A CATHOLIC HOSPITAL

BY

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PREFACE

Medicine and surgery have made extraordinary advances during the past generation. It is obvious that hospital planning must correspondingly advance, in order to permit the application of these discoveries under the best possible conditions. Architects who are called upon to design a hospital, if they have never done so before, may discover that although they know how to deal with general problems of planning and construction and the materials commonly used in building, a hospital presents a series of problems quite different in their nature from those which arise in any other building type.

"Within recent years the hospital has become a way-station in the lives of more and more of us, affecting more than the physical condition of its patients; hence its planning has become a social-administrative as well as a functional problem. A hospital is no more a mere factory for curing disease than a home is merely a machine for living. Although a hospital is primarily a functional building, its combination of architecture and medicine makes its design a complicated problem. Naturally, an architect cannot be familiar with the practice of medicine, yet he must design buildings where medicine is practiced, wherein patients are housed and fed and their infirmities diagnosed and treated efficiently and economically. To accomplish this result, the architect must acquire a working knowledge of medical technique and hospital procedure in general. He must learn from the hospital administrator and the medical and nursing staffs all the special needs and
problems pertaining to the proposed new building. ¹

My choice of a hospital as my thesis topic can be better understood against the background of the need for hospital facilities, its extent, and nature.

When it is considered that one in ten of us go to the hospital yearly for treatment, it becomes evident that the hospital is a major element in the lives of all of us. As far as civilian population is concerned, and that is where my major concern lies, the additional beds needed nationally is greater than those which are available. With the federal government presently contributing $150 million annually to hospital and related construction, and this contribution amounting to a third of the cost, we should be able to build civilian hospitals at the rate of $450 million a year. Assuming that voluntary and proprietary hospitals, without federal aid, would build an equal amount, we should have an annual expenditure for building new hospitals of $900 million. ²

At this rate it would take fourteen years to wipe out the deficit in hospital beds, provided the population remained stationary. At our present rate of construction, there is little hope of catching up with our hospital needs.

The goal of this thesis will be better patient care, higher scientific and professional standards coupled with lower operating costs and

¹ Charles Butler, Hospital Planning, (New York, 1946), p. 3.
better working conditions for everybody on the hospital health team.

These things add up to a healthier and stronger America.
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Definition

A hospital is a complicated, highly-specialized, functional structure for the care and shelter of the sick and injured.

History

Institutions for the care and shelter of the sick existed in ancient times. Many simply provided homes for the homeless, helpless, or infirm persons. These were hardly hospitals in the modern definition of that term. Others provided such medical care and treatment as had been developed in their time and localities.

Medical treatment has always been associated with religious service and ceremony, since priests were also physicians. Pre-Christian religions identified certain of their deities with healing as early as 4000 B.C. Temples served as both medical school for practitioners and a resting place for patients under observation or treatment. Historical records indicate the existence of such edifices in Greece, Egypt, Babylonia and India.

There are records of hospitals in Buddhist India as early as the third century B.C. In the temples of Aesculapias in ancient Greece and some of the Aegean Islands, there grew up medical schools, and in connection with them, hospitals in which priests of the cult of this Greek god of medicine ministered to the sick. There are also records of hospitals in Rome in the Early Christian era.

From its very beginning, the Christian church dispensed charity and fostered benevolence. "As it became established throughout the
Roman Empire and following the fall of Rome, throughout Medieval Europe, it organized and institutionalized much of its charitable services. St. Basil established a hospital at Caesarea in 369 A.D.¹ Faviola, a wealthy Roman matron, founded the first hospital in Rome towards the end of the fourth century. The development of monasticism was an important factor in the establishment of hospitals under ecclesiastical control. Around the monastery there developed a variety of institutions, particularly schools, hospices and hospitals. Many hospitals were built as part of these monastic foundations; however, by no means all of the church-established hospitals were under their control. One of these was Hotel Dieu, in the city of Paris, which was founded in 600 A.D. by St. Landry, the Bishop of the city. The first solely nursing order is considered to be the St. Augustine nuns, organized about 1155.

"The Crusades and pilgrimages to holy places led to the establishment of many hospitals and the development of religious orders whose members administered to the sick."² Famous among these orders is that of the Knights of Malta, which was founded by Brother Gerard in the latter part of the 11th Century and is still serving the sick today. It maintained hospitals in Jerusalem, Acre, Cyprus, Rhodes and Malta. In Malta the order built and maintained a hospital from 1530 to 1798 when Napoleon expelled it. The Knights then moved to Rome where they remain

² Ibid., p. 15.
to this day.

In England during the Middle Ages hospitals were founded to serve social needs. Many were for lepers; others housed the aged and infirm, and provided lodging for pilgrims and travelers. Practically all of them were maintained by religious orders. The two best known of these are St. Bartholomew's Hospital, founded by Rahere in 1123, and St. Thomas's, founded in 1200 by the Bishop of Winchester. The disappearance of leprosy and the economic decline in the fifteenth and sixteenth centuries led to the closing of many of the institutions; the dissolving of religious houses and the confiscation of their properties by Henry VIII gave the final blow.

Toward the end of the seventeenth, and during the first fifty years of the eighteenth century, interest in hospital establishment was revived. "The need for hospitals and almshouses which had already been recognized in the Mediaeval period became greater after the Dissolution of the Monasteries and many hospitals were erected in this period."¹ The Government also began to show interest by the establishment of many Royal Infirmaries.

The beginning of hospitals in the English colonies in America followed no pattern. This was due to the lack of the Catholic Church, the chief dispenser of organized religious charity in Europe, to establish itself immediately in the colonies; also the early American settlers were farmers and brought scattered population with very few towns and

villages.

The Dutch West India Company erected the first hospital of the colonies in New York in 1658 to care for sick soldiers and for company negro slaves. Seaport cities, exposed to diseases brought ashore by the crews and passengers of incoming ships, established pesthouses, or quarantine stations. Smallpox was often epidemic in the colonies, and efforts to control it by inoculations were first made in Boston in 1721. As the efficacy of inoculation was demonstrated, small hospitals for care of patients recovering from its effects were established in many of the cities of the colonies.

The first successful attempt to establish a general hospital in the United States was in Philadelphia towards the middle of the eighteenth century. Thomas Bond, a Philadelphia physician, and Benjamin Franklin were chief promoters. It operated in a rented house in 1751 and was named Pennsylvania Hospital. Associated with this hospital in its early years was the first medical school in America, which later became the Medical School of the University of Pennsylvania. The New York Hospital, the second oldest in the United States, was opened in 1791.

Most early hospitals were established as charities for the poor and the homeless, and for isolation of persons suffering from certain communicable diseases. "As modern medicine and treatment, and the techniques essential thereto, progressed, hospitals became organizations of facilities by means of which the knowledge and skill of physicians, made more effective by the service of trained nurses and technical personnel, were brought to bear on the problems of diagnosis and
the care and treatment of the sick."\(^1\) This led to a great increase in
the number and variety of hospitals; as specialization in medicine
developed, there came a demand for special hospitals. In more recent
years, however, the development of large general hospitals with special
departments has tended to lessen the need for special hospitals.

In 1949 United States's hospitals contained a total bed capacity
of 1,439,030, or 9.9 beds per 1,000 people. This represents an in­
crease of 55,203 beds since 1942 when World War II was beginning. This
seems to be a large increase, but in 1942 there were 10.6 beds per
1,000 people, which indicates that the nation's population has grown
even faster. To state that a national deficit in hospital beds exists
is not enough. "No state in the union, it is clear, has requisite num­
ber of beds."\(^2\) Arkansas, for example, has only 6,817 acceptable beds
and is 250% deficient.

"The chief forces leading to the establishment of general hospitals
in the United States have been, on the doctor's side, the desire for
surgical and obstetrical opportunities, plus the need of centers for the
teaching of medical students and nurses. On the community side, the
forces have been more complex. Christian and Jewish churches have been
strongly impelled to found hospitals as works of charity, so that we
have over 1,100 hospitals under church auspices, with over 150,000 beds.

\(^2\) Isadore Rosenfield, Hospitals - Integrated Design, (New York, 1956),
p. 9.
Nonsectarian groups and individual philanthropists have felt the same urge, resulting today in over 1,800 hospitals with over 200,000 beds. The personal motives have been increasingly supplemented, sometimes supplanted, by a calculated judgment of need for hospital service for a certain area or group of persons. This has been an enlarging element in the recent growth of both voluntary and governmental hospitals. 1

CHAPTER II
REQUIREMENTS OF THE CATHOLIC HOSPITAL

Primary Considerations

Location: "Should the hospital be in the center of population, or the geographic center of the district which is served, or could it be outside of the centers? The closer to the center of population and to the geographic center, the better the location." The most important consideration in choosing a location for the hospital is to have a site conveniently reached by the cheapest and most open means of transportation. Hospitals must be easily reached not only by patients, but also by doctors, nurses, visitors, help, supplies, and fire fighting services. "The question of accessibility of the hospital for patients, doctors and visitors has an important bearing on the well-being of the patients. Although the average bed patient merely goes to the hospital and returns home once, out-patients and visitors will probably make a number of visits. Furthermore, long trips to an inaccessible hospital consume time doctors need for their practice elsewhere, and make it impossible to secure the service of specialists. Thus distance and transportation facilities enter into the question of location, and it is obvious that they indirectly affect the improvement of the patient. Attention should be given to existing and future transportation facilities even in the case of a city hospital. The site chosen should be readily accessible by public conveyance other than taxicabs."

Site: "The dimensions of the site will be affected by the type of plan adopted. Obviously, a multi-story building can be placed on a site smaller than that required for a one story building of the same capacity. In any case, the plot chosen should allow for future expansion of at least 100% in building area and still retain attractive grounds and obviate objectionable appearances of overcrowding. On the other hand, too large a site may result in costly upkeep."\(^1\)

Sufficient space must be available to accommodate the traffic leaving and entering the site as well as ample parking areas. Parking should be provided at a ratio of at least three cars per hospital bed.

"Ideally the building is best located on relatively high ground in order to take advantage of natural drainage. The elevation should not be so great, however, as to be a handicap to ambulant patients who approach on foot. The contours should be such that it will permit the patient entrances to be located close to ground level. A sloping site can be a considerable asset as it frequently offers the advantages of locating the basement service entrances at natural grade level.

The outlook from the site should be as unrestricted and pleasing as possible. The nature of the adjacent areas should be considered. Location opposite a public park, provided the park is not noisy, is advantageous since it insures against future encroachment from that direction."\(^2\)


\(^2\) Butler, Hospital Planning, (New York, 1946), p. 3.
The psychological effect of attractive grounds on patient welfare, public good will and staff morale cannot be overestimated. Care should be taken in the selection of plant material and location of planting so as to provide the maximum beauty with the least maintenance and care of the grounds, since this expense will be continual throughout each year.

The following is a list of questions to aid in evaluating the various site features which should be considered in determining which of several available sites is most suitable for a new hospital.

1. Is it sufficiently close to the center of the community to be served?
2. Is it sufficiently close to convenient local transportation facilities?
3. Are organized fire fighting facilities available?
4. Is there objectionable noise, smoke, dust or odor in the neighborhood?
5. Is the site undermined or subject to mineral rights?
6. Is there water, sanitary and storm sewer, electric power, gas service, and telephone service at the site?
7. Is there high ground to provide natural drainage?
8. Is there rough and rolling terrain requiring expensive grading?
9. Are there gulleys of water-courses involving flood hazards?
10. Is the size sufficient for attractive grounds?
11. Is there space for adequate driveways and parking?
12. Is the size sufficient for 100% expansion in the building area?
13. If patients are placed on the quiet side, will they also have
best orientation of sunlight and prevailing breeze?

Organization

Planning: "The esthetic expression of hospital architecture should be such that the man in the street or friends and relatives of patients on approaching the hospital should not be intimidated by officious monumentality. They should be made to feel that their friends or dear ones are in the presence of kindliness, consideration and scientific certainty."

The question of vertical versus horizontal travel has much to do with the general plan. If the desired site is in the city where land values tend to be very high, the block type of hospital is undoubtedly the more economical, not only to build but to administer and maintain. If the institution is situated in a residential area, the towering height of the block tends to create a welcome change in roof lines, since most residential roofs are near the same height. Hospitals located outside cities will not warrant the block type building, and it will be found that separate buildings grouped together will result in a more pleasant and efficient plan.

Exterior Traffic: "Throughout the planning of the hospital, traffic requires careful thought. Besides the various complicated lines of traffic within the hospital, traffic to and from the hospital must be given consideration." Exterior traffic includes: (1) Patients arriv-

ing or leaving by automobile or ambulance; (2) patients arriving or leaving on foot; (3) the visiting public, which should have adequate parking space; (4) staff members, who should have a convenient parking area reserved for their exclusive use, if practicable; (5) controlled egress of employees, with proper facilities for parking; (6) delivery of incoming supplies; (7) removal of the dead in an unobtrusive manner; (8) out-patient traffic if a clinic or health center is contemplated.

Traffic lines to and from the building must be designed so as not to have crossing traffic streams. The main entrance should receive in-patients arriving on foot and by car as well as ambulatory out-patients and visitors. The staff entrance should be convenient to the staff parking as well as to the staff locker rooms and employee time and attendance control system. In large institutions, a separate entrance for non-professional employees may be provided. A service entrance for unloading supplies will be needed and should be in close proximity to storage areas, elevators and kitchen refrigerators. It may also be used for the removal of refuse. An entrance for the removal of bodies may be provided, but it should be kept locked unless it is also used as the employee entrance. "In general, the number of hospital exits or entrances should always be held to a minimum, especially if they are not to be supervised."¹

Interior Traffic: (Chart I.) "Within the hospital there are other complicated traffic lines to consider. Orderly internal traffic is

facilitated by correct relation of departments and services, but some crossing of traffic streams is inevitable. The traffic streams which need the most consideration are: (1) incoming patients who must proceed from the admitting and social service departments to the patient areas, emergency room, x-ray department or other services; (2) outgoing patients who leave the hospital, usually by way of the business office or the social service department; (3) interdepartmental patient traffic; (4) deceased patients who must be taken direct to the mortuary in as unobtrusive a manner as possible; (5) visitors, who should be under surveillance to and from patient areas, and during their entire stay in the hospital; (6) staff members, who should be routed past the record library and the physicians' in-and-out board; (7) out-patients, who may be routed to the laboratory, pharmacy, x-ray, therapy units or other services in the hospital area proper; (8) employees, who must be routed past their time control station and locker rooms before being allowed in the hospital proper; (9) supplies, foods and wastes, which must be as completely separated as possible from all patient and visitor traffic. No rigid suggestions can be given for isolating these various streams of traffic within the hospital, but they must be kept under constant consideration in laying out areas.

Circulation: "Careful attention to proper arrangement of lines of circulation makes a quieter, bacteriologically safer, and more efficient

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hospital and architecturally brings about new building configurations.\footnote{1}

The area required for circulation will vary widely with the type of building and the number of stories.

Corridors:

Corridors throughout the building should be at least 7 feet, 6 inches, and preferably 8 feet. Careful attention should be given to the acoustics, since corridors tend to present noise problems. Wall treatments must be easily cleaned and maintained, and considerable thought should be given to material usage, since they will carry heavy streams of traffic. Where ramps are required, the slope should not exceed five per cent.

Stairways:

The number and location of stairways are determined by local ordinance, with due consideration for traffic demands. At least two widely separated stairways should be provided and they should be at least 3 feet, 8 inches wide.

Elevators:

Elevators should be grouped together, but the separation of service and passenger elevators is desirable. They should be located according to the flow of traffic, but they should not open directly on a nursing corridor, since this may disturb either patients or service routine.

Flexibility: "Experience has shown that the conditions which constitute the environment of the hospital are constantly undergoing modifications; social changes, community growth, and scientific discovery create new demands which the hospital is called upon to satisfy. Healthy hospitals are growing hospitals, but their growth is not necessarily symmetrical. New discoveries are constantly opening up new lines of medical treatment which call for new space-consuming therapeutic apparatus. Nursing standards are forever advancing. Novel forms of record keeping are devised, and presently are regarded as indispensable. A hospital which begins as a boarding house is eventually called upon to participate in health education, in the clinical training of medical students, in post-graduate medical teaching, and in scientific research. Pressure is constant, both from within and without, and the hospital must be in a position to accommodate itself to very reasonable demand. An inflexible plan is a forerunner of trouble."¹

Space Arrangement

Administration: (Chart II.) The administration offices are grouped in the area adjoining the main lobby and main entrance. Certain subgroupings should be considered so that each unit within a subgroup will be conveniently located with reference to others. For example, the administrator's office, the director of nurses' office, the general business offices, the secretary's office and toilet facilities

¹ Butler, op. cit., p. 13.
for the administrative staff form one subgroup of the administrative facilities, each unit of which should be convenient to every other unit.

Main Lobby and Waiting Room: The main lobby and waiting room should be convenient to the stairs, corridors and elevators leading to the patient areas, but access to these facilities by the public is controlled from the information desk. Adequate space for seating facilities are also required. Access to the business office, cashier's window and administrator's office must be provided. A small retirement room off the main lobby is desirable for anxious or bereaved relatives. Public toilets, as well as public telephones, must be provided near the lobby.

Information and Switchboard: The information desk is located so as to govern public entry to the hospital proper and also to the administration area. If the switchboard is located near the information desk, it may also serve as the information desk at night.

Admitting Office: The admitting office should provide privacy, be in a quiet location convenient to the main lobby and, preferably, adjacent to the social service office, if one is provided.

Business Office: Provisions for the general office space for the clerical staff and equipment, a vault for business records and a safe for patients' valuables composes this area. A cashier's window opening from an alcove must also be provided.

Administrator's Office: The administrator's office should be accessible to all other offices, but located so as to allow privacy. The approach may be through the secretary's office to insure privacy.
Secretary's Office: This room may be small and is located to serve as an entry to the administrator's office.

Director of Nurses' Office: The director of nurses is provided with office space convenient to the administrator's office and to stairs and elevators. The office should be in a quiet area and should have a connecting room for an assistant.

Medical Social Service Office: This office should be convenient to the admitting office and reasonably accessible to the business and administrative offices and medical record room.

Medical Record Room: This room should be located near the business offices for control and should have access to the inactive record storage room below, possibly by a spiral staircase.

Library and Conference Room: It is advantageous if this room can adjoin the medical record room, thus serving the dual purpose of furnishing a control for the library and space for staff members to consult records without removing them from the control of the medical record librarian.

Staff Lounge and Locker Room: Adequate space must be provided for the comfort of the visiting staff. These facilities include a sitting room and private cloakroom, lockers and telephone. The location of the physicians' parking space will usually determine which entrance is used.

Gift Shop: It is highly desirable to have a space near the lobby set aside for furnishing minor items for visitors, patients and employees.

Personnel Toilets: Toilets for administrative personnel should be
furnished in a location convenient to their offices.

Nursing Facilities: (Chart III.)

The determination of expected distribution of patients will require a special study in each individual instance. Normal expected distribution might be seriously affected by the presence in the community of a specialty hospital, such as a maternity or children's hospital, or by the presence of recognized specialists on the staff of the proposed hospital or of other hospitals in the area.

Studies have indicated that normal distribution of patients in general hospitals might be expected to be: surgical, 40 to 50 per cent; medical, 20 to 25 per cent; obstetrical, 12 to 25 per cent; pediatric, 10 per cent; miscellaneous (including eye, nose, ear and throat), 9 to 15 per cent.

Patient Areas: The size of the nursing unit is affected by several factors including the condition of the patient, the number of patients and personnel that can be assigned to the nurse in charge of the unit, and the design of the unit. Consideration of these factors usually results in a unit of approximately 25 beds, although there is a growing trend to a greater number in larger hospitals. There may be one-, two-, and four-bed accommodations in each nursing unit. Unless there is a definite local need for four-bed rooms, smaller accommodations generally provide greater flexibility for assignment and care of patients by condition, sex, and age. **ONE-BED ROOM:** These rooms should be large enough for two beds in case of emergencies, thus furnishing flexibility in the capacity of the hospital. This will require that the rooms be
designed as two-bed rooms as far as closets and equipment are con-
cerned. The minimum floor area for any room should be not less
than 125 square feet. **TWO-BED ROOM:** These rooms are the same as
the one-bed rooms except provisions should be made for cubicle cur-
tains, and the minimum floor area for any room should not be less
than 160 square feet. **FOUR-BED ROOM:** Four-bed rooms are similar
to two-bed rooms discussed, including cubicle curtains, but floor
area should not be less than 320 square feet. **ISOLATION UNIT:**
One-bed room units will serve as the isolation unit, except that
they must have their own separate utility rooms. Two is considered
a minimum, and if two are used as a pair, one utility room may be
designed to serve both. **PSYCHIATRIC ROOM:** The typical isolation
rooms which are included in each nursing unit can be made satis-
factory for this purpose by the installation of certain safety
features for the protection of the patient and the hospital. Max-
imum safety and security should be provided, though in an unobtru-
sive manner. **TREATMENT ROOM:** Treatment rooms are necessary on
each patient floor. They should be acoustically treated and have
space provided for an examination table and waste container.
**NURSES' STATION:** This unit, centrally located and well lighted,
should provide optimum space for desk and administrative activities
inherent in patient care, such as charting, receiving physicians'
orders, etc. **CONSULTATION ROOM:** On each floor it has been found
highly desirable to have a small room to serve as an office for
the intern, or resident physician, and to which attending staff
members can retire for consultation, teaching and conferences with
physicians, patients or patients' families. **UTILITY ROOM:** This room should be centrally located in each nursing unit.

**FLOOR PANTRY:** If centralized service is used, the floor pantries will have only minimal equipment and will not need to be equipped for setting up trays. **SOLARIUM:** A solarium at the end of each patients' wing is highly desirable. It should be so arranged as to be available for utilization as bed space in emergencies.

**VISITORS' ROOM:** A visitors' room for each floor is highly desirable; it should be located close to stairs and elevators, and should be under the control of the nurses' station. Such rooms should be provided with a public telephone and should be convenient to toilets. **FLOWER ROOM:** A flower room provides for reception, preparation, or temporary storage of patients' floral gifts.

**TOILET, BEDPAN, BATHROOM UNIT:** At least two separate patients' toilets should be provided for each 25-bed nursing unit. A minimum of one bedpan unit should be provided for each nursing unit. One bath, in addition to any private facilities, should be provided in each nursing unit. The bath should have a tub, but no shower, because of danger to patients. **CLOSETS:** One linen, one supply, one stretcher and one janitor's closet per nursing unit is sufficient.

**PEDIATRIC UNIT:** When the number of child patients cared for does not warrant a separate pediatric unit, children will be cared for in one- or two-bed rooms designed for them. It is desirable that a play space be provided. A solarium with an adjacent sun deck is preferable for this purpose.
Surgical Facilities:  (Chart IV.)

It is important that the operating suite be completely isolated from the rest of the hospital and so located that there will be no traffic through it. Hence, it should be located either on a separate floor or in a separate wing with convenient access by elevators to all patient floors. A minimum of one major and one minor operating room will be required even in a very small hospital.

OPERATING ROOMS: Operating rooms may be arranged in pairs, with scrub-up and substerilization facilities between each pair. Orientation is not important because artificial light will be used. Natural lighting is no longer considered necessary. The desirable minimum size for operating rooms is 18 by 15 feet.

CYSTOSCOPIC ROOM: This room can be designed so as to serve in emergencies as an operating room. The room should also be designed so as to permit its use by other special services.

FRACTURE ROOM: In hospitals of 100 beds or more, a special fracture room is needed. It does not need natural lighting. It is desirable to have a splint closet and plaster closet connecting with the fracture room.

SUBSTERILIZING ROOMS: Adjunct sterilization facilities will ordinarily be located between each pair of operating rooms. Direct access from each operating room and the corridor is desirable.

SCRUB-UP FACILITIES: A minimum of three sinks to be used for scrub-up should be supplied for each pair of operating rooms. CLEAN-UP ROOM: One clean-up room for the surgical area is sufficient. It should be located close to the operating rooms and furnished a service sink. ANESTHESIA EQUIPMENT ROOM: A special fireproof
room is necessary for the storage of ether, anesthetic gases and anesthesia equipment. This room should be convenient to the operating rooms, but should open to the corridor. It requires outside ventilation, but natural lighting is not necessary. **LABORATORY:**

In a hospital of more than 100 beds, a small space may be required for frozen section examination. **DARKROOM:** This darkroom is furnished for spot development of films from the fracture and cystoscopic room. **INSTRUMENT ROOM:** In hospitals of 100 beds or more, a special instrument room is almost a necessity, the minimum width being 8 feet, and the area about 150 square feet. **SURGICAL SUPERVISOR'S OFFICE:** This office should be so located as to control the department and should preferably have a glass partition on the corridor side. In larger hospitals, an additional space may be provided for surgeons to dictate surgical notes for hospital records. **DOCTORS' LOCKER ROOM:** The doctors' locker room should be situated at the entrance of the surgical suite, preferably a walk-through room serving as a doctors' entrance to the suite. A small space for surgeons to dictate surgical notes for hospital records may also be useful. **NURSES' LOCKER ROOM:** The nurses' locker room also should be situated at the entrance of the surgical suite, and designed to serve as a nurses' entrance. **CLOSETS:** A stretcher closer, general storage closet, and janitor's closet will be needed. **CENTRAL SUPPLY FACILITIES:** In large hospitals, the central supply facilities are located in an independent department, but in hospitals of less than 100 beds, it should be near the surgical area for best supervision. Space in this area is divided into three
distinct areas, which may or may not be physically separated: (1) work areas for receiving and cleaning unsterile material and for assembling packs; (2) sterilizing area for sterilizing supplies; (3) sterile supply area for storage and issuing of sterile supplies; and (4) unsterile storage. It is more desirable that the sterile supply area be a separate room, if possible. CENTRAL UNSTERILE SUPPLY ROOM: In addition to the preparation and distribution of sterile supplies, an important function of a centralized service concerns unsterile supplies, such as oxygen tents, inhalators and other items. A separate area is necessary for the care, preparation and issuing of these articles. RECOVERY ROOM: The recovery room is best located adjacent to the surgical suite to provide minimum post-operative transportation of patients and to facilitate prompt post-operative care and treatment. Hospitals having one to four operating rooms need for recovery beds approximately one bed per operating room plus one. Besides the patient area, provision for a utility area, separated if possible by a glass partition, and space for storage, and desk is required.

Obstetrical Facilities: (Chart V.)

Maternity service facilities should be planned in a dead end area, and so located that future building expansions will not make them a traffic thoroughfare. A strict segregation can be arranged by the use of a floor or wing with separate facilities, equipment and supplies. The accommodations for obstetrical patients will be generally the same as for other types of patients. An exception to this will be in hospitals where newborn infants are kept in the same room as the mother,
or some modification of that plan.

In considering the nursery and delivery room suite in their relationship to each other, they should be as far removed as the limits of the obstetrical department will permit, inasmuch as visitors to the view windows of the nursery would be a potential danger if permitted near the delivery area.

From 12 to 25 per cent of patients in the average general hospital will be maternity cases. **DELIVERY ROOMS:** Delivery rooms should be provided in the approximate ratio of one delivery room for each twenty maternity beds. These will be essentially similar to operating rooms in design. **LABOR ROOMS:** Labor rooms are needed in the approximate ratio of one labor room for every ten maternity beds and should be adjacent to delivery rooms. **SCRUB-UP ALCOVE:** Scrub-up facilities between pairs of delivery rooms will be similar to those furnished in the operating suite. **SUBLERILIZING ROOM:** This room may also be designed between delivery rooms and similar to those furnished in the operating suite. **CLEAN-UP ROOM:** The clean-up room should be similar to that in the operating suite. **WORKROOM:** Some authorities deem a workroom necessary for preparation of various supplies for use only in the obstetrical suite. If provided, this room requires some duplication of equipment shown in the central sterilizing room. **CLOSETS:** A storage for general supplies will be necessary as well as a janitor's closet. **DOCTORS' LOCKER ROOM:** The doctors' lounge should follow the general design of the lounge in the operating suite. An area for one or more cots must be additionally provided, however. **NURSES' LOCKER ROOM:** The nurses'
locker room in the obstetrics suite is similar to that planned for the operating suite. **VISITORS' ROOM:** It is considered good practice to provide a special waiting room with telephones for prospective fathers.

**Nursery Facilities** (Charts VI, VII).

The nursery area is located in the maternity section, but outside the delivery suite. It should be readily reached by visitors who wish to observe the infants through the nursery view windows, with a minimum of traffic through corridors in patients' areas.

Experience reveals that the average maternity patient will remain in the hospital for a period of from five to ten days. Upon this basis the total number of maternity beds multiplied by 45 (the number of eight-day periods within a year) gives the total live births that may be expected. Of this latter total, from six to eight per cent will be premature infants who will remain in the hospital for an average of thirty days. Subtracting the premature births from the total births, and dividing the resultant number of full-term births by 45 gives the number of bassinets required for full-term infants. The number of premature births divided by twelve gives the bassinets necessary for this group.

In addition, suspect bassinets will be required at the rate of approximately ten per cent of the full-term bassinets. **NURSERY:** It is suggested that the normal newborn nurseries be limited to a maximum of eight infants each. The nursery should be provided with a view window located so as not to obstruct traffic. A cubicle for each bassinet is recommended. **PREMATURE NURSERY:** The premature nurseries will be similar to normal nurseries. It is suggested that
nurseries for premature infants be limited to a maximum of four premature infants in any one nursery. **WORK SPACE, NURSES’ STATION AND EXAMINATION ROOM:** Each nursery should connect with an anteroom that serves as work space, nurses’ station and examination room. When there is more than one nursery, the nurseries may be so arranged that one anteroom serves two nurseries. The anteroom is designed with three areas, one for examination and treatment, one for the nurses’ station and one for the work space. Thus, only the nurse actually enters the nursery proper. **SUSPECT NURSERY:** The suspect nurseries are provided for the observation and care of newborn infants who develop symptoms suggestive of communicable disease. The nurseries are designed to accommodate a number of bassinets approximately equal to ten per cent of the full-term bassinets provided. A minimum of 40 square feet of floor space and 360 cubic feet of space is provided for each suspect bassinet. **SUSPECT ANTEROOM:** An anteroom is arranged between the suspect nursery and the corridor. **FORMULA ROOM:** Location of the formula room is subject to some difference of opinion. Possible locations are the dietary, the maternity, and the pediatrics departments.

**Adjunct Diagnostic and Treatment Facilities:** (Chart VIII).

**LABORATORY:** The laboratory should be on a lower floor and so located as to be accessible to members of the medical staff and to out-patients who may be sent to the laboratory for specific procedures. In larger hospitals, it is usually necessary to assign separate areas for pathology, serology, bacteriology, chemistry, hematology, urinalysis, blood bank or other special services.
BASAL METABOLISM, ELECTROCARDIOGRAPHY: One room in a quiet location will usually serve this dual purpose. MORGUE AND AUTOPSY: The morgue and autopsy facilities should be arranged so as to prevent unnecessary contact of the public and unauthorized personnel with autopsy procedures. They should be convenient to the elevator, with an isolated exit, if possible, to the service yard for the use of the undertakers. RADIOLOGY: The department of radiology should be so located as to be conveniently accessible to the inpatient areas, and as close as possible to the emergency room and the out-patient clinics. Advantage should be taken in the use of outside walls to reduce the amount of lead protection required, especially in the therapy rooms. Minimal provisions will include a radiography and fluoroscopy room, with provisions for complete darkening; control booth; a darkroom; storage space for exposed films conforming to the requirements of the National Board of Fire Underwriters; a dressing room connecting with both waiting area and radiographic room; a toilet; and file space. DARKROOM: The darkroom should be lightproof, and mechanically ventilated. A pass-through for wet film is also necessary. PHYSICAL THERAPY: Even the smallest hospitals will have considerable physical therapy and the trend is toward increasing this form of treatment. The principal divisions of the department are for electrotherapy, hydrotherapy and exercise. In larger units an office, waiting-room space and patient toilet facilities are necessary. PHARMACY: The pharmacy is the department in the hospital from which all medications are supplied to the various nursing units, where special prescriptions
are filled for patients in the hospital, prescriptions are filled for out-patients, pharmaceuticals are manufactured in bulk, biologicals are stored and dispensed, and injectable solutions are prepared and sterilized. In hospitals of less than 200 beds, the pharmacy should be located on the first floor, and near the out-patient department.

Out-patient Department: (Chart X).

Unless out-patient services are already available elsewhere, such facilities must be provided by the hospital if it is fully to meet its community responsibility. If the hospital is operated by any organizations, such as church or city-county groups, it is necessary to have an out-patient department because of the great amount of charity treatment which they administer. The area required for the out-patient department will depend on the patient load and the variety of the services to be rendered. Of the existing hospitals with regular out-patient services, it is reported that there is an average of one out-patient visit for every 3.5 occupied beds. The out-patient department is usually assigned space on the ground or the main floor with ready access to the main administrative areas, especially the record room, and is convenient to all adjunct services. The normal arrangement will require: waiting room; facilities for admitting, appointments and cashier; clinical section with examining rooms, dressing rooms, treatment rooms, dental and other specialty rooms as required. A small office, or offices, for interns, physicians, dentists and nurses may be desired. Storage space for general supplies used in the out-patient department, a utility room and a janitor's closet are also required.
Personnel Housing:

INTERNS: A separate, adjacent building is more satisfactory than are quarters in the hospital proper for housing interns. Common living rooms are satisfactory for these quarters.

Emergency Department: (Chart IX).

The Emergency Department should be so located that patients arriving by ambulance may have direct access to the emergency room. For this reason this department is usually located on the ground floor in the rear of the hospital. It is necessary that this department be close to the surgical area, but not directly connected. **EMERGENCY ROOM:** The emergency room is similar to the minor operating room, but scrub-up and utility rooms may be placed in the room itself.

**OFFICE AND WAITING ROOM:** An office and waiting room for the emergency section is suggested for all but the smallest hospitals, convenient to emergency entrance and with public telephone.

Service Department: (Chart XI).

**DIETARY FACILITIES:** The kitchen should be located at grade level to insure adequate light and natural ventilation. This eliminates undesirable traffic in daily delivery of meat, vegetables and dairy products. Elevators are important in the satisfactory delivery of food to patients' areas and should be located as close as possible to the kitchen. **FOOD SERVICE:** There is considerable controversy over the relative efficiency of central tray and bulk food services; each type has both advantages and disadvantages. Central tray food service and bulk food services have been combined in recent years, however, into a very efficient food service which
has practically eliminated the disadvantages of each. **RECEIVING:**
The delivery entrance should be located at a point where truck unloading will not disturb patients and should also be near the food storage area. **FOOD STORAGE:** Refrigeration for meat, frozen food, dairy products and vegetables will have to be provided. Walk-in type refrigeration rooms are considered best for a hospital of over 50 beds. **SPECIAL DIETS:** At present, the general practice is to dispense with a special diet kitchen, and have all special diet food prepared in units where the regular food is prepared. **POT WASHING:** The pot washing area should be located off the main traffic lines but near the ranges from which most of its work comes. **SERVING:** The serving area should be located as near the elevators or dumbwaiters as conditions will permit to reduce the time required to deliver hot food. Space should be provided for the parking of serving trucks while they are not in use. **DINING SPACE:** The dining area should be located as near the kitchen as possible and should be of a size to accommodate approximately three-fifths of the average number of patrons expected at any one meal. **FOOD WASTE STORAGE AND CAN WASHING:** Where food waste grinders are not used, a refrigerated room for storage of food waste should be provided, preferably at the service entrance. **HOUSEKEEPING FACILITIES AND LAUNDRY:** **OFFICE AND STORES:** The housekeeper's office may be located in the basement, preferably adjacent to the central linen room. A supply room should also be near this office. **LAUNDRY:** The laundry should be included in the initial study in order to provide sufficient space and suitable location. The use of commer-
cial laundry facilities has proven to be very good in recent years and is the system used in many of today's larger institutions.

**CENTRAL LINEN ROOM:** Central linen room facilities are designed to furnish all linen supplies for the hospital. It should be large enough to hold a 24-hour supply. A small area for mending and sewing will be required as well as an area for parking the linen trucks when they are not in use. **SOILED LINEN ROOM:** The soiled linen room should be located close to the laundry and central linen room and, if possible, in a location which will permit a chute for laundry from the floors above to enter into this room.

**EMPLOYEE'S FACILITIES:** Employee lockers and rest rooms should be convenient to the employee entrance. Locker rooms will be required for nurses, male employees, and female employees.

**STORAGE FACILITIES:** In the average hospital, minimum requirements for central storage are 20 square feet per bed. Central storage will consist of separate areas for the storage of pharmace supplies, furniture, and anesthetics. These three areas should be designed so as to permit control of all at the same time. **MECHANICAL PLANT:** The mechanical plant may be located in the basement or on the roof as is frequently done today. All precautions should be taken to assure the safety of patients and personnel. Size and definite location of this area will depend upon the type systems employed.

**MAINTENANCE SHOPS:** In hospitals of 100 beds or more, a carpenter shop, a paint and refinishing shop, and a mechanical shop are desirable. These should be located near the mechanical area if possible. An engineer's office will also be required, preferably near
the shops. A tool and storage room for the groundskeeper should be provided. This room should have direct entrance from the outside, with no inside entrance.
A Catholic Hospital

St. Mary of the Plains, the present Catholic hospital in Lubbock, Texas, contains 48 beds. There are two other large hospitals in the Lubbock area: Methodist Hospital with 327 beds and West Texas Hospital with 91 beds. It is generally agreed that this is far below the number of beds needed to serve the Lubbock area, which has a population of 140,000. The city has increased its population by 90,000 since 1945, while the bed capacity of the hospitals has just about doubled its bed size. It is also evident that the present hospital is badly deficient in its services, due to the lack of special equipment used in many newly-developed treatments. The administration proposes to build a new plant to replace the present one, since it cannot be remodeled or added to because of site limitations and excessive cost.

The site for the new plant is a 10-acre plot in the southwest section of the city. It is generally sloping to the south and measures 600 feet by 600 feet to the property lines. It is bounded on the north by 22nd Place, on the east by Nashville Avenue, on the south by 24th Street, and on the west by Oxford Avenue. Streets crossing the property have been eliminated. The main traffic arteries are Quaker Avenue, going north and south, and the Brownfield Highway, going east and west. Quaker Avenue is two blocks to the west of the property, while the Brownfield Highway is two blocks to the north of the property. A large city park is located directly to the south of the property. On the site, parking will be provided at a ratio of three cars per hospital bed.
The administration desires that the hospital contain 125 beds, an out-patient department, a small chapel and a rectory for 16 nuns. This will be the maximum size of the plant. One reason for this is that if a hospital is larger than 125 beds, it needs more than 16 nuns to administer it properly. If more than 16 nuns are necessary, a Mother Superior, who would be in charge of the nuns, as well as an Administrator, who would be in charge of the hospital proper, would be required on the staff. This would present a split in authority which the administration wishes to avoid, and proposes to do, by limiting the size of the hospital. If future expansion of services is necessary, another new hospital will be constructed in the area.

The completed building should have a gross area of approximately 70,000 square feet and should contain the following facilities:

I. ADMINISTRATIVE DEPARTMENT

<table>
<thead>
<tr>
<th>Service</th>
<th>Sq. Ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main lobby and waiting room</td>
<td>698</td>
</tr>
<tr>
<td>Retiring room</td>
<td>110</td>
</tr>
<tr>
<td>Public toilets</td>
<td>130</td>
</tr>
<tr>
<td>Public telephone</td>
<td>20</td>
</tr>
<tr>
<td>Admitting office</td>
<td>175</td>
</tr>
<tr>
<td>Social Service office</td>
<td>180</td>
</tr>
<tr>
<td>Information and telephone</td>
<td>80</td>
</tr>
<tr>
<td>Administration</td>
<td>240</td>
</tr>
<tr>
<td>Secretary</td>
<td>115</td>
</tr>
<tr>
<td>Business office</td>
<td>550</td>
</tr>
<tr>
<td>Personnel toilets</td>
<td>150</td>
</tr>
<tr>
<td>Record room</td>
<td>325</td>
</tr>
</tbody>
</table>
Director of nursing........................................ 130
Staff lounge and library, conference room............ 500

II. NURSING DEPARTMENT (PATIENT AREAS)

(Nursing Unit)

Bed area (includes clothes lockers and private
room, toilets and bath)....5 units..................14,900
Treatment room.......................... 570
Solarium........................................ 1485
Visitors........................................ 130
Nurses' station............................. 180
Toilets, baths, bed pan......................... 150
Utility room.................................... 190
Sub-utility room................................ 60
Floor pantry................................... 125
Closet........................................... 120

III. SURGICAL DEPARTMENT

Major operating rooms...2 rooms.................. 320 ea.
Minor operating room.......................... 225
Cystoscopic room............................... 190
Scrub-up alcove...2 areas...................... 30 ea.
Substerilizing rooms...2 rooms................... 90 ea.
Central sterilizing and supply................... 620
Unsterile supply room.......................... 125
Instruments..................................... 50
Clean-up room................................... 130
Storage closet................................. 150
<table>
<thead>
<tr>
<th>Room Description</th>
<th>Area (sq ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stretcher space</td>
<td>30</td>
</tr>
<tr>
<td>Janitor's closet</td>
<td>20</td>
</tr>
<tr>
<td>Surgical supervisor</td>
<td>70</td>
</tr>
<tr>
<td>Recorder</td>
<td>45</td>
</tr>
<tr>
<td>Doctors' locker room</td>
<td>275</td>
</tr>
<tr>
<td>Nurses' locker</td>
<td>200</td>
</tr>
<tr>
<td>Fracture room</td>
<td>220</td>
</tr>
<tr>
<td>Plaster closet</td>
<td>30</td>
</tr>
<tr>
<td>Splint closet</td>
<td>55</td>
</tr>
<tr>
<td>Darkroom (X-ray)</td>
<td>30</td>
</tr>
<tr>
<td>Anesthesia storage</td>
<td>120</td>
</tr>
<tr>
<td>Recovery room</td>
<td>400</td>
</tr>
</tbody>
</table>

**IV. OBSTETRICS DEPARTMENT**

<table>
<thead>
<tr>
<th>Room Description</th>
<th>Area (sq ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delivery rooms</td>
<td>290 ea.</td>
</tr>
<tr>
<td>Labor rooms</td>
<td>210 ea.</td>
</tr>
<tr>
<td>Scrub-up</td>
<td>55 ea.</td>
</tr>
<tr>
<td>Substerilizing</td>
<td>105 ea.</td>
</tr>
<tr>
<td>Clean-up room</td>
<td>125</td>
</tr>
<tr>
<td>Doctors' locker room</td>
<td>265</td>
</tr>
<tr>
<td>Nurses' locker room</td>
<td>115</td>
</tr>
<tr>
<td>Nonsterile storage</td>
<td>10</td>
</tr>
<tr>
<td>Sterile storage</td>
<td>40</td>
</tr>
<tr>
<td>Stretcher storage</td>
<td>30</td>
</tr>
<tr>
<td>Janitor's room</td>
<td>20</td>
</tr>
<tr>
<td>Supervisor's office</td>
<td>70</td>
</tr>
</tbody>
</table>
V. NURSERY

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity/Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nursery (5 bassinets in each)...........</td>
<td>4 rooms 140 ea.</td>
</tr>
<tr>
<td>Premature nursery (4 bassinets)...........</td>
<td>125</td>
</tr>
<tr>
<td>Work space and examining space...........</td>
<td>250</td>
</tr>
<tr>
<td>Suspect nursery (3 bassinets)............</td>
<td>150</td>
</tr>
<tr>
<td>Suspect anteroom..........................</td>
<td>40</td>
</tr>
</tbody>
</table>

VI. ADJUNCT DIAGNOSTIC AND TREATMENT FACILITIES

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity/Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laboratory</td>
<td>550</td>
</tr>
<tr>
<td>BMR, EKG and specimen room</td>
<td>190</td>
</tr>
<tr>
<td>Office</td>
<td>135</td>
</tr>
<tr>
<td>Morgue</td>
<td>495</td>
</tr>
<tr>
<td>Radiology</td>
<td>810</td>
</tr>
<tr>
<td>Physical therapy</td>
<td>920</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>360</td>
</tr>
<tr>
<td>Active store room</td>
<td>140</td>
</tr>
<tr>
<td>Treatment rooms...2 rooms................</td>
<td>180 ea.</td>
</tr>
<tr>
<td>Utility</td>
<td>200</td>
</tr>
<tr>
<td>O. P. D. surgery</td>
<td>215</td>
</tr>
<tr>
<td>Eye, ear, nose and throat..............</td>
<td>460</td>
</tr>
<tr>
<td>Dental</td>
<td>400</td>
</tr>
<tr>
<td>Consultation rooms...2 rooms...........</td>
<td>85 ea.</td>
</tr>
<tr>
<td>Waiting O. P. D.</td>
<td>250</td>
</tr>
</tbody>
</table>

VII. EMERGENCY DEPARTMENT

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity/Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency operation room</td>
<td>140</td>
</tr>
<tr>
<td>Office and waiting room</td>
<td>280</td>
</tr>
<tr>
<td>Bath</td>
<td>80</td>
</tr>
</tbody>
</table>
Utility room and storage......................... 50
Toilet............................................ 20
Stretcher and wheelchair closet.................... 140

VIII. SERVICE DEPARTMENT

Main kitchen and bakery................................ 1800
Dietitian's office.................................... 130
Formula room........................................ 225
Dishwashing and truck washing........................ 200
Refrigeration (walk-in)
   Meat.................................................. 45
   Dairy products...................................... 35
   Fruit and vegetable................................ 50
Garbage and can washing.................................. 80
Receiving area......................................... 60
Janitor's closet........................................ 25
Day storage............................................. 125
Dining space, including serving space,
   staff supervisory, employees and
   nurses, (two sittings)............................... 800
Employees (two sittings)................................ 440

IX. HOUSEKEEPING FACILITIES

Central linen room, sewing room and housekeeper's office............... 395
Soiled linen............................................ 205

X. MECHANICAL FACILITIES

Boiler and pump room.................................... 1300
Battery room.......................... 300
Engineer's office........................ 125
Maintenance shop........................ 320
Gear closet............................ 25
Paint storage........................... 75
Refinish shop........................... 149

XI. EMPLOYEES FACILITIES

Nurses' locker room...
60 lockers, 3 toilets, 3 showers........ 650
Male help's locker room...
30 lockers, 2 toilets................... 325
Female help's locker room...
30 lockers, 3 toilets................... 1440

XII. STORAGE

Record.................................. 290
Central stores (minimum).............. 2500

XIII. CONVENT

Bedrooms...16 rooms................... 144 ea.
Living.................................. 500
Dining.................................. 225
Bathrooms...2.......................... 125 ea.

XIV. INTERNS

Dorm.................................. 300
Bath.................................. 80

XV. CHAPEL

Auditorium..............................100-150 seats
MEMORIAL HOSPITAL, BELLEVILLE, ILL.

This hospital is notable because its medical core has been completely released from the nursing wing and the problems of elevator circulation. This, however, has resulted in a difficult problem of crossing circulation between the staff, the patient, and the visitor. A very pleasant feature is the connection between the two separated units, but it seems to be too small to adequately serve the purpose of a meditation garden. The simplicity of design has resulted in a very pleasing overall appearance, plus the economy of construction.
hospital / nursing school / convent

location: Blackwell, Oklahoma
architects-engineers: Coston-Frankfurt-Short
associate architect: Edward J. Romieniec
1 waiting room 
2 reception 
3 business office 
4 director of nursing 
5 accounting 
6 pharmacy 
7 laboratory 
8 bedroom 
9 medication 
10 chapel 
11 emergency 
12 vestibule 
13 radiography 
14 laundry 
15 central linen 
16 sisters' dining 
17 pantry 
18 chaplain's dining 
19 dining room 
20 kitchen 
21 stores 
22 mech. equipment 
23 nurse's station 
24 nursing units 
25 psychiatric 
26 isolation 
27 dirty utility 
28 clean utility 
29 linen 
30 operating 
31 clean-up 
32 fracture 
33 recovery 
34 central storage 
35 central service 
36 doctors' lockers 
37 nurses' lockers 
38 fathers 
39 labor & emergency 
40 delivery 
41 staff lounge 
42 records & library 
43 cystoscopy 
44 sterile storage

BLACKWELL GENERAL HOSPITAL—CONVENT
Blackwell, Oklahoma

This hospital is planned in a "T" shape and contains 62 beds and a convent for 20 nuns. The main entrance is located at the end of the tower section of the building, which allows perfect control over the circulation, but causes the elevator access to be poor because of their depth in the building. It also necessitates a rather long corridor on the ground floor, which services facilities the general public should have access to. The nursing floors are worked out beautifully with the best possible orientation for the patient rooms since they are on the south and the utilities are on the north. Economy of construction had been used, but not at the cost of good appearance. The beautifully landscaped grounds also add to the hospitals appearance and results in a very pleasing and well thought-out design.
INDUSTRIAL HOSPITAL
Rio Piedras, Puer~as, Rico

This 400 bed plant serves mainly as a charity hospital and as a result has many large patient rooms. It is designed in a "T" shape which has proven to be very workable many times. Central control from the main lobby is very good, but the distance from the lobby seems to be quite long. The overall design is cleverly executed and generally worked very good in every case.
CHAPTER VI
CONCLUSION

A hospital is one of the most complex and challenging structures which man has created. The ever-changing world of medicine has become monumental in the lives of all the people of the world today. New-found knowledge and advanced treatment have eliminated many old diseases, but no sooner is one disease cured than a new disease crops up, one even more deadly than the last. The hospital must remain flexible in order to do the best job possible in combating illness.

The religious beliefs of the Catholic faith must also be taken into consideration in order to arrive at a design which meets the needs of both the hospital, in general, and the church which operates it. Extreme flexibility must also be used here.

The foregoing research material has been obtained from many sources. From this material it is evident that the architect must take greater interest in hospital design in the future. Scientific advancement and architectural advancement in the field of medicine must progress side by side if either is to give its best to humanity.
CHART I

GENERAL HOSPITAL - KEY FLOW CHART

Nursing

Adjunct Diagnostic

Surgery

Delivery

Out-Patient

Emergency

Administration

Servece

out-patient

ambulance

staff

patient

visitor

service & help
CHART III

NURSING DEPARTMENT FLOW CHART

Solaria

Floor Pantry

Toilet, Bath
B. P., Jan.

Linen, Stret.
Util. Closet

Waiting

Nurses' Sta.

Treatment

Utility
CHART V

OBSTETRICAL DEPARTMENT FLOW CHART

Delivery Rooms

- Scrub-up
- Labor Rooms
- Docter Locker
- Nurses Locker
- Doctors
- Nurses
- Patients

- Supervisor
- Sub-sterilizing
- Clean-up
- Supplies,
CHARTS VI AND VII

NURSERY FLOW CHARTS

[Diagram of nursery flow chart with labeled areas: infants, examination, work space and charting, nurses, doctors, mothers room (2 beds), nursery (8 infants), nursery (4 infants), examination and work space, mothers room (2 beds).]
CHART VIII

ADJUNCT DIAGNOSTIC FACILITIES FLOW CHART

In-patients

Phys. Ther.  Radiology  Lab.  EKG. BMR.  Pharmacy  Morgue  Autopsy

Out-patients

CHART IX

EMERGENCY DEPARTMENT FLOW CHART

Ambulance

Observation Beds  Office  Bath

Emergency Operating Rm.

To nursing
CHART X

OUT-PATIENT DEPARTMENT FLOW CHART

Adjunct Diagnostic

- Treatment
- Dressing Rms.

Drug Dispens.

Consultation Office

History Examination

Staff Lockers

Social Service

Admitting

Appointment Information

Waiting

Toilets Tele.

hospital records room

Out-patient
CHART XI

SERVICE DEPARTMENT FLOW CHART

- Hospital -
  - Maintenance
  - Mech. Plant
  - Laundry
  - Central Linen
  - Housekeeper
  - Help's Lockers
  - Bulk Food Storage
  - Receiving Clerk
  - Central Storage
  - Kitchen
  - Staff Dining
  - Help Dining
  - Formula Room
  - Special Diets
  - Nurses' Lockers
  - Service and Help Entrance
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