.
STORAGE CLOSET
WEST WING
SCHOOL
EAST WING
31 ROOMS
MEN
·SECOND FLOOR·PLAN·

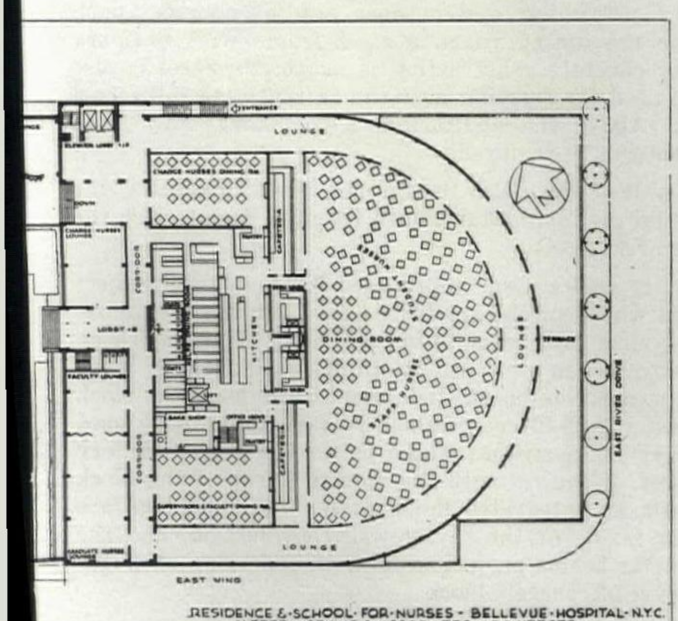


EAST 26TH ST.
MAIN ENTRANCE
NORTH WING
CROSS OVER
BOWLING ALLEYS
SWIMMING POOL
LOBBY
FOYER
PLATFORM
CAMPUS
WEST WING
EAST 25TH ST.
·FIRST·FLOOR·PLAN·





AN OF TYPICAL NURSES ROOM
ALE IN FEET 0 1 2 4 6 8



RESIDENCE & SCHOOL FOR NURSES - BELLEVUE HOSPITAL N.Y.C.
ALFRED HOPKINS & ASSOCIATES ARCHITECTS

The need for a centralized nursing school and residence at Bellevue Hospital is very great. The present dormitory building, built in 1908 and added to in 1913, houses only 450 nurses; space is required for some 850. At the present time, several hundred nurses must live in various parts of the hospital and in neighboring houses; dining facilities are inadequate, and teaching rooms are scattered in numerous buildings. This system is difficult to administer efficiently; it also uses hospital spaces badly needed for other uses.

The postwar accommodations will provide rooms for 850 student nurses (700 women; 150 men) and 50 staff and faculty members. In addition to student rooms, there will be central dining facilities, a unified educational unit designed in accordance with accepted educational standards, a student infirmary (on the top floor), and recreational and physical education facilities.

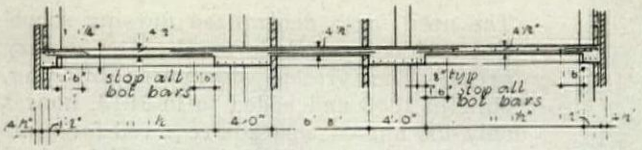
The "College" Plan

A major center for nurses' training, the Bellevue School, through an arrangement with New York University, grants the degree of Bachelor of Science in Nursing. Not the least important part of the proposed scheme is provision of amenities that will provide a rounded and prideful college atmosphere, that will help make nursing as attractive a calling as any other professional occupation.

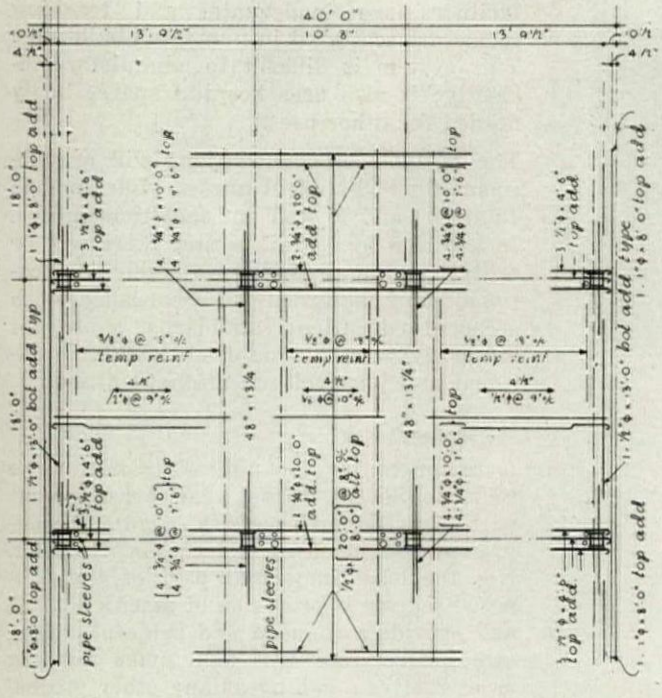
Hence, we find incorporated in the plans a sizable campus, facing south, between the two north-south residence wings; swimming pool, gymnasium, and bowling alleys; social corridor with "beau parlor" alcoves; a large semicircular dining hall, surrounded by a lounge, which overlooks the East River; and a school library.

To make way for the new group, several antiquated buildings (including the present inadequate nurses' home) will be demolished. The overall scheme consists of three units organized around the campus-court. On the lower floors, the easterly unit contains the dining rooms; the western unit houses provision for physical education, with other school facilities—class rooms, laboratories, demonstration amphitheater, etc.—set back from First Avenue noises, on the second floor. In the connecting building, along the north side of the campus, are administrative offices and public spaces. The first and basement floors of the three buildings are connected, making a continuous structure at these levels. Above, the units are separate, worked out in this way—among other reasons—because of extreme site conditions from west to east, requiring entirely separate handling of foundations. The majority of the rooms that need quiet face the landscaped campus. Dormitory rooms that face First Avenue are removed 180 feet from the noisy thoroughfare.

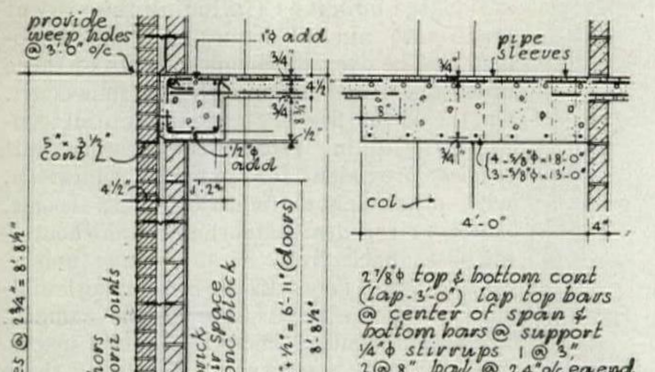
The space below the dining room, caused by the slope of the site, is planned to house badly needed garage facilities for 66 cars, a 25 percent increase over present accommodations.



TYPICAL SECTION



TYPICAL PART FRAMING PLAN



STRUCTURAL SYSTEM

Alfred Hopkins & Associates, Architects

The projected structural system is a reinforced concrete skeleton with monolithic concrete slabs. With this system, the architects point out, two framing methods are possible: 1. concrete beams at right angles to the long axis of the building and located over each partition; 2. longitudinal supports running parallel with the building axis and flat slabs spanning between these supports and the outside. The latter method was adopted.

The desirable size and requirements of the individual student room were the chief determining factors. A uniform spacing of partitions at 9 feet provides ample room for student bed and standard unit furniture across the room. Another factor: it was desirable to have a good-sized window and a reasonable sitting area near it uncluttered by radiators or other projections. Furthermore, it was necessary to include at the corridor end of each room a recessed lavatory and a closet, as separate from the living area as possible.

The details of the adopted structural system show how all of these desiderata were realized. Four-foot-wide slab strips border the corridor walls. A 4½-in. slab spans from these to the beam on the exterior wall. Ducts are provided at exterior columns.

The result on the individual room plan and its equipment is as follows:

1. A lower ceiling (the 4-ft. corridor strip slab) near the entrance. Here are organized the tile-lined lavatory recess and the generous closet. The unit thus becomes in effect a vestibule to the room proper, achieving the desired goal of relative separation from the living area.

2. With ducts located at columns, concealed convectors may be flush mounted along the partition wall at this point. This leaves the exterior window wall completely free for arranging furniture for enjoyment of the outlook. The heating element is not absolutely decided as yet, however. Among other things, the architects are investigating use of ceiling-mounted radiant-heating panels along the window wall.

Special Conditions. Over large public areas, the standard-unit framing system does not, of course, apply. Above the dining room, a steel frame with ordinary cinder concrete construction is proposed. Steel is also to be used for framing over the recreational and school area. Above the auditorium a two-story steel truss system will be required.

Cavity Wall (See also the Selected Detail pages in this issue on the Manhattan Beach Hospital designed by the same architects).

A cavity wall system is proposed for the entire project except where special conditions may indicate otherwise. The system involves a 10-in. wall, with 3¾-in. brick on the exterior, an air space 2¼ in. wide and interior layer of 4-in. concrete block. It is proposed to leave the block unplastered as interior finish, the same units being used for corridor partitions, and even the tile of the lavatory recesses, lining up with the mortar joints of the block to form an integrated finish design. The columns are wholly inside of the cavity wall construction, and the perimeter beams project to form a supporting shelf for the layer of concrete block.

Toll House, Stowe, Vt., Built for Skiers

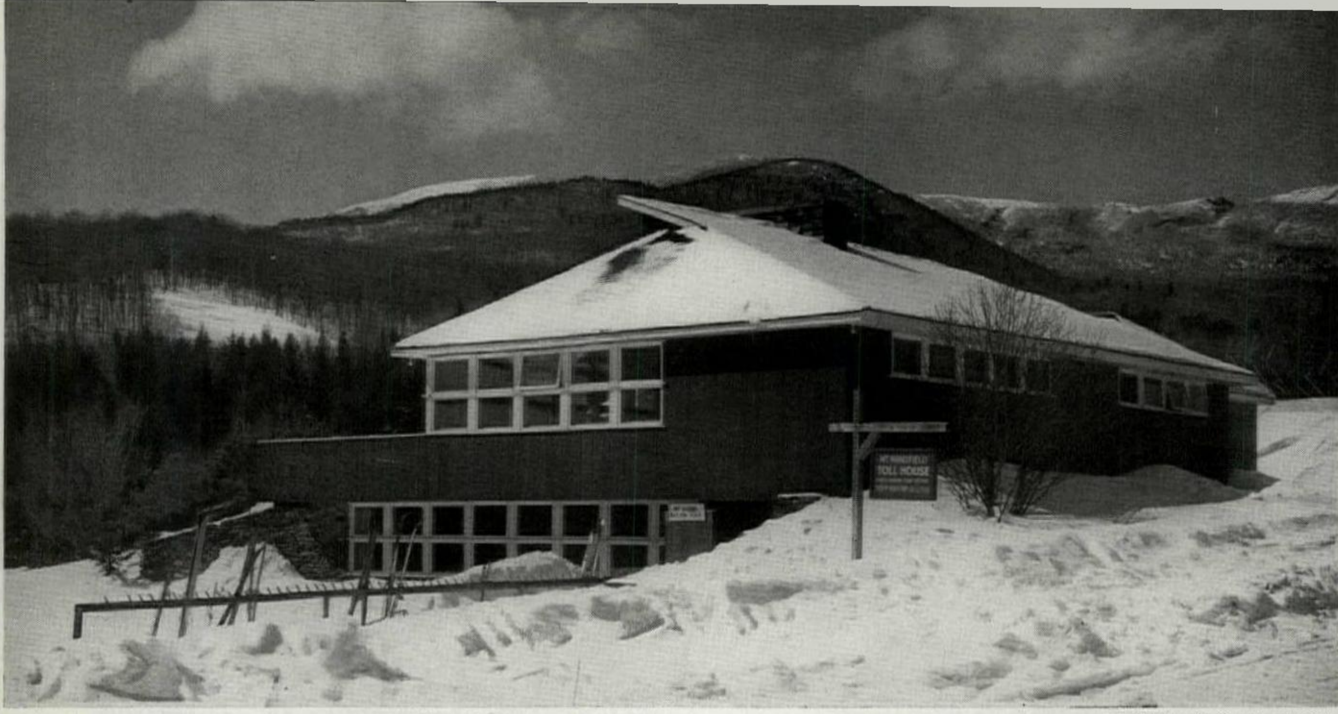
Edgar H. Hunter, Architect

Photo by Richardson

Photo by Cushing-Gellatly

The recreation facilities of northern New England constitute a major industry. Comparatively recently, interest in the winter vacation, paralleling the development of skiing, has resulted in the growth of winter resorts and skiing centers all over the country. In the East, such a center is located at Stowe, Vermont, where good snow conditions have overcome difficulties of access.

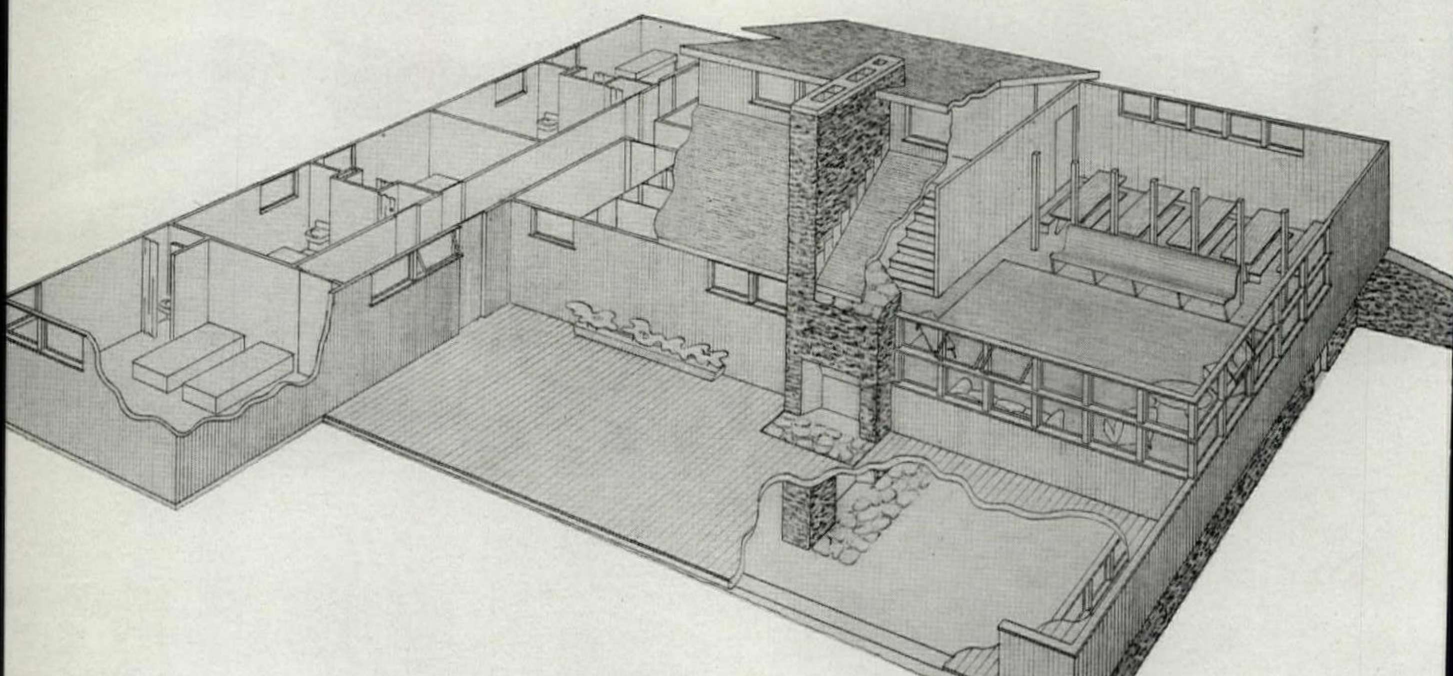
Photo by Richardson



Photos by Cushing-Gellatly

The Toll House has three functions: headquarters for the Sepp Ruschp Ski School; a public area for the students and other skiers from nearby slopes with a lunch counter for hot coffee and other food; sleeping and living quarters for paying guests.

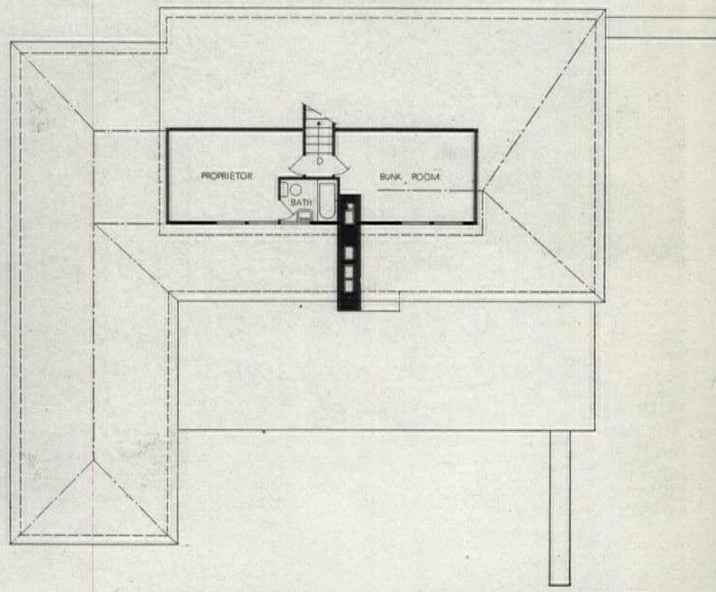
Edgar H. Hunter, Architect



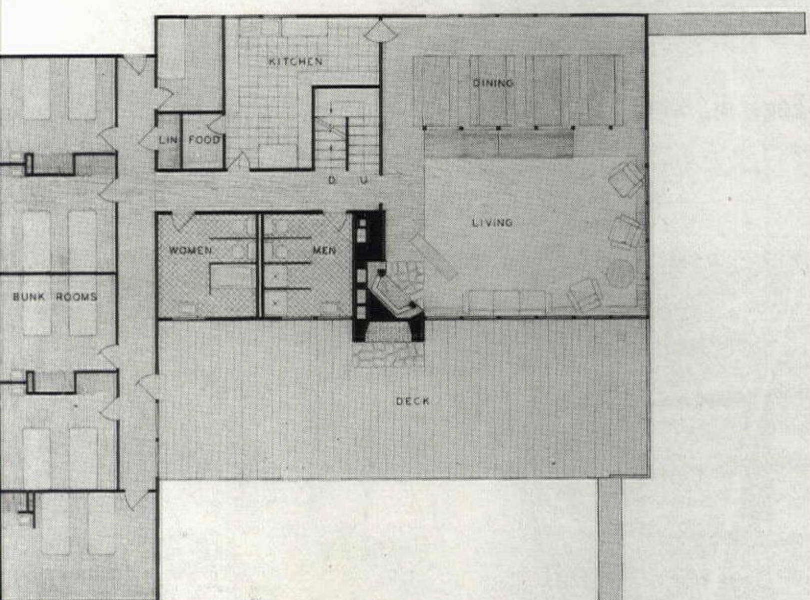
The architect was limited by an existing structure which had to be incorporated, though it forms only part of the new building. The sloping site permitted placement of the warming room under the building on the east side, a location advisable for compactness and ease of access from the road and slopes, allowing other parts of the building benefit of the view.

Drawings by Edgar H. Hunter

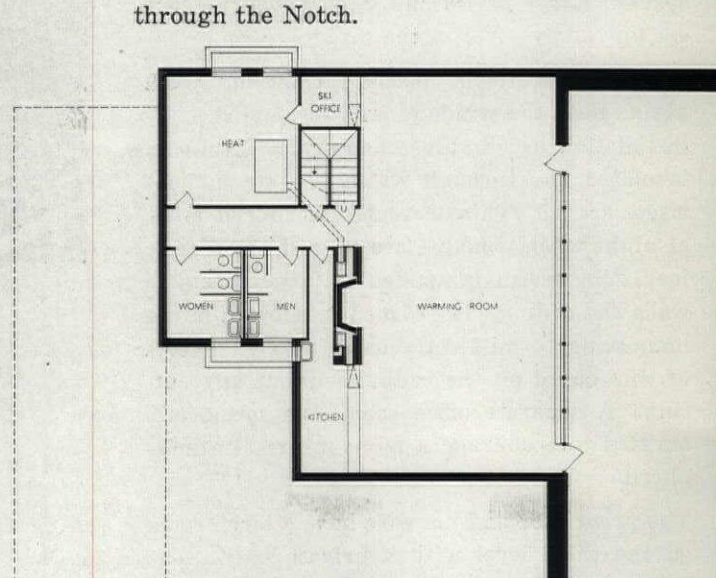
The outdoor fireplace—at the base of the ski trail



Located at the base of Mount Mansfield, Vermont's highest peak, the building is at the juncture of the Toll Road up the mountain which is used in summer by motor tourists and in winter by skiers, and the Smuggler's Notch Road running on up to the chair lift carrying skiers up the mountain. The practice slope is nearby, and one of the ski trails ends near the deck where outdoor meals are sometimes served beside the large fireplace. Lunch may be obtained in the warming room on the ground floor level. The plan makes use of the varying levels of the site to obtain a strong differentiation between the purely public area—the warming room—and the bunk rooms, living and dining room for guests. The staff has quarters on the third level. Windows take in the view to the mountain and down Smuggler's Notch. The deck faces south and is protected by the bunk room wing from the prevailing wind through the Notch.



Obvious access to the building is through the door to the warming room. Since it was desirable to separate the areas used by the public from the guest quarters on the first floor, no direct access from the deck into the first floor living room was provided, and entrances to this first floor level were purposely made inconspicuous.



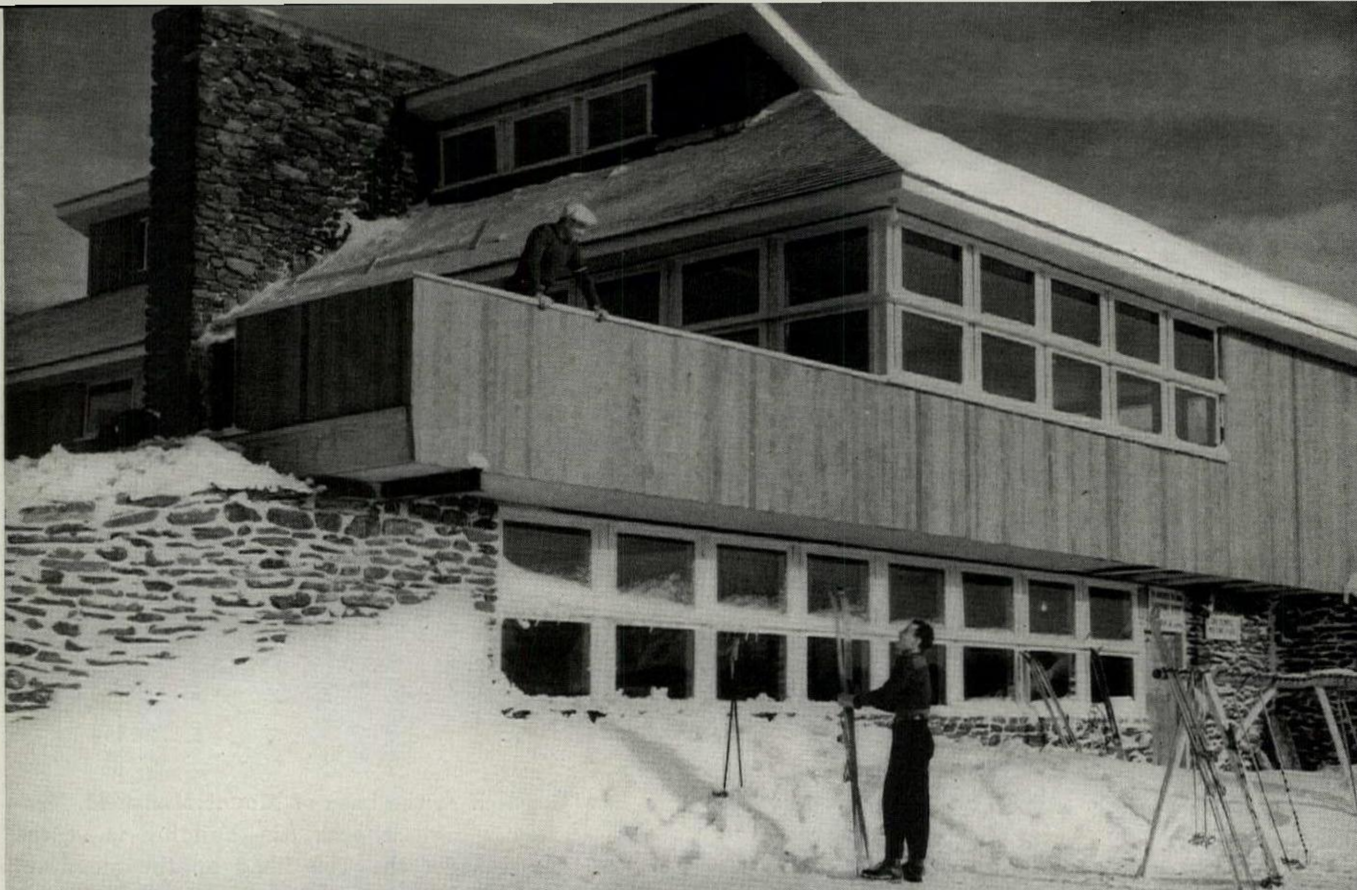


Photo by Richardson

Edgar H. Hunter, Architect

Native pine sheathing with three coats of hard wax is used in finishing the living-dining room and the corner fireplace benefits this entire area. Circulating units occur in both inside fireplaces. The modular disposition of the windows is repeated inside by the structural 4″ x 4″ posts, separating living and dining areas. This separation is further carried out by a specially designed wooden bench between the spaces. Large tables and wooden benches are set up family style in the dining room.

In the bunk rooms placement of the wash basins near the windows was accomplished by installation of all valves and traps within an insulated box through which the steam heat risers are led. This prevents freezing of pipes at night when windows are opened. Homasote insulating board is applied in large sheets to walls and ceiling. The 4′ module adopted in the main wing permitted the use of 8′ x 12′ sheets of this board on the ceiling without any cutting. A separate office room was specifically omitted to encourage a more informal atmosphere.

The proprietor and his wife have a large room on the third level with a private bath. The balance of this area is given over to bunk

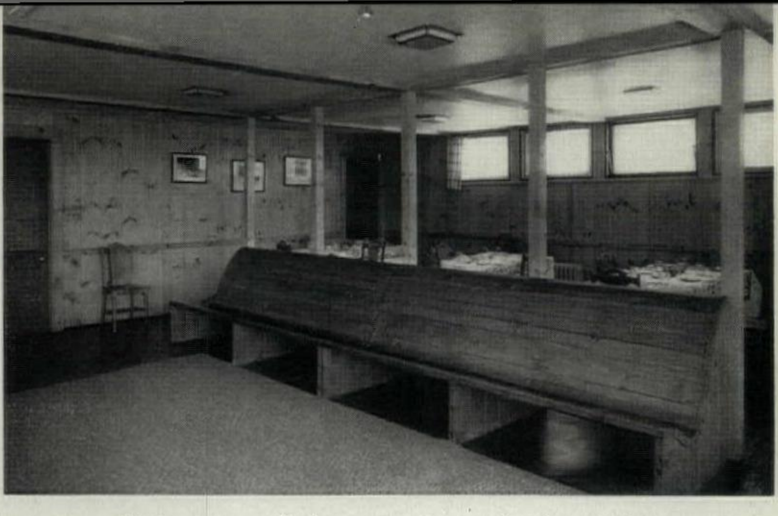
Photo by Cushing-Gellatly

Window corner of living room

rooms for the staff. Homasote sheets were again used here.

Fir flooring, rift-sawn and treated with preservative, is the exterior finish. Roof pitches were just sufficient to permit use of cedar shingles. The chimney, retaining walls, and warming room wall, are all of native, slate-like stone laid in Portland cement mortar with deep raked joints. All flues are carried in one chimney. A single size wooden sash was used in two types of frame throughout the building. There are enough windows so that, even though specially designed, the system used was less expensive than standard sash.

The warming room has a rough, concrete floor since it must be a non-skid surface for slippery ski boots. Three walls are covered with waxed native pine sheathing. Continuous windows on the fourth wall are set above native stone. The fireplace is of the same stone with a five foot opening. Along the north wall is a continuous counter at which sandwiches and coffee are served. The heating plant, public toilets, wood and coal storage take up the remainder of this level.



Living room—dining area, above; fireplace, below

Warming room

Photos on this page by Cushing-Gellatly

Toward a Green and Pleasant England?

CRITICAL REVIEW OF ENGLISH PUBLICATIONS ON POSTWAR PLANNING

Prepared by Catherine Bauer

(For first-hand acquaintance with this material I am indebted to E. J. Carter, Librarian of the Royal Institute of British Architects, Katherine McNamara, Planning Librarian at Harvard University, and the British Information Services in New York. Doubtless there are important publications I have missed—particularly in the agricultural field—but this should provide a fair sample of the extraordinary volume and positive character of current English thinking. —C. B.)

"We have one large immediate task in the replanning and rebuilding of our cities and towns," *Winston Churchill* in a broadcast, March, 1943.

"In a very high degree the world's verdict on postwar Britain will depend upon the way in which we apportion our country — our little country — among the many urgent claims upon us," *W. C. Morrison,* Minister of Town and Country Planning, July, 1943.

"The Committee realize that many interests will oppose the ideas of the Regional Plan and its implications for wider planning, national and international. These will be vested interests or those that may be termed political or belong to the lazy-minded and those who would return to the muddle and confusion of pre-war days because they have no vision or are too callous 'to look around the corner.' These various interested motives or lack of them, must not prevail. There can be no place in the Councils of Peace for the timid, the disinterested, or the obstructionist; these are not tolerated in war, must we allow peace and reconstruction to be so guided?", the *London Regional Reconstruction Committee, Royal Institute of British Architects,* May, 1943.

BROAD ANALYSIS AND PHILOSOPHY

Finer, Herman, (*of the London School of Economics*), *POSTWAR RECONSTRUCTION IN GREAT BRITAIN, in the* Canadian Journal of Economics and Political Science, *November, 1942. The only thorough analysis I have found of the political dynamics behind the planning movement. Five types of proposal are described: physical reconstruction; social services (including housing); education; machinery of government (including regionalism); and controls for industry and commerce. Mr. Finer feels that these issues "... have revolutionary implications. United with revolutionary feeling, they may have revolutionary results. But Parliament and Royal Commissions are to be the method, not the barricades."*

Gutkind, Erwin, *CREATIVE DEMOBILIZATION, Vol. I, PRINCIPLES OF NATIONAL PLANNING, Kegan Paul, 1943. Outstanding example, to this reviewer at least, of the didactic presumption and unreality that result from trying to treat "planning" as an exact science, with no political base whatsoever.*

McAllister, Gilbert and Elizabeth, *TOWN & COUNTRY PLANNING, Faber and Faber, 1941. The best brief history of English housing and town-planning available, plus discussion of postwar issues and the proposals of the Town and Country Planning Association.*

Mumford Lewis, *THE SOCIAL FOUNDATIONS OF POSTWAR BUILDING, #9 in the Rebuilding Britain pamphlet series, Faber and Faber, 1943. A positive philosophy to guide the age of stabilization, wherein the problem is, "not how much of the superstructure should be replaced, but how much of the foundations can be used for a new set of purposes and for a radically different mode of life."*

Osborn, F. J. *OVERTURE TO PLANNING, #1 in the Faber and Faber pamphlet series. A practical statement of the issues by a leader of the revitalized Garden City movement.*

Richards, J. M. *A THEORETICAL BASIS FOR PHYSICAL PLANNING, in the* Architectural Review, *February and March, 1943. A stimulating effort to develop a fresh hypothesis, in social-psychological terms, for the relation of environment problems to contemporary culture.*

TOWARD A NATIONAL POLICY FOR LAND, BUILDING, AND POPULATION DISTRIBUTION

The Royal Commission Reports (H. M. Stationery Office):
The Committee on the DISTRIBUTION OF INDUSTRIAL POPULATION (Barlow), *1940, recommended a Central Authority, to carry out a positive policy of "decentralization or dispersal, both of industries and industrial population, from ... congested urban areas," to new or existing communities selected to achieve a "reasonable balance of industrial development," and regional diversification, throughout Great Britain.*

The Committee on LAND UTILIZATION IN RURAL AREAS (Scott), *1942, wants strong protection for good farmland, and vastly improved housing and community facilities for the rural population. In a Minority report Professor Dennison recommends less emphasis on preserving the countryside from urban or industrial encroachment, more on properly coordinated planning to serve* all *national interests.*

The Expert Committee on COMPENSATION AND BETTERMENT (Uthwatt), *1942, recommends acquisition by the State of development rights in all land outside built-up areas; vastly increased local powers for the compulsory acquisition of land; and a periodic levy on all increases in site-values ... and is generally recognized to be a prudent step toward land nationalization.*

The best summary of these three reports is a pamphlet prepared by Nuffield College *and introduced by G. D. H. Cole, BRITAIN'S TOWN AND COUNTRY PATTERN, #2 in the Faber and Faber series. (A brief summary is included in Douglas Haskell's two excellent articles, BRITAIN'S PLANS ARE BOLD, in the* Architectural Record *for March and April, 1943.)*

Sir William Beveridge *supplies a good quote on the importance and status of these Reports at the present moment (speech, December 1, 1943): "Squalor is a tougher Giant than Want. A Government which hedges on Beveridge is only too likely to be ditched on Barlow and Uthwatt. I wish I felt real hope that this fear was not going to come true. Because we cannot postpone building long after the war, if we are to house our returning soldiers properly; we cannot start building without a national plan for the location of industry, unless we mean to make a lasting mess of the country again; and we cannot have a national plan until we have decided to do not less than Barlow and Uthwatt."*

British Information Services (*N. Y.*) *have published three volumes of official statements on postwar issues of which the last, BRITAIN LOOKS AHEAD (1944), includes remarks on physical reconstruction, land planning and housing by the Ministers of Town and Country Planning, Works, Health, et al. Policy and activity on housing, at least, sound positive. Another publication, POST-WAR PLANNING IN BRITAIN, is an invaluable directory of organizations concerned with postwar planning, political, professional, and otherwise, and of their main proposals and publications.*

The Economist *has frequent editorials on planning progress. The issue of Sept. 18, 1943, suggests that the Uthwatt Report "has now little chance of adoption ... Inevitably, the discussions must turn back to the more radical and more thorough alternative which the Committee set aside — nationalization or, more precisely, the progressive vesting in the community of property rights in land, as and when the need for the effective planning of land-use requires it."*

Gibbon, Sir Gwilym, *RECONSTRUCTION AND TOWN AND COUNTRY PLANNING, Architect and Building News Press, 1942. Outraged by the surge of "Utopian planners," this ex-government official calls the famous Commission Reports "three chariots for paradise," but includes some sharp and realistic remarks on political processes.*

Gutkind, Erwin (*Editor*), *CREATIVE DEMOBILIZATION, Vol. II, CASE STUDIES IN NATIONAL PLANNING, Kegan Paul, 1943. Much better than Volume I, this book includes factual studies of specific regions, an excellent analysis of agricultural planning issues by J. R. Currie, and stimulating material on everything from landscape to industrial planning, electrification, population redistribution, and the location of new towns.*

Holford, Professor W. G., *TOWARD A NATIONAL PLANNING SURVEY,* Journal of the Town Planning Institute, *May-June, 1943. This able and progressive young architect-planner, now a Government official, also did an excellent article on the LOCATION AND DESIGN OF TRADING ESTATES* (Journal of the T.P.I. *March, 1939), a pre-war English development that should be better understood in America.*

Housing and Planning News Bulletin, *organ of the National Housing and Town Planning Council. For many years this bi-monthly publication has supplied the best factual review of developments in English housing and planning policy. It reflects the solidly progressive though frequently uninspired points of view of the local authorities and trade unions who support the organization. Issue #25 reports a conference last October attended by "1750 official representatives of 638 local authorities and 30 Associations and Unions," which evinced great irritation at the delays of the Government.*

Industrial Christian Fellowship, *THE HUNDRED NEW TOWNS SCHEME. Proposes to remove 4 million people from greater London, the other large cities, and the areas of "architectural sprawl," and resettle them in compact new towns of about 40,000 population ... each of which would save "about 200 miles of ribbon development." Wants green "wedges" instead of greenbelts, to permit growth.*

Labour Party, *HOUSING AND PLANNING AFTER THE WAR, 1943. Rather pious and general except on such basic proposals as: 4 million new houses in the decade following the war; higher standards in public housing, and rents to reach those who really need it the most; lower interest rates; and outright land nationalization.*

Malvern Conference, *MALVERN AND AFTER, Report of the Committee of Industrialists and Economists with Theologians, introduced by the Archbishop of York. The study, requested at the famous Malvern Conference of the Church of England, proposes that "Every child should find itself a member of a family housed with decency and dignity, so that it may grow up ... unspoilt by underfeeding or by overcrowding, by dirty and drab surroundings, or by mechanical monotony of environment." It concludes that "far-reaching changes in the present system of land ownership are required ... in particular, the owner of the sites of cities has hardly any function that would not be as well or better performed by a public body, while he absorbs a great deal of wealth communally created ..."*

Osborn, F. J. *THE LAND AND PLANNING, #7 in the Faber and Faber pamphlet series, 1943. A thorough technical analysis of the "compensation and betterment" problem, valuable as an introduction to any detailed study of the Uthwatt Report, but not very directly pertinent to traditional American practice.*

PEP, (Political and Economic Planning), *an anonymous group of experts, has issued several hundred broadsheets and reports on all types of planning problem. Solid, and invaluable for reference, they seem to be losing spark and decisive clarity. However, #180 and #181, on PUBLICLY OWNED LAND and NATIONAL POLICY TOWARD LAND, are important background documents on this issue, and the volume Report on the LOCATION OF INDUSTRY (March, 1939) is a classic.*

Royal Institute of British Architects Reconstruction Committee, *FIRST GENERAL STATEMENT OF CONCLUSIONS, reprinted from the* R.I.B.A. Journal, *August, 1942. An outstanding document recommending a National Planning Authority; a National Development Commission; a National Code for Living Standards, Structural Standards, and Financial Provisions; complete public control of land-use; decentralization of population and industry and the development of new towns; and a forthright national policy for public and private housing and community facilities. Includes sensible remarks on the role of architects in Civic Planning.* Must reading *for American architects, who could make some useful comparison with the postwar proposals of the A.I.A.*

Silkin, Lewis, *THE NATION'S LAND, a Fabian Society pamphlet, 1943. An excellent critical history of English planning measures, by a Member of Parliament and of the London County Council. Silkin summarizes the three Commission Reports, claims that the Uthwatt proposals are "no simpler than nationalization," and quotes Lord Astor, the Lord Mayor of Plymouth: "Public ownership of land in a city is vital to its replanning. Hitler has given blitzed towns an unexpected chance which the Government must not spoil by lack of vision and courage."*

Society of Friends, Industrial and Social Order Council, *has been issuing a pamphlet series on PLANNED RECONSTRUCTION that*

(*Continued on page 94*)

BPF

Introducing a New Service for Pencil Points Readers

by Don Graf

Before the war, the designer of a building could have chosen from among about 20,000 separate product items manufactured by some 4,000 local, regional, and national manufacturers. During the past two decades the number and variety of building products have increased amazingly and the present emergency promises further to speed up the rate at which new or changed products will be made available to the building industry.

As a result of the multiplication of material and equipment items the architect spends a larger and larger percentage of his business time in the consideration of products. The building dollar must be split with nice judgment among the 41 major classifications of building products. Skill in the choice of materials for a building has a "one-hoss shay" implication. The desired performance and the cost of products have to be in careful balance according to their relative importance in the completed whole. If only strength entered into the balancing process it would be infinitely easier than it is. But appearance and convenience are in large measure influenced by the products used. The development of panel materials, larger and stronger sheets of glass, lighter and stronger metals, has profoundly affected the appearance of our modern buildings. The length of the logs in the forest set the maximum plan dimension of the woodsman's cabin. The plans of buildings from the beginning of time have been modified in a similar way by the materials available for both the horizontal and vertical elements of construction.

And thus it is that upon intelligent, broad knowledge of what the product market affords is largely based the satisfaction which a building ultimately renders to its occupants. In a very real sense, architecture is spelled P-R-O-D-U-C-T-S.

Yet, with the added complexity of the building market, no steps have been taken to render the architect's selection of suitable products easier. So far as reference material, text books, research data, or architectural education is concerned, little progress has been made in simplifying the presentation of the basic information needed in order to design, specify and superintend. On the contrary, the tide of printed matter purporting to provide information on building products has swelled at an even faster rate than the volume of the products themselves.

Some years ago the Producers' Council estimated that an architectural office received 74 pages of direct-mail advertising per day. We know of one catalog on a relatively simple piece of equipment, which consists of 500 pages. Another catalog on a single product comprises 17,868 words!

It was once stated by an informed source that a complete architectural file of building product catalogs would require 100 linear feet of filing space—or thirteen 4-drawer filing cabinets stuffed completely full! When we have tens of thousands of architectural men all trying to cram 52 file drawers of information on building products into their individual heads, we begin to understand the urgent need for some faster, surer system of making building facts available for reference.

One of the principal reasons for that curse of the architectural profession, the "or equal" clause, is that the architectural man has not the time, testing facilities, or the patience to go through a mile-high pile of printed matter and samples to determine the trade names of all competing products which are essentially equal. So he is forced to specify a product familiar to him—followed by the inevitable "or equal" to protect his client from possible bidding irregularities.

With this issue of PENCIL POINTS we begin a regular feature consisting of information on building materials and equipment in highly concentrated form for fingertip reference. It is intended to present exactly that information required by the man who must select building products, together with a bibliography of published material for those who wish to pursue any given subject in more detail.

The information given on the various materials will be based upon recognized standards and the work of independent and unbiased testing laboratories in so far as it is possible. It will be *basic, plain,* and *fast.*

The most valuable feature of BUILDING PRODUCT FACTS will be the inclusion of sources of supply. What good is it to know all about a product if you don't know where to obtain it? In so far as possible all the manufacturers of a given class of product will be tabulated together with the trade names under which their separate products are advertised and sold.

The collection, digestion, and deverbalizing of the source material on a single subject is a slow, uncertain process. Therefore we are not able to commit ourselves to the presentation of a fixed number of subjects each month. Some months there will be two products presented, other months one—and maybe once in a while there won't be any! But if you who read PENCIL POINTS indicate by your letters that this feature is valuable to you, we will make every effort to prepare and publish just as many subjects each month as we possibly can. Tell us what products or classes of products you want featured in this series so that these data will be of the greatest help to the greatest number.

Since no other attempt has ever been made to present product information in this form, it is obvious that BUILDING PRODUCT FACTS do not compete with, or attempt to supersede, any existing reference literature. However, we have not the slightest doubt but that there will appear, within a short time after this series has started, a number of more or less similar copies—as there were in 1932 and 1933 after the DATA SHEET series had made their initial appearance. But just as the DATA SHEETS outlived all of their imitators, so we hope the BUILDING PRODUCT FACTS will prove to be so uniquely valuable that they, too, will survive any "sincerest flattery."

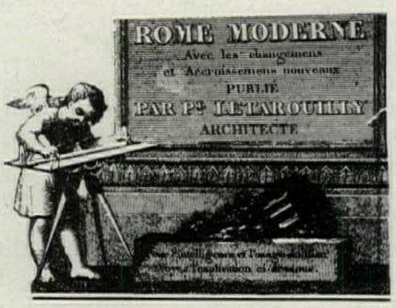
Our present plans are to make reprints of the BUILDING PRODUCT FACTS available by purchase, separate from the magazine. These will be accurately trimmed and punched so that they may be either filed in a standard letter file or in a standard looseleaf ring binder. Looseleaf ring binders will also be made available if sufficient interest is shown in having such means for keeping BUILDING PRODUCT FACTS in an orderly and systematic manner. Announcement of the sale of reprints and looseleaf binders will be made in these pages at a later date as soon as the details have been worked out.

Regardless of how the BUILDING PRODUCT FACTS are kept for ready reference, it is important to point out that no filing index is necessary. These pages are to be filed alphabetically according to the principal noun. For instance, if you want information on glass, you look under G. If you want material on sheathing, you look under S. However, any system, if adhered to inflexibly, can bully the user instead of being at his command. Therefore some common sense will be applied to this method of titling the sheets for filing. As an example, Yellow Paint would be filed under P for "Paint." On the other hand, Standard Garage Doors would be filed under G for "Garage Doors, Standard." Garage doors bear no relation in use, appearance or properties to, let us say, access doors—and there is no earthly reason why they should be all lumped together under a common index of "Doors." This system will put things that are really alike together in the file and we won't group a potpourri of products which are totally unrelated.

Existing methods of indexing and filing building product "catalogs" have become so complicated and involved as to practically drive you nutty in trying to locate needed facts quickly. With the alphabetical system, no guide or index is required if you know the English alphabet and the name of the class of materials upon which you seek enlightenment.

It is hoped, too, that many manufacturers will want to cooperate in making available information on their specific products in this same form. A number of building product manufacturers have already indicated interest in this idea.

The unbelievable success of the DATA SHEETS was due in large part to the suggestions and criticisms of the thousands who used them. We look forward confidently to a similarly invaluable spirit of cooperation for BUILDING PRODUCT FACTS. Write to Don Graf and don't pull your punches. Tell us what you like and what you don't like, how you want these facts presented. With cooperation between the readers and publishers of this magazine, and manufacturers, we can create a collection of product information of new usefulness.



Editorial Note: The following news item appeared in The New York Times, March 16, 1944. The item is worded exactly as it appeared. But we have introduced italics and juggled punctuation marks as they occurred to us when we read the "news."

ARCHITECTS "GET" AWARD

Eggers & Higgins, Who Finished Jefferson Memorial, Honored

Special to THE NEW YORK TIMES

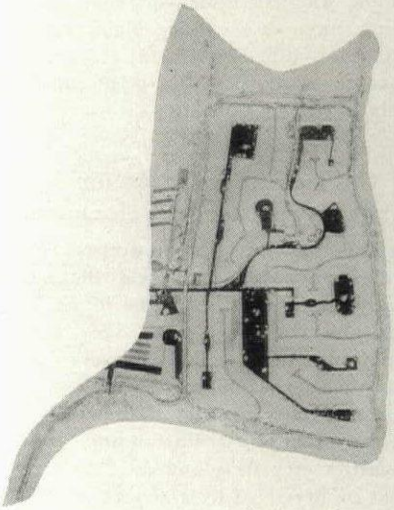
WASHINGTON, March 15—Eggers & Higgins, New York architects of the Jefferson Memorial who carried through to completion the design of the late John Russell Pope, received the award tonight of the Biennial Certificate of Merit conferred by the Washington Board of Trade for *excellence of architectural achievement during the period 1942-43!!*

The memorial was one of seventeen award selections, and the only *monument* chosen for excellence of design from a total of fifty-three "submissions," the other *works* including apartment houses, hotels, new and remodeled office buildings, residences erected during the last two years in the Washington area.

The Certificates of Merit were presented by *Colonel* Charles W. Kutz, Engineer Commissioner of the District of Columbia, at the March general meeting of the Board of Trade.

The award selections were made by Theodore I. Coe, Louis Simon, and N. Max Dunning, all architects of distinction *at present living* in Washington.

Above, the street as a social space (Regent Street, London, 1842, from a lithograph by Thomas Shotter Boys. Below, traffic serves, but cannot dominate, the neighborhood as it might be.



I. Marketing and exchange functions dominate the modern city: Most important function of the modern city is marketing and exchange (in the widest sense):—of goods and services, equities, people, ideas, opinions; of art, science, education; of manners, tastes, fashions; and of other economic, political, social, and cultural interests. Centers for these exchanges are indispensable to modern civilization.

II. The market is the sole excuse for mass accumulations of people: Marketing and exchange alone among civic functions justify massing urban population in higher overall densities. But, considering the many social and economic problems involved in such mass accumulation, modern cities are assets to a nation only and exactly to the degree that exchange is efficiently and economically performed to suit the needs of small or large regions or of the whole country.

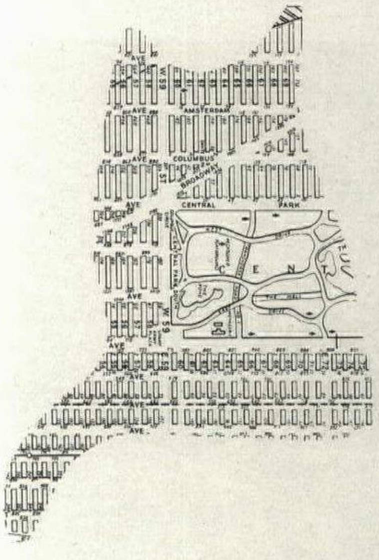
Each city must, therefore, continuously adjust its organization, physical layout, and facilities in order to do its job and keep abreast of its competitors.

III. Only comprehensive plans can be effective and realistic: Nationwide or even worldwide areas of competition among cities demand technological and organizational adjustments which no city has yet been able to undertake, principally because no one plan for the needs of any section, single industry, or economic group within a city, or for any single city within the nation, can be made without involving vital interests of the whole. Only a comprehensive plan, ultimately backed by the full power and resources of the nation it serves as a marketing and exchange center, will suffice for a large modern city.

IV. The needs of the city's population are different from those of the market, but must be met to keep the market going: If the marketing and exchange function justifies and causes the large accumulation of people—whom it needs both as operators and as consumers—then a set of other and equally important requirements of this population must be satisfied. Accepted standards of housing, health, education, recreation, etc., must be met. But there are even

Comprehensive Planning for the City: Market and Dwelling Place

By Herman Herrey



Copyright Hagstrom Co.

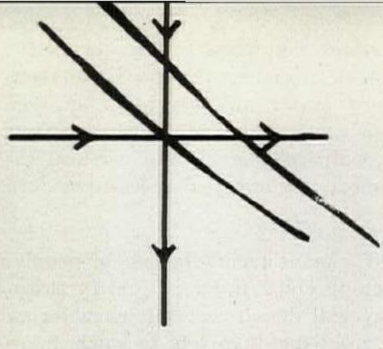
Above, Manhattan: Fifth Avenue, Central Park West, Central Park South—park, hotels, apartments, retail trade unintegrated. Below, a Manhattan traffic jam.

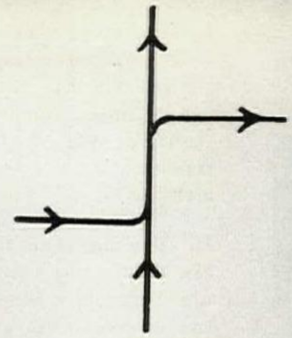
Ewing Galloway

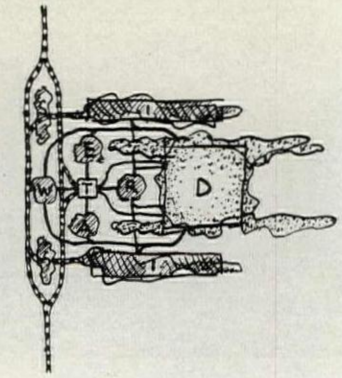
more fundamental items affecting the social cohesion of the communities within a city. Unless the population can live in regenerating and healthy community units, all other functions, however well organized, are impaired.

V. The community is a living organism. It must be of human scale and needs space for social intercourse independent of other functions: Social relationships among members of a community constantly change. A multitude of simultaneous groupings, which have a multitude of reasons, spontaneously arise, change, and disappear. This is the nature of social life. To allow the individual citizen to exert and experience personal influence in exchange with his co-citizens, a community should be organized in units small enough to have human scale. To keep the community healthy, its physical shell of buildings, installations, and public facilities—and, above all, its system of public space and streets, where the people constantly meet—must leave ample scope and space for social intercourse. Social space, of necessary extent and segregated from traffic channels, must be reserved in proper shape and location, organized as a self-contained system for pedestrians only, with integrated social facilities (churches, schools, theaters, sports ground, etc.)

VI. Segregation of functions is a primary necessity for the health and development of cities: Both main functions of the city—marketing and dwelling—create a number of ancillary functions with a variety of accessories for administrative, commercial, industrial, educational, transportation, and other purposes. To work smoothly and efficiently, each of these requires independent and segregated scope and space.







In the first portion of his article Mr. Herrey analyzes the traffic problem, which both he and the Editors realize is only one facet of civic design. Sketches above indicate, at left, the usual intersection of streets—the most common hindrance to urban traffic—which Mr. Herrey considers obsolete. In its place he proposes that, as in the center sketch, traffic should not directly cross a street, but should merge with, or weave into, that street's traffic before continuing its course. Traffic would thus be expedited even though the distance to be traveled is longer. At right is a development of circulation for a neighborhood. A *is the administrative area;* D, *dwelling;* E, *educational;* I, *light industrial;* R, *retail;* S, *storage;* T, *terminal;* W, *wholesale. The first portion of the article is the result of studies in collaboration with Erna M. J. Herrey.*

VII. The right location for industry is outside the city: Primary and secondary industrial functions, as distinguished from those ancillary to marketing and dwelling, have as a rule no place within the body of the city. Plants and other industrial installations demand their own scope and space to develop according to the nature of product and process and in relation to neighboring cities.

VIII. The reorganization of the local transportation system should precede and underlie any planned development:

Marketing and dwelling districts and the areas for administrative, educational, industrial, commercial purposes and long distance transportation (terminals, freight yards, etc.) need to be joined by an efficient system of circulation and transportation. This must connect the single segregated functions and economically serve the local movement of goods and people so that no traffic movement interferes with any function or crosses any district with which it has nothing to do. Such an efficient system of circulation and transportation is a *sine qua non* of healthy city development. Any reorganization or rehabilitation must be preceded by a reorganization of this circulatory system, and particularly of its network of streets.

IX. Planning must be for continuity of development following existing trends and based on existing conditions: Like its component

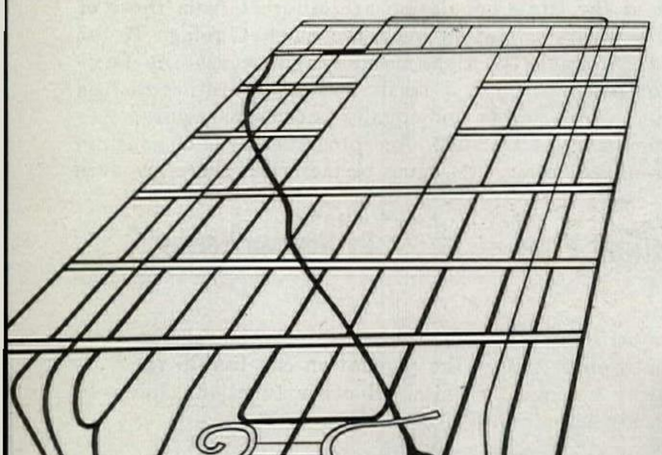
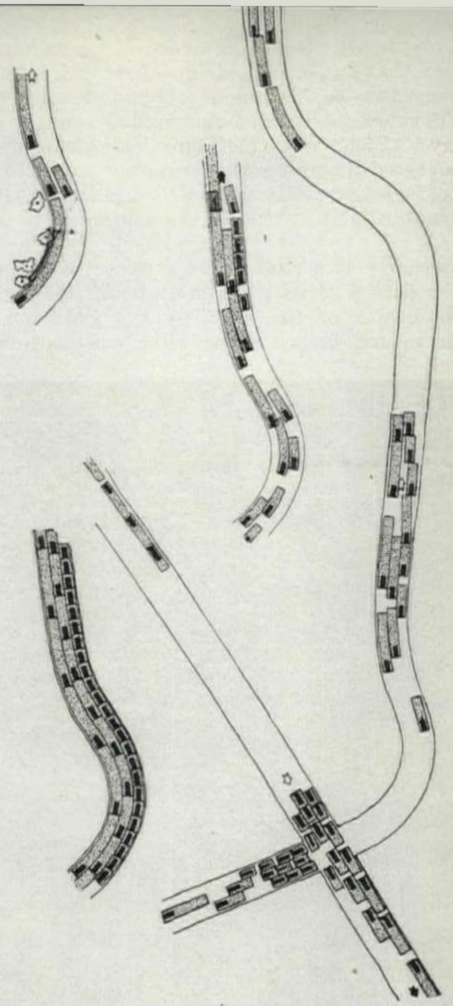


Photo at right shows a fully developed traffic scheme for Manhattan Island, New York City. The circulation system itself appears immediately above. In an article to be published in a future issue, Mr. Herrey will indicate how such a plan might be achieved bit by bit over a period of years so that adjustment could be gradual. His principal interest is showing how his formulae can be applied to an urban area—any urban area. The fact that Manhattan is an island simplified some of the problems and influenced its choice as an example. In the second portion of the study, Constantine Pertzoff collaborated.

The total stream of traffic has to move people and goods from one place to another speedily. But this primary impulse is counteracted to a degree by the need for safety and economy, which necessitates compromise. In sketches at right, road at lower left is utilized to full capacity. Black rectangles are automobiles, gray areas, "influence spaces" of the cars. The higher speed, the longer the distance (and the influence space) needed between it and the next car ahead. At upper left a car travels dangerously fast around a curve; influence space exceeds distance for unobstructed vision. Center, effect of cutting in and out of line; intersecting roads show uneconomical bunching due to halted traffic.



communities, the whole city is a living organism. Its development is not a sequence of abrupt arbitrary acts of many single individuals but the result of a continuous series of compromises among masses of people whose interests are related. Even if single actions sometimes look like turning points of far-reaching consequence, they can only be productive if they smoothly merge with existing trends. Such trends need not necessarily be accepted as governing and unalterable facts. Being trends of life, they cannot be created, but they may be induced, influenced in direction and intensity, set against each other, favored or repressed, and sometimes even suppressed. This is the scope planned action really has.

Part I: Traffic Design

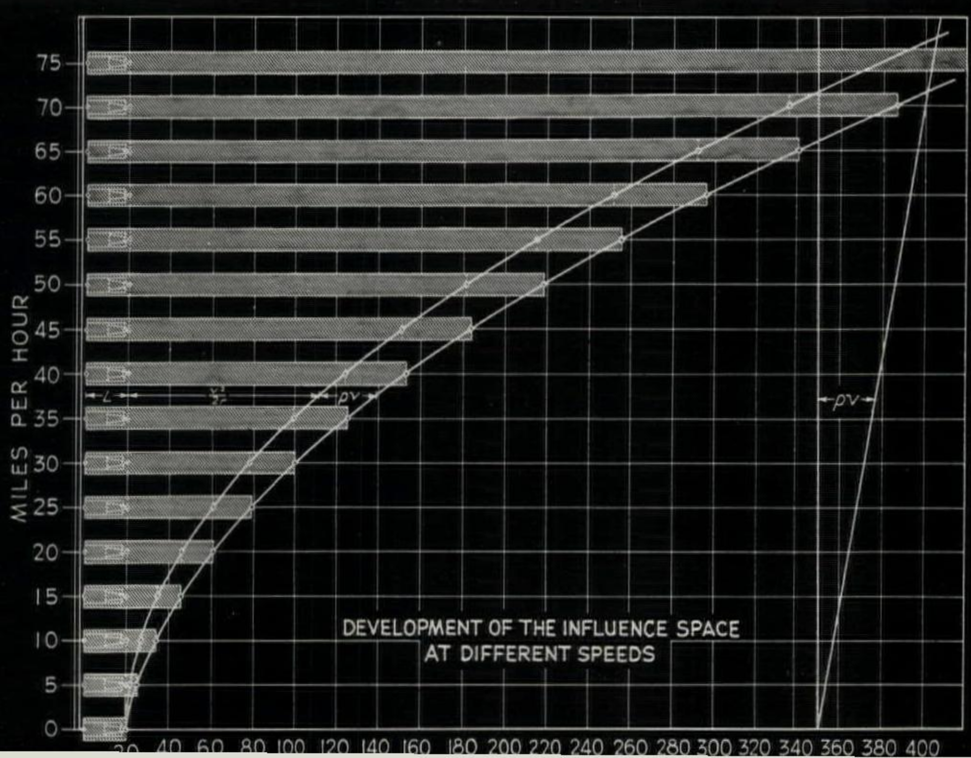
by Herman Herrey and Erna M. J. Herrey

The influence space of vehicles on the road is the empty space required around each vehicle so that it may proceed without interfering with other objects on the road. For practical purposes the influence space has a width equal to the width of one traffic lane; its length, however, increases with the speed of the vehicle. This length is composed of three elements:

A, the distance the vehicle travels from the moment an obstruction is perceived until the driver's reaction is translated into the braking performance of the vehicle. This distance is here called the *perception way* (pv).

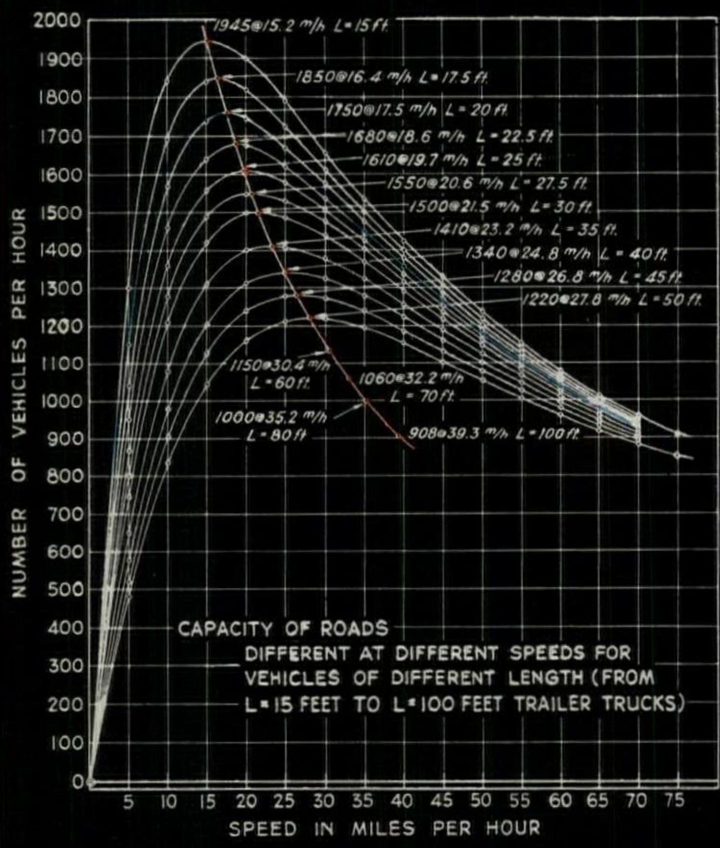
B, the minimum distance required for the vehicle to come to a stop, called *braking way* $\left(\frac{v^2}{2r}\right)$.

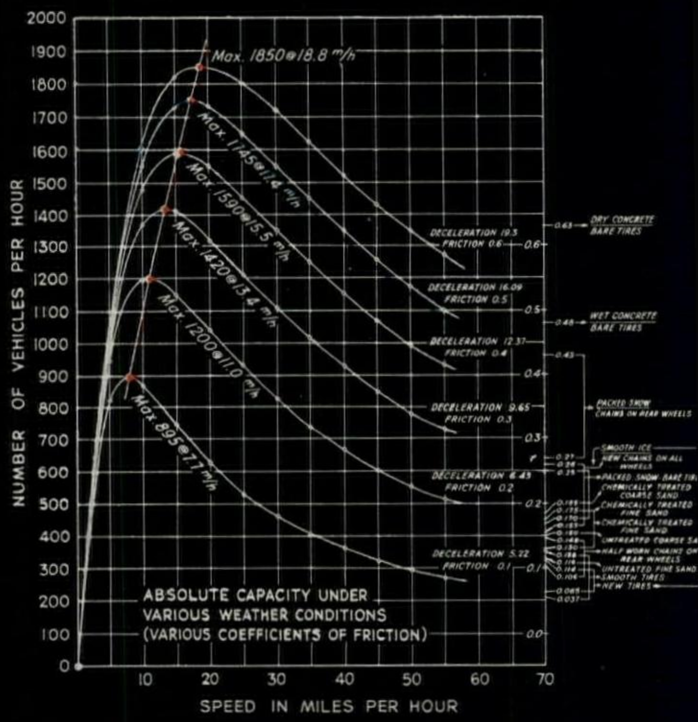
C, the length of the vehicle plus the necessary minimum distance from the preceding vehicle or the obstruction when the vehicle has stopped (*L, for average passenger cars,* 20 ft.).

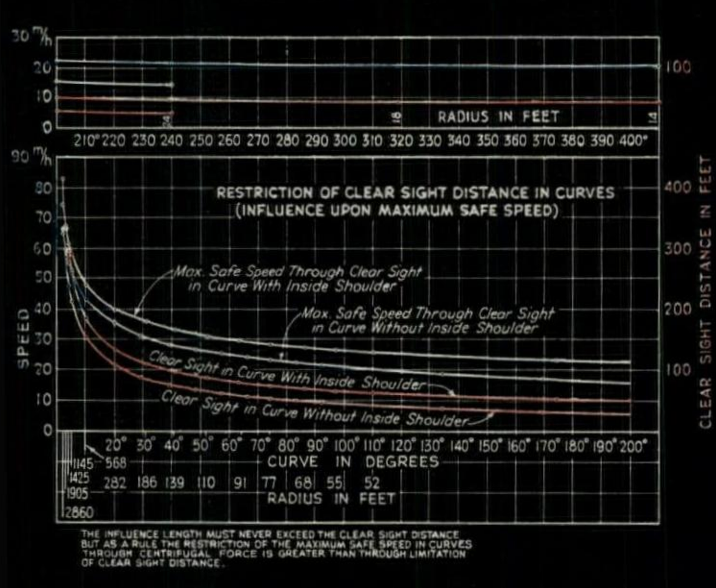


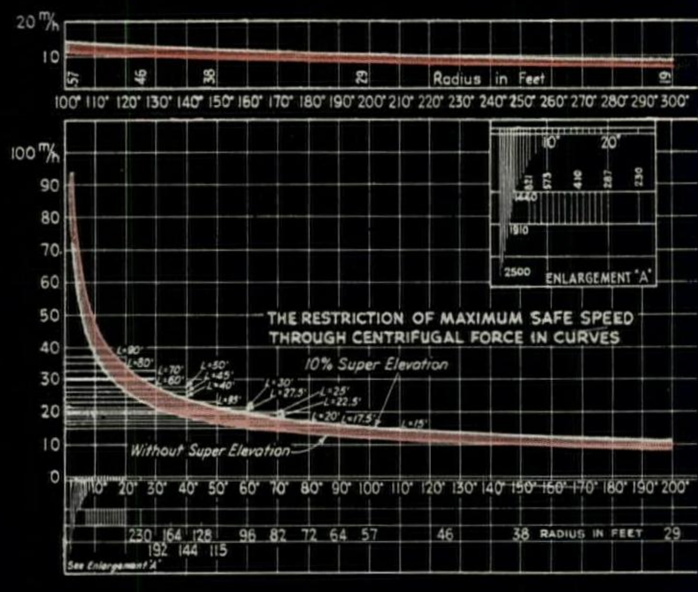
This theory of road or street design is based on the assumption that traffic is made up of moving influence spaces which constitute a continuous stream flowing through the road. Considered as a fluid, the traffic stream is subject to physical laws which can be mathematically interpreted. Analysis has revealed that human operators have little effect on vehicles' performance; only within certain limits can the driver accelerate, retard, or change the course of the vehicle.

Capacity of a road is the number of influence spaces which can pass a given point in an hour. It depends upon physical conditions of the road (width, gradient, kind of surface, curvature, etc.) and on kind, composition, manner of procedure, etc., of traffic. It changes with speed, and has a maximum at a certain set of speeds [called "best speed," $v_0=\sqrt{2rL}$] which varies with road and traffic conditions. **Effect of speed on capacity** is shown in chart at upper left of the four below, for normal weather conditions and various sizes of vehicles. Blue line shows "norm traffic" (normal, vehicle length of 18 ft. plus 2 ft. clearance when stopped), accommodated in greatest quantity at 17.5 miles per hour. **Effect of weather on capacity** is shown in upper right-hand chart, for norm traffic only. Calculations based on experimental values for coefficients of friction in report of Committee on Winter Hazards, National Safety Council, No. 75, November 1940. Red lines on both charts indicate maxima.



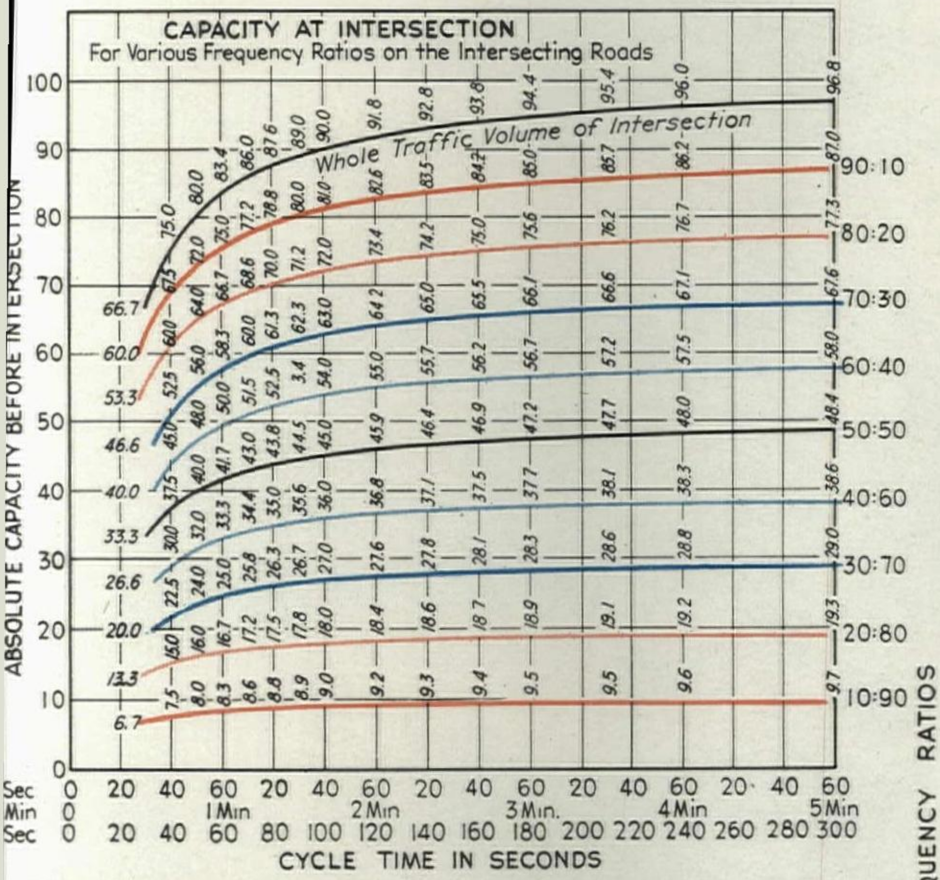






Design of curves for safety is governed by two principal factors: the distance over which sight around the curve is uninterrupted (clear sight), and the action of centrifugal force on the vehicle. Chart at lower left of the group above shows **effect of clear sight distance** (red) **upon maximum safe speed** (blue), for different degrees (or radii) of curvature. Top portion of chart is a continuation of its right-hand

safety are reached. The chart shows effects of centrifugal force for both level curves and banked, or super-elevated, curves; also, the best speeds, considering capacity of the road, for various kinds of traffic. Thus, for norm traffic (L=20 ft.), speed can be fairly well controlled on curves by designing the curve with a radius of from approximately 77 ft. to 130 ft., depending upon whether or not the curve f all the physical conditions of the road or street itself, **the inter-ection has been found, after thorough study, to reduce a road's capacity hore than any other.** The chart immediately below shows the effect of n intersection where traffic is governed by traffic lights upon the total apacities of both intersecting roads. Figures at right side indicate ratio f total traffic volume for one intersecting road to traffic for the other; cale at bottom, total traffic light cycle time (red plus green) in seconds; cale at left, percent of total absolute capacity of road which the traffic ight permits to pass the intersection. Thus, if the light is green 2/5 f the time for one road, because that road has a 40:60 frequency ratio, nd at the normal cycle time of 60 seconds, only 33.3%, or 1/3, of the oad's absolute capacity can be accommodated by the intersection.



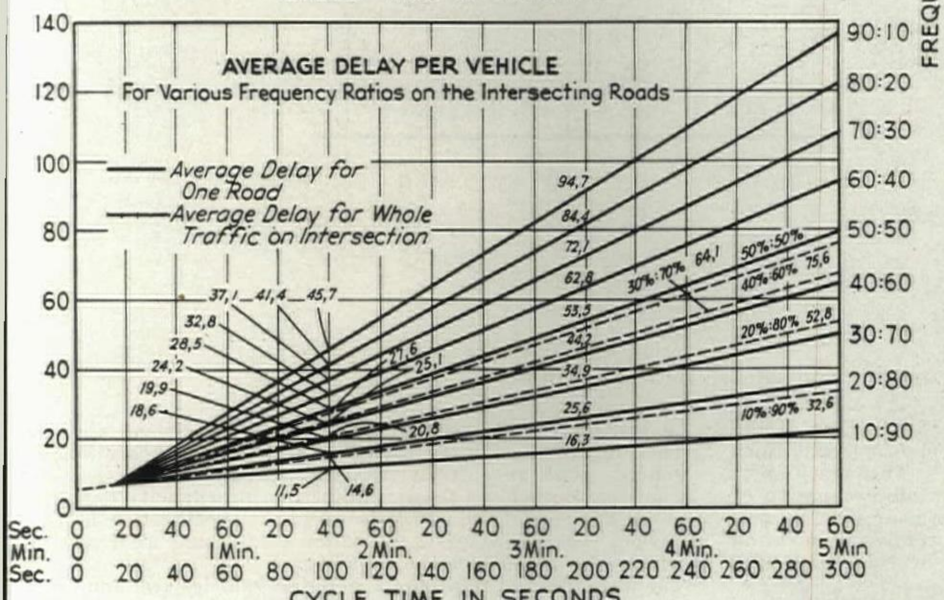


Chart above shows average delay per vehicle for various cycle times and frequency ratios. Chart at right indicates the loss on both roads when they intersect, compared with their total capacity if one overpasses the other. If the cycle time is 60 seconds, only approximately 41% of the sum of their potential (absolute) capacities can be accommodated by the intersection, 59% is lost.

TABLE OF SYMBOLS AND NUMERICAL VALUES USED

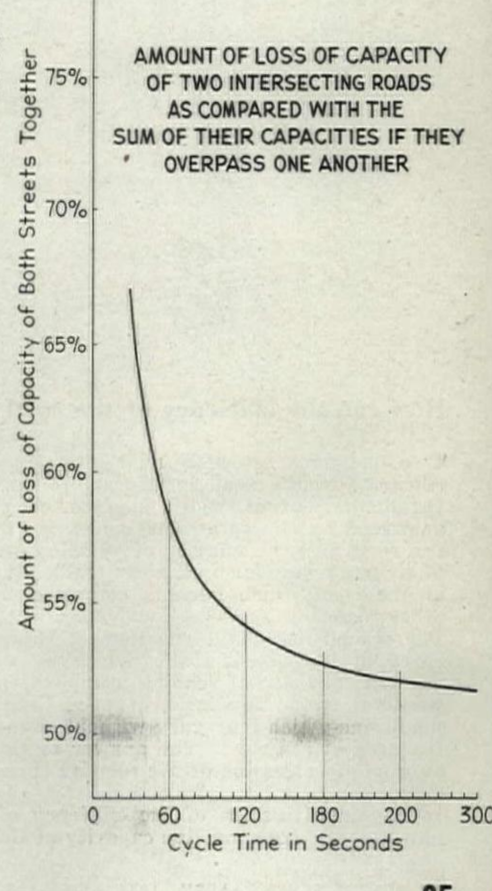
		Unit	Numerical Value for Norm Traffic or Normal Conditions
L	Length of vehicle plus minimum distance between stationary vehicles	ft	20 ft
l	Influence length	ft	
w	Width of road	ft	
R	Radius of curve	ft	
t_g	Go-time (green light of traffic signal)	sec	
t_c	Cycle-time	sec	60 sec
p	Perception and reaction time	sec	5 sec
v	Speed at any moment	ft/sec	
v_0	Best speed	ft/sec	
r	Maximum deceleration rate	ft/sec^2	
g	Acceleration of gravity (32.2)	ft/sec^2	
C	Capacity	Vehicles/hour	
z	Number of traffic lanes in one direction	—	
μ	Coefficient of friction between road surface and vehicle	—	.515 x)
F	Coefficient of side friction		.14-.16 xx)
γ	Gradient		
S	Super elevation in %		

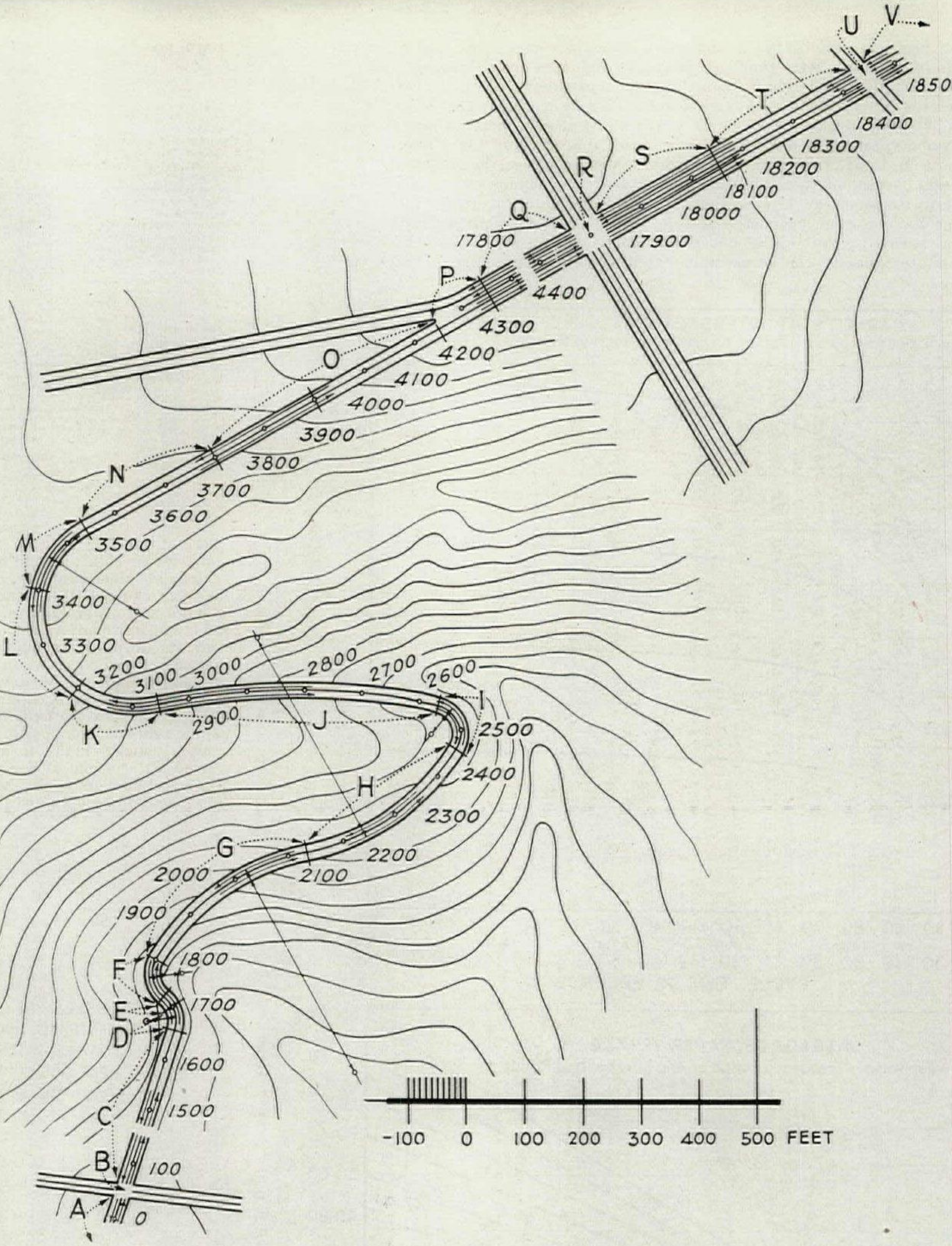
x) Compare 1) Skidding Characteristics of Automobile Tires on Roadway Surfaces by R. A. Moyer. Bulletin 120, Town Engineering Experiment Station. August 1934

2) Research on Stopping Distance and Brake Condition of Automobiles by E. H. Hamilton. Official Project No 65-97-158 W. P. A. New York, 1939

xx) For Numerical Values at different speeds compare Safe Side Friction Factors and Super elevation Design, Proc of 16th annual meeting of Highway Research Board Washington, D.C. 1936

At any given point, a road may have a certain **absolute capacity**, determinable from the charts on the preceding page and other factors. But the road is not uniform; at one or several points its absolute capacity may be drastically reduced, as at an intersection; and because, obviously, a road never has a greater capacity than its least efficient section, and topographic reasons, composition of traffic, etc., usually make it impossible to raise all sections of a road to exactly equal efficiency, absolute capacity can seldom be attained.





How can the efficiency of the road on the map above be determined?

Two questions are of special interest: First: How is the efficiency of the road influenced by its physical conditions (gradients, curves, width, surface, etc.)? This question is answered by the determination of the **absolute capacity** of the road, i.e., the number of vehicles per hour it can carry of a certain standardized norm traffic. It represents a rating of the road which permits comparison of this road with other roads.

The second important question is: How much can the road carry of the actual traffic which is using it, taking into account condition of vehicles, composition and kind of traffic, weather, traffic regulations, speed limits, etc.; i.e., all the conditions which may vary without change in the structural features of the road. The answer to this question is given by the determination of the **relative capacity of the road** for each case.

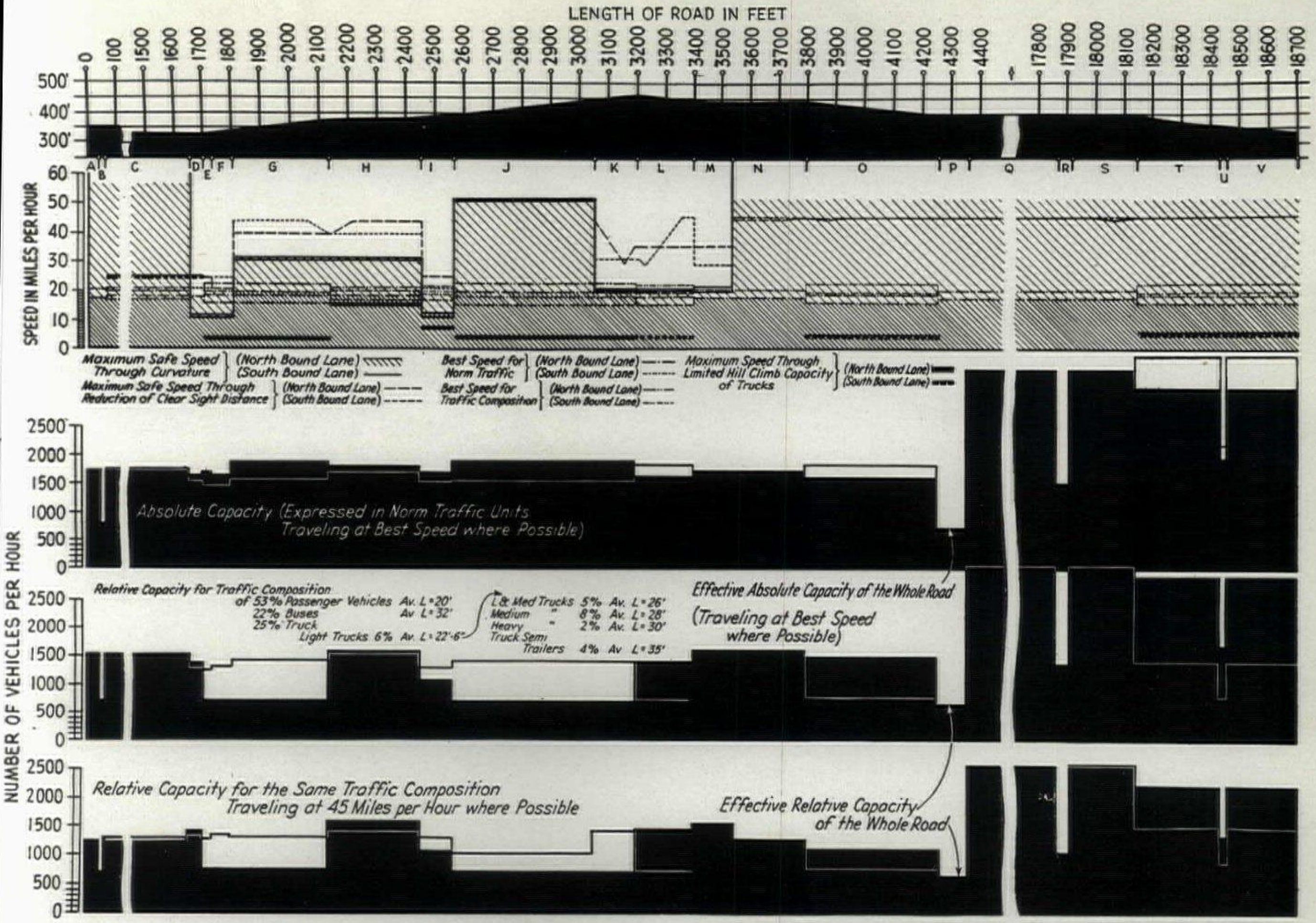
In any investigation of the efficiency of a road it is most important to note that **the capacity of the whole road cannot be greater than the capacity of its least efficient section.** Therefore we divide the road into sections which are homogeneous with respect to capacity, starting a new section whenever one of the features determining capacity changes along the road. Then follows an exact specification of the physical conditions of each section comprising all features which might influence the capacity.

The absolute and relative capacity in vehicles per hour can now be determined from the general formula,

$$C = \frac{3600\ z\ v}{L + pv + \dfrac{v^2}{2r}}$$

substituting for the constants the proper values pertaining to each section and to the norm traffic for the absolute capacity.

As an example, we show the determination of absolute and relative capacity in the northward lanes of sections **J** and **R.**



In section J the number of lanes is z=1. The maximum deceleration rate r is greater than its normal value because of the upward gradient. Maximum deceleration rate equals acceleration of gravity times (coefficient of friction plus gradient ratio):

$$32.2\ (.515 + .12) = 20.4\ \text{ft/sec}^2$$

The maximum safe speed in this section is calculated from the formula for maximum safe speed in curves:

$$v = \sqrt{Rg\ (F + S)} = 57.7\ \text{ft/sec}$$

It is greater than the best speed

$$v_o = \sqrt{2rL} = 19.4\ \text{ft/sec}$$

i.e., the speed for which the capacity becomes a maximum.

Therefore, the **absolute capacity** in this section is not decreased by the curve and the best speed v_o=19.4 ft/sec is to be substituted for v in the capacity formula.

Absolute capacity:

Section **J**, northward lane:

$$C = \frac{3600 \times 2 \times 19.4}{20 + .5 \times 19.4 + \dfrac{(19.4)^2}{2 \times 20.4}} = 1890\ \text{vehicles/hour.}$$

In order to calculate the **relative capacity**, we have to note that for the actual traffic composition on the road the average vehicle length is greater than for the norm traffic:

$$L = 27\ \text{ft.}$$

Therefore, also the best speed,

$$V_o = \sqrt{2rL} = 22.6\ \text{ft/sec,}$$

is slightly greater. The maximum safe speed is the same as before. But, due to the limited hill climbing ability of the trucks present, the actually attainable speed is far less, only 4 mi/hr on the 12% grade. Therefore now,

$$v = 4\ \text{mi/hr} = 5.7\ \text{ft/sec,}$$

is the speed value to be substituted in the formula, making the relative capacity equal to only 675 vehicles per hour on the upward grade of section **J**.

On the downward grade, where speed is not limited by truck performance, the best speed is used in the formula and the relative capacity becomes 1400 vehicles per hour.

The relative capacity at 45 mi/hr on the upward grade of section J is also equal to 675 vehicles per hour because here the speed cannot be higher than 4 mi/hr. On the downward grade, however, the relative capacity is decreased from 1400 to 1020 vehicles per hour if the vehicles travel at 45 mi/hr instead of best speed (substitute v = 45 mi/hr = 66 ft/sec in the formula for C).

For section **R** (straight level intersection) we first determine absolute and relative capacity as if there were no intersection substituting the respective best speeds V_o = 16.6 ft/sec, and V_o = 17.5 ft/sec in the formula for C (as there are no speed limitations on straight, level road sections). Of this traffic, however, only a certain percentage will be discharged, this percentage being given by

$$\frac{t_g}{t_c} \times 100.$$

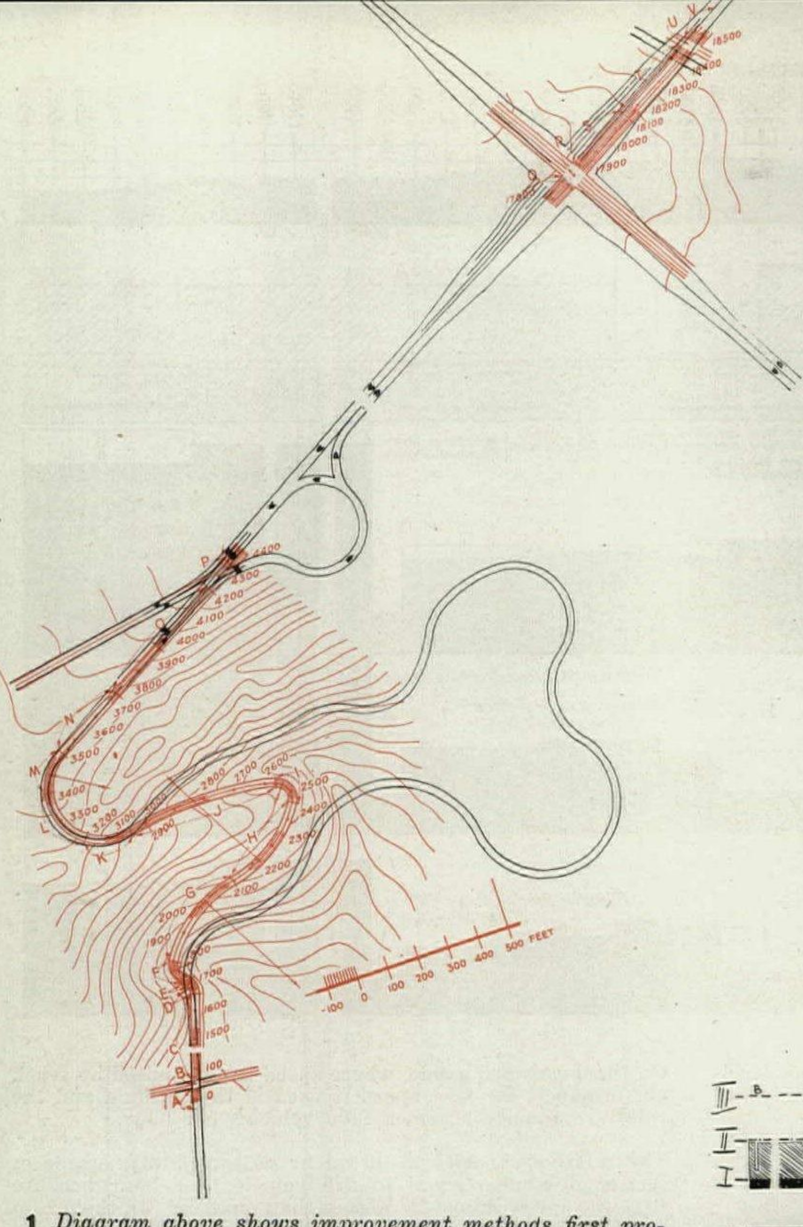
For absolute capacity the standard cycle time is t_c = 60 sec. The most favorable go-time is calculated on the assumption that the frequency per lane is the same on both intersecting roads. Then the frequency ratio, and therefore also the most favorable go-time ratio, is equal to the ratio of lanes on the two roads. In section **R**, where both roads have two lanes in each direction, the go-times must be equal.

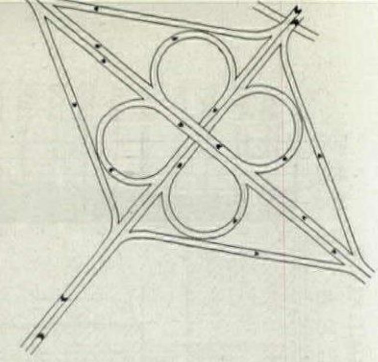
They are, however, less than half the cycle time, as, at the change of signals, both roads have to be closed for a short time depending on the width of the roads (here 5 sec.). Thus the go-time is 25 sec. and the traffic discharged through the intersection is

$$\frac{t_g}{t_c} \times 100 = \frac{25}{60} \times 100 = 41.7\%$$

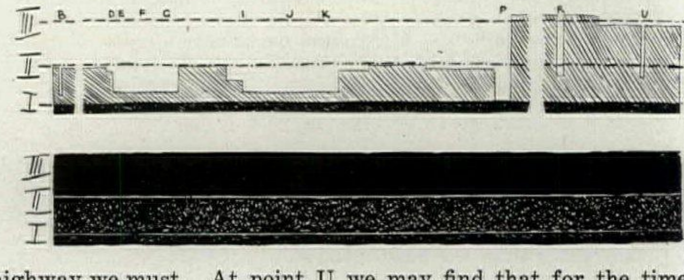
Absolute capacity, 41.7% of 3500 = 1460 vehicles per hour.

If the actual go- and cycle-time is also 25 and 60 seconds: Relative capacity, 41.7% of 3120 = 1300 vehicles per hour. The relative capacity at 45 mi/hr is the same, as the speed is limited by the intersection.

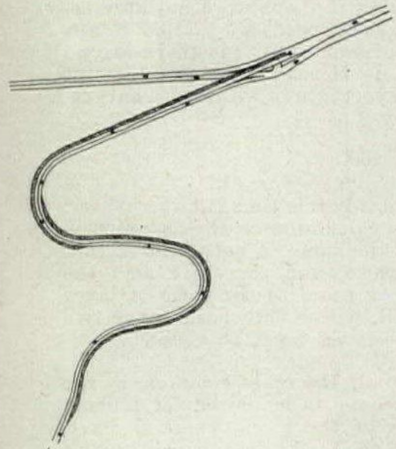




2 *Another solution at R: cloverleaf, very wasteful of land and extremely expensive, is nevertheless typical American solution—seldom found in other countries.*



1 *Diagram above shows improvement methods first proposed in text; all except overpass at B are inexpedient. Better solution from B to P, below, shows extra lanes for trucks climbing hills, small radius curve at P for limited traffic into side road.*



If we wish to improve this highway we must consider the relative capacity diagram (uppermost of the two sketches at right, immediately above).

The diagram for two thirds of the distance is only about half as high as for the remaining third, from P to U. This is due to the highway having only two lanes first, and four lanes later, after it joined with another highway at P. There are a number of deep cuts in capacity at B, P, R, and U, due to intersections and a junction. There are three lesser but wide depressions at E-F-G, I, and J-K where steeper gradients occur which trucks can climb only at very low speeds, and a few minor depressions where narrow curves reduce speed below that necessary for the highest relative capacity. The lowest capacity, at P, determines the relative capacity of the whole highway; no more vehicles can pass through the highway, at least from B to P, than can pass through that bottleneck.

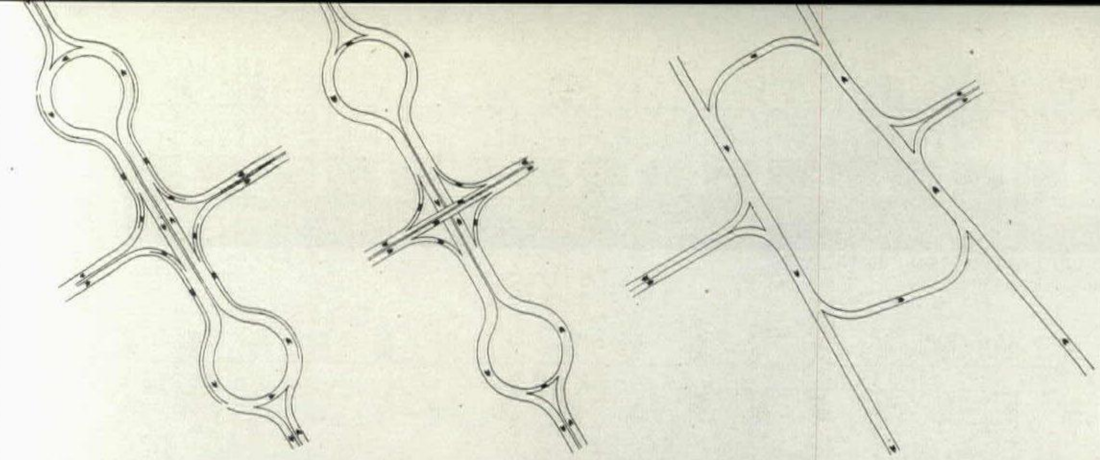
Our task in improving this highway would be to shift line I at least to level II, and if possible further to level III, and so that we get a more or less uniform capacity diagram with no cuts, as shown in the lower diagram above.

Intersections are the worst points. We may find that traffic turning into our highway from the intersecting road at B is so negligible that we can simply make an overpass.

At point U we may find that for the time being the traffic carried by the intersecting cross street is not yet important enough to warrant greater expense than necessary for an overpass, because traffic intending to get on our highway can be expected to use intersection R.

Capacity at intersection R could be multiplied by simple, comparatively inexpensive widening, though this would not do away with other drawbacks of the intersection and traffic there would become more complicated, confusing, and less safe. The junction at P could be solved through the construction shown above, allowing northbound vehicles to turn into the other highway with undiminished speed, which might not be necessary if traffic that way is unimportant. In this case the large circle might be too expensive. Another layout of the road sections from D to K could reduce gradients so that trucks would not obstruct other traffic, and curves would be straightened.

But all these means are expensive or imperfect. Better solutions are for the curves and gradients at left, providing a third lane for trucks where traffic is ascending, and curves allowing the speed at which relative capacity is the highest. The solution for the junction can be simple enough if the little traffic turning west from either of the joining highways can be expected to slow down to 5 m/h.



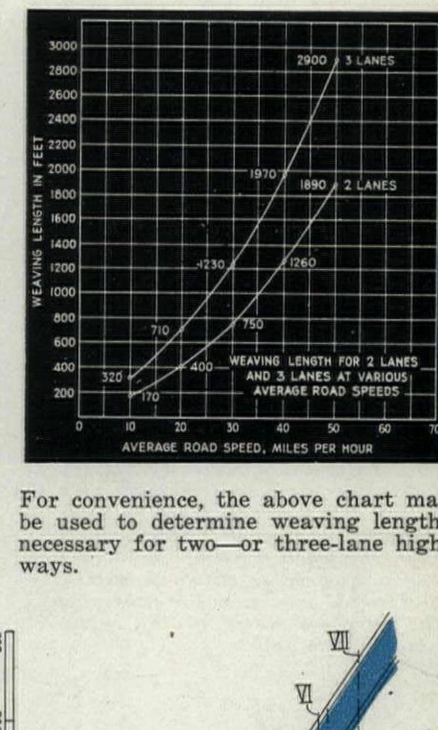
3 *Three successively better solutions for intersection R: left and center, principal requirement is curves of sufficient radius to permit speed suitable for highest capacity considering kind of traffic; these and Fig. 2 require more space, or too complicated a grade separation, than is economically justified, particularly in urban areas, where greatest traffic volume exists. At right is another, usually better solution; combining two neighboring highways or streets, making both one way, requiring traffic to "weave" from one into the other and back to its original route. Utility of land can be retained, but delay due to longer distance traveled must be reasonable in comparison to delay at original intersection.*

Determining Lengths of Weaving Sections

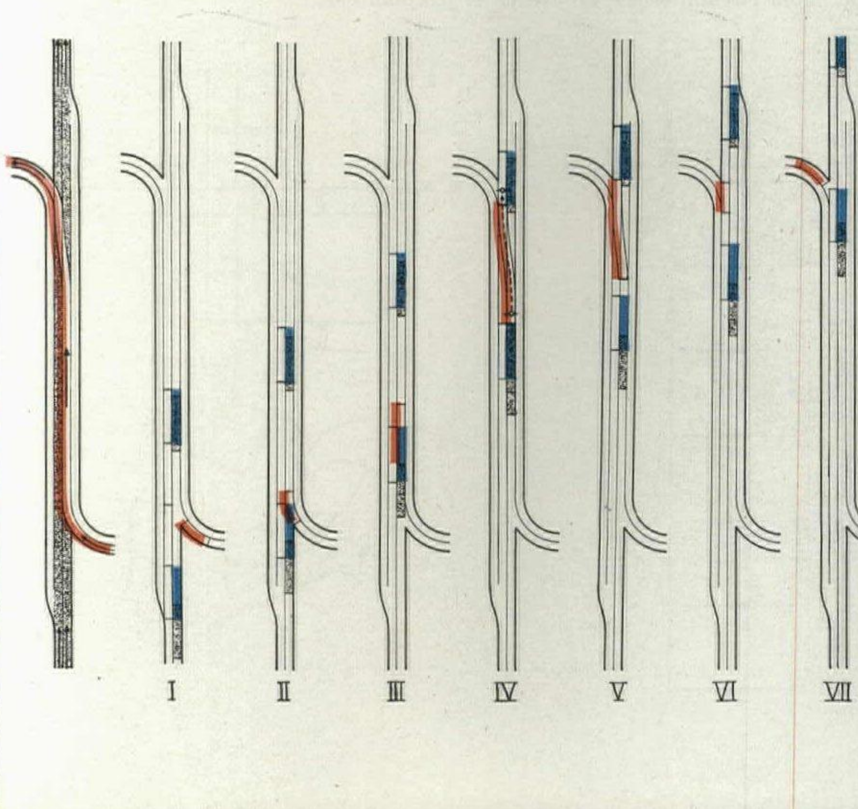
Left-hand diagram below shows, in red, path of car weaving into highway from lower right, out at upper left. The most unfavorable situation is chosen in order to arrive at minimum safe dimensions for weaving length. Remaining diagrams show successive stages, and below right, graphic presentation of formulae.

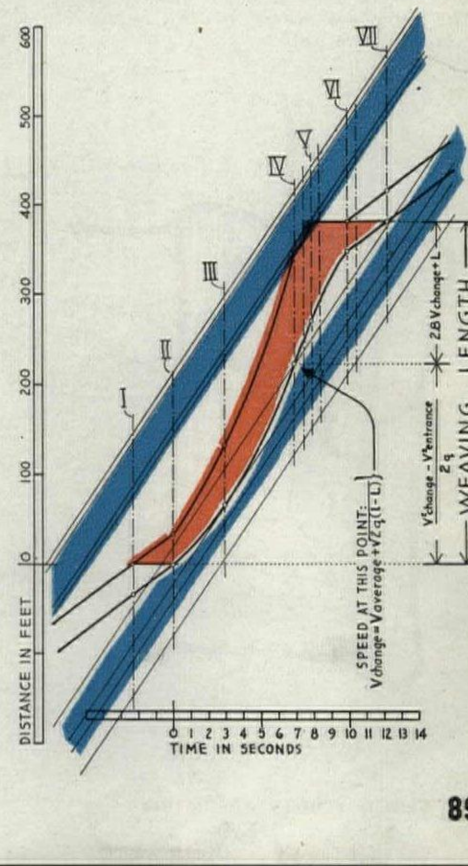
Stage I, red car about to enter highway at maximum safe speed allowed by the entrance curve (in this case, 10 mi/hr.) Stage II, red car has entered, begins to accelerate to average speed of vehicles on highway (in this case, 20 mi/hr.) Stage III, red car reaches 20 mi/hr., and is parallel to, but just ahead of, the blue car in the next lane. The red car could slow down, let the blue car pass, then turn into the next lane; but the driver chooses to pass the blue car and turn in ahead of it, as shown in Stage IV. In Stage V, the red car, safely past, decelerates; in Stage VI, it decelerates still further in order to be able to make the turn off the highway safely. Stage VII shows it off the highway.

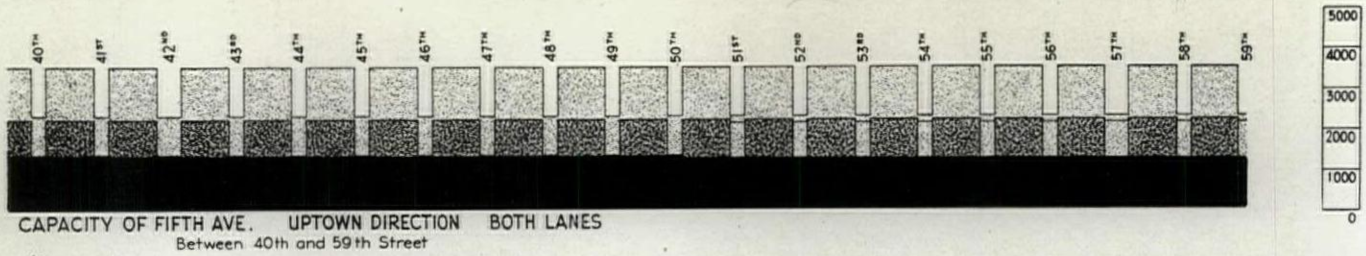
The weaving section is demonstrably superior to our conventional signal-controlled intersection: it has a considerably higher capacity; traffic proceeds without full stops and with minimum delays—and, most particularly, traffic adjusts itself, according to its volume, elastically. Traffic is automatically equalized. It is necessary only to compare this characteristic with the rigid sequence of traffic cycles at a controlled intersection, where traffic is periodically halted regardless of the amount the intersecting road carries. However, it should be remembered that the weaving section can be used only with one-way roads or streets, or divided highways (essentially the same thing.)

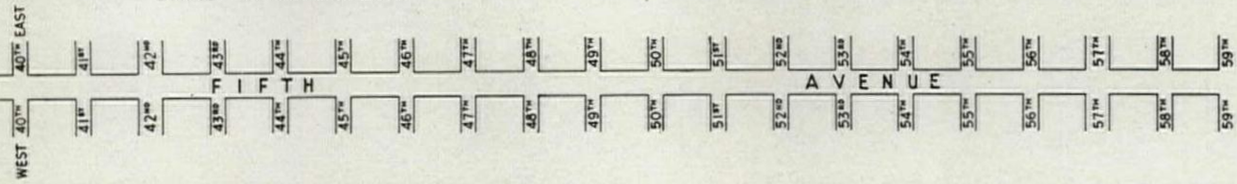


For convenience, the above chart may be used to determine weaving lengths necessary for two—or three-lane highways.









What intersections do to traffic on a city street is demonstrated by the above traffic capacity diagram for Fifth Avenue, New York City, beween 40th and 59th Streets. Of a total potential capacity of nearly 4000 vehicles per hour, only slightly over 1000 per hour remains when traffic lights have taken their toll.

* * *

Below, at left, a neighborhood with a one-way circumferential traffic loop, maximum circumference equal to 5 minutes' traveling time; interior free of traffic, serviced by interior cul-de-sac feeders. Center, similar neighborhoods regularized, organized to fit an urban gridiron street pattern, and arranged along a ring road or divided highway. Right, many such units, regular and irregular, combined to serve a city. In a future issue Mr. Herrey will point out how a fraction of a typical city's streets could be made to carry a greater traffic volume than the whole system now does—and with greater economy, safety, and speed—as a means of achieving the purposes stated at the beginning of this article.

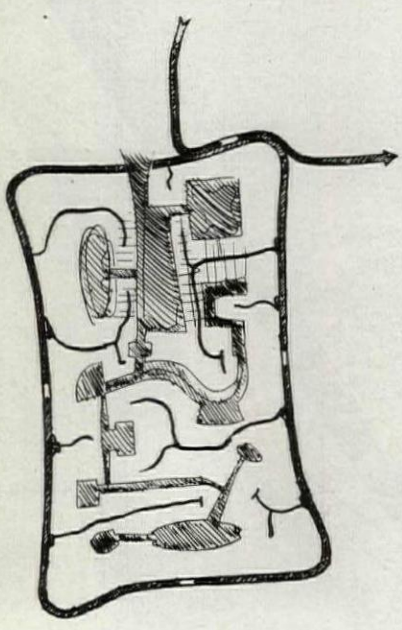
At the end of the last war in only a few cities was the density of traffic so great that obligatory driving on the right hand side of the street had to be enforced. In many large cities, horse-drawn carriages were still in abundance, and everybody drove carriages or automobiles wherever there was space or where he wanted to go. With increasing traffic, stricter organization and enforcement of right-hand driving became a necessity. In the same way, I expect that sooner or later, perhaps in a few years, it will be a matter of course that a street can only be used **one way**, unless the two directions are so clearly separated (as Park Avenue, New York,) that for all practical purposes they amount to two separate streets. Two-way roads, such as the avenues in Manhattan, are grossly wasteful and dangerous. Probably in a few years, when misconceived commercial objections are silenced by a realization of true commercial advantages, we will ask ourselves why we once tolerated drawbacks which could have been remedied with comparative ease.

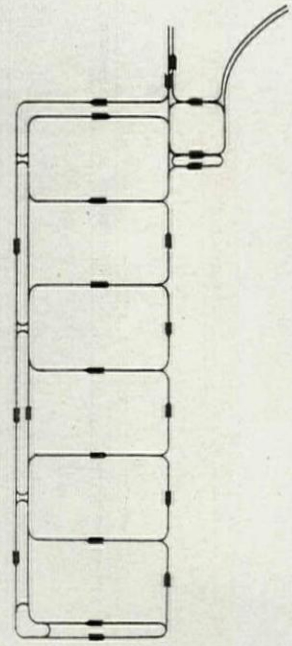
* * *

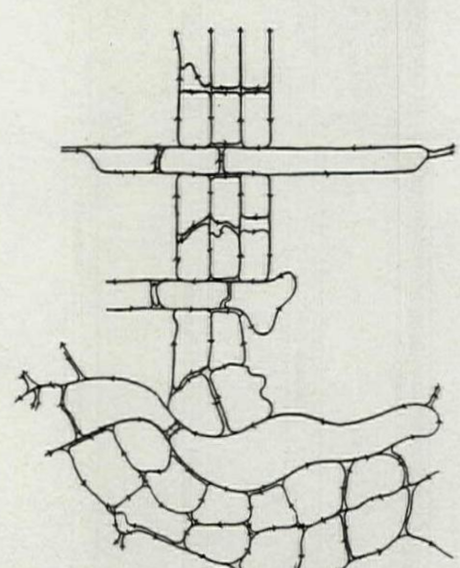
A street system organized according to the **principle of circumferential traffic** consists of series of one-way loops of a maximum circumference of five minutes travelling time. Therefore these loops increase in size with the average speed admissible in the circumstances of the district concerned. The area within these loops is in built-up places the single settlement units, untraversed by any traffic arteries but containing where necessary, cul-de-sac feeders of 900 feet maximum length.

The loops, organized in rows along interior or exterior **Ring Roads**, are connected with each other through weaving ways excluding all intersections. In such a system no two-way roads nor intersections or grade-separations are required. Any existing highway network can be converted to circumferential traffic without considerable structural changes. In most cases a high percentage, sometimes over 40% of the existing street system, would become superfluous, because the remaining streets carry a larger traffic volume more economically, more safely, and with a greater speed.

We can safely say that generally our cities are grossly overbuilt as regards streets, and with a more sensible use of the existing street system more can be achieved, its cost can be reduced, and high valued land set free to become valuable economic and legal tools for replanning.





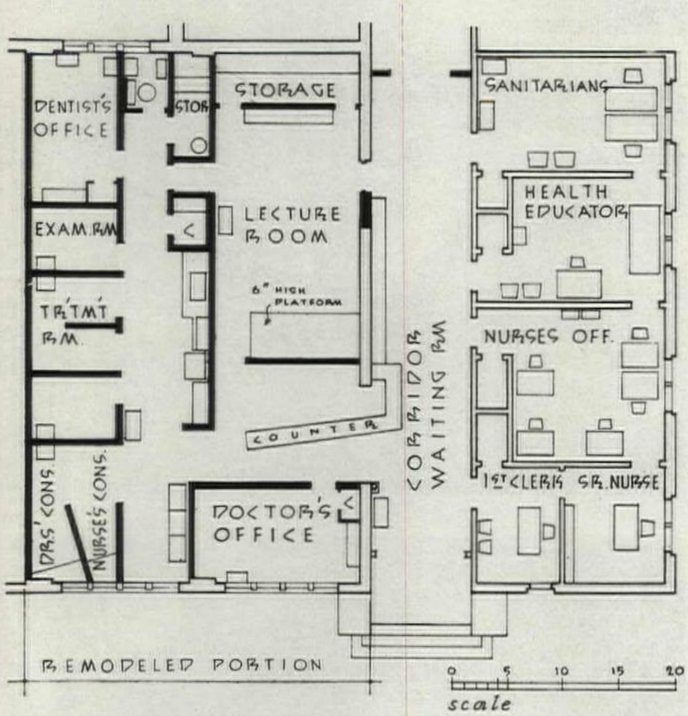


Photos by William G. Parr

Cleveland County Health Department

Norman, Oklahoma

Henry L. Kamphoefner, A.I.A., Architect



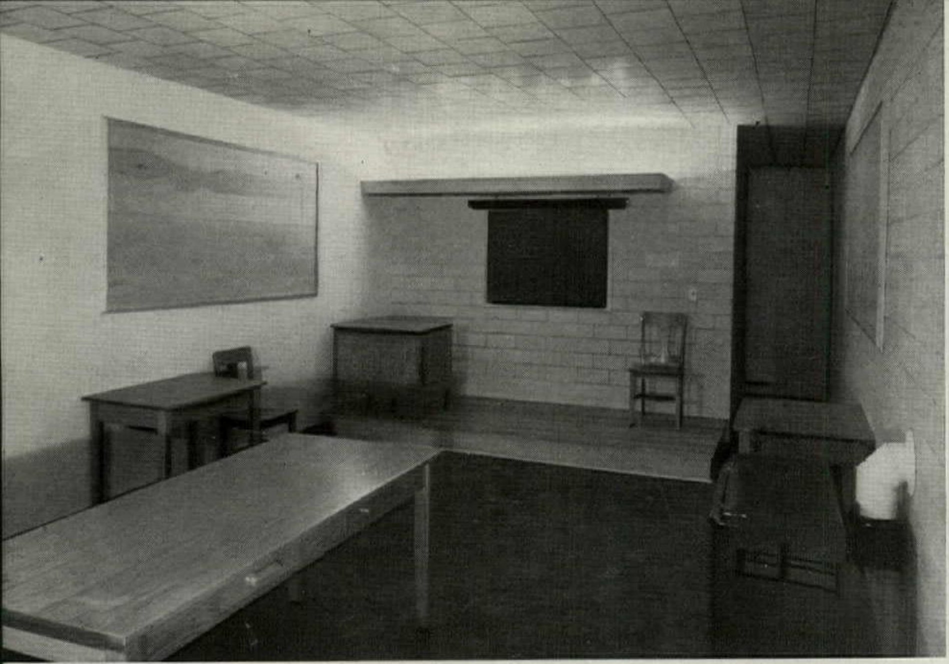
FLOOR PLAN

The problem was to provide practically double the existing space for health offices, all within set limits available in an old building. Although assigned to new uses, the existing quarters remained as they were, except for a new coat of paint. The new offices, located in a space that formerly was a community hall, were laid out from scratch.

Health needs of Cleveland County had increased many fold in recent years. War projects upped the County's population from 27,728 in 1940 to 31,028 in 1943. Some 20,000 sailors are stationed at nearby Navy bases. As soon as funds were granted for expansion of health facilities, the plans were drawn and the contract let. Work started in the middle of July and was completed 10 weeks later.

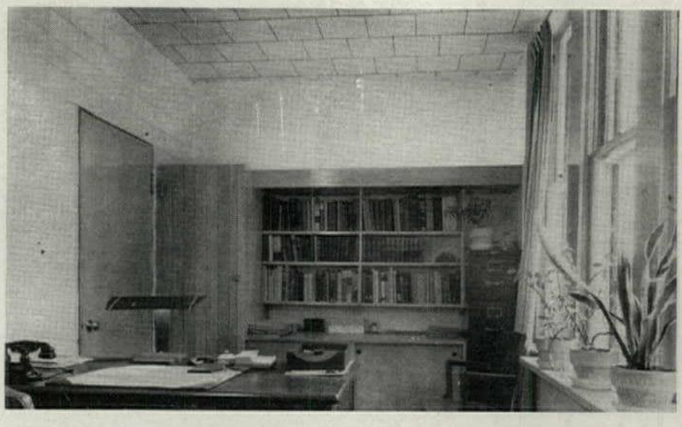
In this remodeled area, the 14-foot ceilings of the old hall were lowered to 9 feet; windows were lowered and widened. The bare cement floor was covered with asphalt tile. Otherwise, changes involved only placement of partitions and installation of equipment. Cost of general construction came to slightly more than $7,000.

The in-sloping face of the reception desk is surfaced with ¾-in. tongue and groove strips, vertically applied; the counter top is ¾-in. plywood. Under the counter top, along the entire interior face of the desk, is a shelf that helps keep the work surface clear of miscellaneous accumulations.



This photograph of the lecture room was taken before chairs were installed. On X-ray clinic days or times for other special types of examination, the room is cleared and folding screens are set up within the space to form a series of individual dressing rooms.

The doctor's office

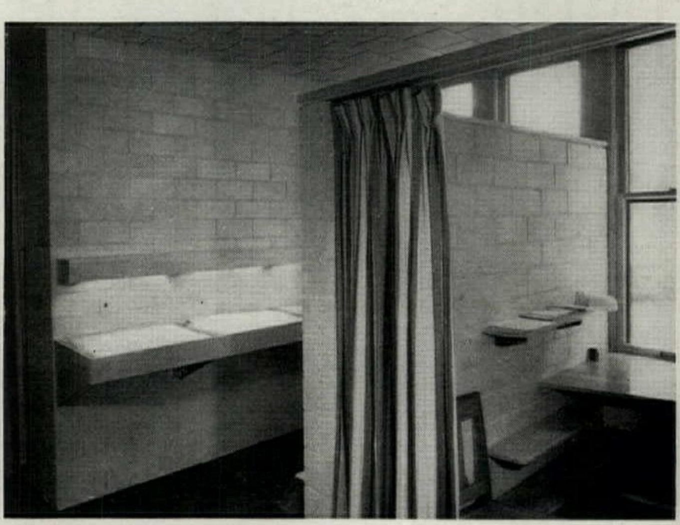


In order to keep carpentry at a minimum, at the recommendation of WPB, smooth-finish hollow tile was used for walls and partitions. All mouldings and finish detail were eliminated. Most of the lighting is concealed, thus avoiding use of expensive—and scarce—metal fixtures.

A definite limitation existed in the fact that comparatively little of the enclosing wall area is along the exterior of the building; hence extreme care had to be exercised in selecting for these interior locations areas which would suffer least from lack of direct outside light.

The oblique partition between nurse's and doctor's consultation rooms was worked out to handle the special function of each space. Included in centrally located reception desk and waiting room area is space for the office files, accessible to all concerned. The lecture hall has an opening for a projector, operated from the supply room. Blackboard, bulletin board, projection screen, and speaker's platform are integral parts of the room design.

This lecture hall is a room of many uses. One afternoon a week, a maternity class meets here; on infant, preschool, and general clinic days, demonstrations and films are shown. It also serves as a meeting place for various health committees.



Above: nurses room at right; "baby bins" at left

General work space