AN INVESTIGATION OF
THE MENTAL HOSPITAL BUILDING TYPE

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FOREWARD

This study is concerned with the application of the disciplines of architecture to the problems of the care and treatment of the mentally ill. I feel that there is sufficient justification to demand the re-thinking of buildings housing the patient's treatment and living facilities to make them more in keeping with our standards of contemporary achievements in both architecture and psychiatry.

The limitations of such a study were: the study, itself; the personal limitations of the investigator; and the presentation. The gap between architecture and psychiatry is tremendous. Each is a field unto itself, but the two must be joined together if there is to be a satisfactory solution to the problems of the mental hospital building type. A great deal of time and research was necessary before the writer could even begin to bridge this gap, due to professional differences in terminology, outlook, and approach. The next limitation was my personal discomfort when I saw the patients illhoused, with very little in their environment to help them retain their individuality and denied the right to facilities for a complete life because of building deficiencies. The last limitation was that the presentation of such a study must necessarily be orderly and catalogue in an organized way what a mental hospital is and needs. However, no such order is in existence in the actual building, and unfortunately this presentation tends to leave the reader with the concept of order in the mental hospital. Another problem of presentation is that of terminology. To be useful, such an investigation must satisfy the semantic demands of both the architect and the psychiatrist.

With these limitations in mind - both personal and impersonal - this study is herewith presented in as objective a way as possible, and with the intention of contributing an orientation for the architect who is confronted with the problems of designing for the mentally ill.
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SECTION I

HISTORICAL PERSPECTIVE
Although hospitals have existed since ancient times, there were no buildings specifically designed for the treatment of the mentally ill until the 18th century. It was through the enlightened attitudes of Phillippe Pinel in France and William Tuke in England that hospitals, as we think of them today, were made available for the treatment of the mentally sick.\(^1\) The history of the mental hospital program types is an interesting story of change in the social conscience. But, more important - the review provides the architect with the perspective necessary to approach the more complex problems to follow. The logical beginning of such a survey is medieval Europe.

The violence, ignorance, intolerance, and idealism of the people in medieval Europe found its expression in their treatment of the mentally ill. The writings of the Fathers of the Church, literally interpreted, provided authority for attributing all disease to demons. The possessed, as the mental patients were known then, were brought
to the church for treatment by exorcism. Persons who did not respond to this treatment were chained and abused for the supposed purpose of helping the patient to recover his possessed body. (Illustration I-A) It is difficult to determine whether the mentally sick were treated with similar brutality in earlier periods. If this was the first period in history to justify its brutality to the mental patient, then it is possible to say it established a tradition that was to last well into the 19th century and, in some ways, is with us to this day.

With the growth of cities came the increased need for custodial facilities to rid society of the more undesirable lunatics who were not already in prisons or in custody. The city of London was in that position in the 14th century, when the priory of the Order of the Star of Bethlehem was first mentioned as a hospital for the insane. The way in which the patients were treated within the hospital, at that date, is not clear from the literature available. But, the treatment the insane received within the prisons and the community is known beyond question. If the lunatic was unfortunate enough to be apprehended and locked up in prison he was chained beside the criminal to rot and starve in his own excreta. In the community at large the insane were beaten, tortured, and burned. It was only an occasional act of charity that prolonged his life for more suffering.
The same intolerance and brutality were found in Colonial America. Conditions were aggravated since they did not have a monastic system to relieve the State of the burdens of institutional care for the insane. And, of course, America did not have the advantages of vacant buildings found in Europe and England after the Reformation. It was necessary, then, to introduce a new building type - what might be considered a "one person institution." The development of this type of space for the care of the mentally dependent is illustrated in the record of how Braintree, Massachusetts, in 1689, provided:

That Samuel Speere should build a little house 7 foot long & 5 foot wide & set it by his house to secure his Sister good wife Witty being distracted & provide for her.  

After considering the practice of "warning out" any "Indian stragglers and crazy persons," and accepting the realization that the "little house" was something more than a pen, this was indeed an act of charity.

The customs of boarding out and providing individual solutions for the care of the insane were largely replaced by the "work-house" program. This solution was in theory the cure-all for the communities' custodial problems for housing "rogues, vagabonds," and other offenders along with the mentally ill. After a few years of operation, the degenerate living conditions of the work-houses were to be
improved by removing some of the mentally sick to other quarters. This was done for the benefit of the other inmates of the work-house program, not for the benefit of the mentally ill. The mentally ill always remained on the bottom of the social structure and received little or no consideration in their housing conditions, a situation which prevailed well into the 19th century and required the tireless efforts and excellent work of Dorothea Dix to induce a change to what we now think of as the State Hospital for the Insane. But, it is important to remember the work of men like Benjamin Franklin and Dr. Thomas Bond for establishing a place for the insane in the newly completed Pennsylvania Hospital in 1756. It is true that the place the patient had in the hospital was little more than a prison and comparable to the treatment given the patient at London's infamous Bethlehem Hospital, now known as Bedlam, but the medical attention was the best the time could afford\(^3\) (Illustration II-B).

Phillippe Pinel, in France, was the first man to successfully introduce a new era in the treatment of the mentally ill - the age of moral treatment. In 1793, Dr. Pinel removed the chains from the mentally sick in the Bicêtre of Paris.\(^3\) This was the dramatic symbol of the beginning of hospitals with a positive treatment program. The same interest in the welfare of the mental patient was shared
by William Tuke, an English layman, when he "stated his plans for the foundation of a humane hospital for the mentally ill." The result of Tuke's work and planning was the York Retreat, in England, which was the prototype of many hospitals established in the United States. However, what was most important in this period was the new attitude regarding: (1) research and (2) humanitarian ideals. Dr. Joseph Daquin, a contemporary of Pinel, expressed these aims as a program when he said:

I understood, however, that the course of treatment of insanity should be highly analogous to the methods used in the study of natural history, and that only in hospitals could one observe the various guises in which the malady appears, describe its history, regulate the therapeutic methods which cannot be always the same in all varieties of mental derangements, rid one's self of all the prejudices one has about the various types of insanity, and apply moral treatment in all cases.

This approach to hospital programming was, in effect, the basis for establishing what is one of the outstanding hospitals in the United States - the Boston Psychopathic Hospital.

On the American scene, Benjamin Rush, a doctor on the staff of the Pennsylvania Hospital, began to request improved conditions for the care of the mental patients in the hospital. The record of his address to the managers is given here as an illustration of the lack of quality of the patients' hospital environment at that time.

These apartments are damp in winter and too warm in summer. Few patients have ever been confined
in these cells who have not been affected by a cold in two or three weeks after their confinement, and several have died of Consumption on consequence of this cold.\textsuperscript{2}

In this criticism of existing conditions at the Pennsylvania Hospital, Rush gave an interesting picture of what hospitals must have been just before, or contemporary to, the age of moral treatment.

It was not until Dorothea Dix became aware of the conditions under which the mental patients lived in the 1840's that something comparable to the scale of the problem was done to help the mentally ill. The way Miss Dix approached the problem of reform was by first making a careful inventory of the existing conditions, and next "she brought into the open the people who were responsible for each case of atrocious neglect and had proved that in general those most to blame were taxpayers who wanted to save money."\textsuperscript{4}

It must be remembered that there were good hospitals available to the people of the United States at this time. But, they were expensive and more concentrated in the eastern part of the country. The majority of the patients in need of continued treatment and care were housed under the conditions described by Dorothea Dix. The following case presented by Miss Dix illustrates a typical solution to the problem of caring for the mentally ill within his own family situation, in this case by his sister to prevent his
"mistreatment at the hands of strangers."³

He was confined in a roofed pen, which enclosed an area about 8 feet by 8 feet... The interstices between the unhewn logs freely admitted the scorching rays of the sun then, as they now afford to the frequent rains and driving snow, and pinching frost. His feet had been frozen, and had perished; upon the shapeless stumps he could, aided by some motion of his shoulders, raise his body partially up the side of the pen.³

The patient's sister was probably unaware of, or could not afford, the care given the patients at the Pennsylvania Hospital, which represented one of the better hospital programs in America. The buildings in which the patients were housed were "more pleasant, were better heated and ventilated, and had better plumbing than the rooms of better than average homes in the city."⁴

Perhaps the success of Miss Dix would not have been as far reaching had it not been for the reports on hospital planning by Dr. Thomas Story Kirkbride. Miss Dix was the reporter to remind the American communities of the humane needs of the insane in the poorhouse, prison, home, and almshouse of the mid-nineteenth century. Dr. Kirkbride was the professional to present the accumulated thinking and experience of good hospital design as an answer to the needs of the States. The friendship that these two people had was one of cooperation in accomplishing good living conditions for the insane.
Dr. Kirkbride, one of the thirteen founders of the "Association of Medical Superintendents of American Institutions for the Insane" which was to become the contemporary "American Psychiatric Association," after serving on several committees of this association, became chairman of the committee: "On the Construction of Hospitals for the Insane." Through this capacity and his interest, Dr. Kirkbride developed from his observations and experience in the Pennsylvania Hospital a "hospital building Plan" and a "list of proposals." This was the basis for the most positive influence in mental hospital construction in the United States. Credit must be given to Dr. Isaac Ray, the medical-legal expert of his day, who aided in the "list of proposals" and to Samuel Sloan, the architect who transferred Kirkbride's experience and optimism into a building more successful in planning and detailing than many buildings to follow (Illustration I-C). Many of the buildings built in the forty-year period of activities of Miss Dix and Dr. Kirkbride are still serving the communities in modified form. However, the Kirkbride units, as they are called, that are still being used today are not of the original plan. In one of the state hospitals visited, it was observed that the walls of the original center corridor were removed to provide a large congregate dormitory sleeping fifty or more patients. In the original plan this
space was divided into smaller and more humane sleeping rooms. The "State Hospitals" that were built through Miss Dix's efforts and Dr. Kirkbride's reports represented the most effective building program for improving the care of the mental patient to that date.

In the past hundred years, progress in establishing standards for the "mental hospital building type" has not gone beyond that which was expressed in "Kirkbride's Proposals," except to discuss the programming of the relative merits of the cottage vs. congregate housing for patients. This period had no distinction in its buildings, but great progress was made in treatment.

Today "the methods of treatment developed in the field of mental disease are as advanced now as they are in the field of physical disease."5 This does not mean the problem is solved. We have given little thought to the needs of the patient - both in terms of facilities and the quality of his living quarters. The patient in continued treatment for a period of months or years requires an environment which is comparable in its development to the advanced techniques achieved in psychiatry and medicine. It is very difficult to find such an environment for patients in our existing hospitals. Dr. Earl Bond expressed a profound realization of our present hospital conditions with the state-
ment: "Miss Dix's successes are almost unbelievable, and it is nearly as incredible that the work she did has to be done all over again."
References


2. Read, C. S. The Hospital Treatment of Insanity, Encyclopedia Britannica Volume XII, 1943

3. Deutsch, A. The Mentally Ill in America Doubleday, Doran & Co., 1937

4. Bond, E. D. Dr. Kirkbride and His Mental Hospital Lippincott, 1947

5. Sullivan, D. M. The Hospital at 74 Fenwood Road Boston Psychopathic Hospital, 1949
SECTION II

THE MENTAL HOSPITAL TODAY
CONTENTS

FOREWARD

INTRODUCTION

A. INTERPERSONAL ENVIRONMENT

B. THE BUILDINGS
The visual image of the mental hospital is usually associated with child-like fantasies of horror. It is intended that this discussion will present to the architect a more objective realization of the mental hospital.
There are many reports stressing the abuses patients suffer in some of the mental hospitals of today. Unfortunately, these reports are too often true. But, their significance is obscured by the sensationalism of the material. In practice, the reports are responsible for hasty solutions which may or may not be to the benefit of the patient. The real value of such reports would be in the revelation of the need for an objective study of our present mental hospitals. Presented here is such an objective report - from an architect's point of view.

Because of the complex nature of mental illness and the patient's behavior due to the disease, the hospital program for care and treatment of the mentally ill on the state level* is of four types. (State hospitals are planned by hospital districts, and zoned to best serve the distribution of population within the state. See Chart II-A.)

* It is assumed that there is a change in the details of operating the state's mental health program. Here, the information is from observing the "hospital care phase" in Massachusetts's program (Dr. Jack R. Ewalt, Commissioner).
The hospital types include:

1. Hospitals for Intensive Treatment
2. Hospitals for Continued Treatment
3. Hospitals for Mental Defectives
4. Hospitals for Intensive Custodial Care

1. The intensive treatment hospital includes small hospitals and psychiatric sections in general hospitals, but is usually a department of the larger state hospital for the accelerated treatment of patients. Boston Psychopathic Hospital, Boston, Massachusetts, is an example of the small intensive treatment hospital where the concentrated efforts of many specialists are directed to a cure or improvement of the patient's condition in a limited time.* This entire program is the exception to state care; usually a hospital of such high caliber can only be established privately, as in the case of DePaul Sanitarium, New Orleans, Louisiana.

2. The continued treatment hospital for prolonged care of patients who do not respond to intensive treatment includes, as a part of the continued care and treatment, an intensive treatment department. The space housing the intensive treatment facilities may be a ward or a separate building, depending on the space available and the needs of the district. Examples of this kind of state hospital in Massachusetts are: Metropolitan State, Waltham; Boston State, Boston; and Taunton State, Taunton.

*This limited time is not to exceed six months.
3. The hospital program (school) for mental defectives is largely a custodial problem involving care, treatment, and educational facilities. An example of this type is Myles Standish State School, Taunton.

4. The fourth hospital program (popularly called farm) provides maximum security facilities for patients with serious behavior problems who are dangerous to the community of continued treatment patients in other state hospitals. Bridgewater State Hospital is an example of this type.

There are other facilities which are not included in the above listing that are vital to the community's mental health, namely outpatient departments of state hospitals and clinics, and the psychiatrists in private practice. Chart II-B illustrates the relation of all available facilities to the normal community. Mental health statistics show that 610,454\(^1\) patients were using the existing public hospital facilities in 1951. Dr. Stanley Colb\(^2\) estimated that three to five million persons with mental disease were living in communities, plus an additional six million who were borderline cases. This is further reason for improving the facilities within the communities and hospitals to combat mental disease.

This investigation is primarily concerned with hospitals for continued treatment. Because of the increased
FACILITIES RELATION TO THE COMMUNITY
ILLUSTRATION II-B

OUT PATIENT DEPTS. & CLINICS

PSYCHIATRIC SECTIONS IN GENERAL HOSPITALS

PRIVATE PRACTICE

THE COMMUNITY

INTENSIVE TREATMENT HOSPITAL
AND CONTINUED TREATMENT HOSPITAL

INTENSIVE CUSTODIAL HOSPITAL

PATIENTS, RELATIVES, FRIENDS AND STUDENTS, VOLUNTEERS INTERESTED IN THE PATIENTS
need for staff and space, over the years of operation psychiatrists have introduced to continued treatment the concept of the total push program, a method of treatment which effectively utilizes all variables in the patient's hospital environment. The success of the care and treatment of the patient, as expressed by the total push program, is dependent not only on traditional methods of treatment, but also on the total environment which consists of: first, the interpersonal environment (i.e., social life on the ward or nursing unit); and second, the buildings (i.e., patient's physical environment).
A. **INTERPERSONAL ENVIRONMENT**

Through the work of Dr. Robert Hyde, of the Boston Psychopathic Hospital, a better understanding of the relation of the patient to his hospital environment is obtained. The methods of objective study were applied to the observation of interpersonal relations of patients and personnel in spontaneous group situations found in ward living. The following table is the record of the personnel who interacted with none or more patients and the average number of patients interacted with by the personnel.³

<table>
<thead>
<tr>
<th>Personnel</th>
<th>Number</th>
<th>None</th>
<th>One</th>
<th>Two</th>
<th>Three or More</th>
<th>Total Pts.</th>
<th>Avg. No. Interacted</th>
</tr>
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<tbody>
<tr>
<td>Doctor</td>
<td>5</td>
<td>0</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>6</td>
<td>1.2</td>
</tr>
<tr>
<td>Nurse</td>
<td>26</td>
<td>6</td>
<td>8</td>
<td>4</td>
<td>8</td>
<td>44</td>
<td>1.7</td>
</tr>
<tr>
<td>Attendant</td>
<td>37</td>
<td>16</td>
<td>15</td>
<td>5</td>
<td>1</td>
<td>28</td>
<td>0.76*</td>
</tr>
<tr>
<td>Oc. Therapist</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>10</td>
<td>2.5</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>5</td>
<td>1.7</td>
</tr>
</tbody>
</table>

This information makes it possible for Dr. Hyde to clarify

*Average number of patients interacted with by attendant was .76; overall average of number of patients interacted with by other personnel was 1.77.*
what has been wrongly assumed:

that the attendants, thrown by reason of their duties into the closest contact with patients would interact with more patients than any other personnel group. Quite the opposite was the case, attendants interacted with fewer patients than any other group present.3

Perhaps this is an expression of the reaction to the pressure of working in a situation where the traditional relations of people are changed. For example, vulgar and aggressive patients make it difficult for the normal person to remember the concept of human dignity, a very important detail to remember in the design of the building. The environment should provide some place for the attendant to relax and reduce the tension from such pressures. Dr. Hyde further observed in his study that:

most of the social interchange appeared to center about games. In nine of the ten well socialized situations, there were games in progress in which from two to eight patients participated, with other patients watching the games.3

The radio and reading material, as other media of socialization, were found important to "stimulating conversation and contributing to a more wholesome ward atmosphere."3 Dr. Hyde's study was the basis for corrective changes at the Boston Psychopathic Hospital and justifies careful planning of recreation and living spaces to ensure socialization.

Vitally important to the realization of good hospital buildings is the understanding of the needs involved in the
present hospital. Such a study makes possible a basis for the decisions the architect is called upon to make in the design of buildings. In order to begin to understand the issues involved, it is necessary to review the needs of the people who are directly concerned with the care of the mentally ill:

The Administration, which is concerned with a constant pressure of reduced budgeting.

The Professional Staff, which is interested in improved design to reduce their effort in caring for the patient.

The Volunteer Staff, the optimistic persons from the community who want to introduce niceties into the hospital environment to insure the comfort of the patient.

The Patient's Relatives, who are most often inarticulate in their attitudes, but want what is expressed by all people concerned with this problem - a cure for the patient.

These needs are not just desires on the part of the groups listed, but necessities which must be dealt with, due to pressure from other sources - i.e., the administration is forced to work within a given budget.
B. THE BUILDINGS

In order to obtain the data to continue this investigation, it was necessary to visit over a period of four months - including both day and night operation - the existing hospitals and there observe the condition and operation of mental hospitals. The data collected during this intensive research was recorded on the forms in Illustration II-C which the investigator provided for this study. A complete record was made of the facilities of: Metropolitan State Hospital, Waltham, Massachusetts; and Boston Psychopathic Hospital, Boston Massachusetts. Limited records of observation were made of the following hospitals in Massachusetts: Boston State Hospital; Taunton State Hospital; and Brockton Veterans Administration Hospital; as well as of East Louisiana State Hospital, Jackson, Louisiana. It was found, after using data sheets A and B for a complete record of two hospitals, that the investigator by virtue of adoption and training could retain the qualities and disadvantages of the hospitals visited for limited observation. The informa-
ILLUSTRATION II-C

BEHAVIOR PATTERNS OF PATIENTS

DAILY SCHEDULE

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
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<tr>
<td>AM</td>
<td></td>
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<tr>
<td>PM</td>
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ACTIVITIES

<table>
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<th>Inter-Ward</th>
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<tbody>
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PATIENT'S FACILITIES

DINING

<table>
<thead>
<tr>
<th>Equipment</th>
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TREATMENT (TIME, SCHEDULE, & LOCATION)

<table>
<thead>
<tr>
<th>Time</th>
<th>Location</th>
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ATTENDANCE VIEWS & CRITICAL EQUIPMENT

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<th>Space</th>
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PATIENTS REMARKS

B.B./"O" = on ward, "F" = off ward

ILLUSTRATION II-C
tion from this research is presented throughout this report. The method of recording the conditions of the physical environment and what could improve them was vital to the preparation of this report and has been used as a basis for a more articulate design process to meet the needs of the hospital programs.

Before the particulars of the patient's environment can be discussed, it is important to observe the total mental hospital and its facilities. Illustrated in II-D is a site plan showing the relative facilities within an existing mental hospital - Metropolitan State Hospital - which, through the cooperation of Dr. McLaughlin was what could be considered the laboratory for the observation and testing of positive attitudes of design in a larger state hospital. The mental hospital is an extension of the community set aside for the protected care and treatment of the mentally ill. This presupposes the duplication of all facilities found within the city or community which are reasonably necessary to live a complete life. Unfortunately, in too many of our present state hospitals, the patients are denied such facilities as a chapel, personal storage space near the bed, and on-ward bathing facilities to use at will, to mention just a few. There are some changes according to hospital and staff, but it seems a universal ordinance that patients be denied the enjoyment of personal storage and the peace of
continued treatment group

garage

hen

max attendants home

administration

parking

nurses home

nurses office

parking

kitchen

dining

continued treatment group

laundry & shops

medical, etc.

auditorium

laboratory

ENTRY

METROPOLITAN STATE HOSPITAL CARE AND TREATMENT FACILITIES

ILLUSTRATION II-D
mind of a chapel environment for daily prayer. It is true that some patients are unable to use such facilities, but there are, on the other hand, many patients who would profit from such facilities (supported by Humensky and O'Brien). It is within the capacity of the architect, through programming and design, to include such necessary facilities and to rethink the importance of other facilities.

The physical environment of the existing mental hospitals as defined by the buildings is generally, if not always, the opposite to that which is best for the patient. The classic example of this was found to be the color "hospital green," claimed to rest the patient, which is most uncomfortable, if not harmful, to the schizophrenic because of the low reflective value of this color (measured helios 0.12 to 4.8 ft. lm.). In the past, the approach to building for the mentally ill was occasionally good. But these buildings now housing the patients are outdated and structurally deteriorated. For example, the plaster in one hospital visited, built in the 1930's, has aged to the extent that it is no longer capable of supporting the acoustic tile ceiling fastened to it. There are numerous examples of this ranging from moisture problems to settling foundations. As inadequate as these conditions may seem, they are aggravated by ineffective use of the available space.
It would be possible to improve, temporarily, the living quarters of the patients in structurally sound buildings by careful re-planning and judicious changes in some of the existing hospitals. However, the value and need of new construction should not be minimized. What is said here is in the spirit of temporary compromise to satisfy the economic issue and introduce a more humane living situation for the mental patient.

The mental hospital building of the last generation is not a satisfactory building in which to carry on a contemporary program of treatment. The patient is ill-housed and overcrowded. The Governor’s Committee to study the Massachusetts State Hospitals, reported an overcrowded condition in all state hospitals, with an average overcrowding of 23.77 per cent. The effects of overcrowding and ill-housing on the patients are evident when reviewing the spaces they are allowed for sleeping and day living in the continued treatment hospital program.

From 32 to 50 square feet per patient is allowed for beds and circulation in sleeping quarters which house thirty-two people. Space provides, in some instances, a clearance of less than one foot between beds. Many of the male patients, although it is against hospital rules, sleep in their clothes. This, coupled with the problems
of bed-wetting and poorly located or inadequate bathing facilities as well as lack of personnel, results in what is known as institutional odors. It is hardly necessary to discuss how obnoxious a space can become where such conditions are encountered in poorly ventilated living quarters. Sleep is all but impossible due to sagging and dirty beds, as well as the sounds and activities of restless patients milling around in such limited quarters (see Illustration II-E).

Most of the hospital is used for housing beds, and whatever available space is left over is used for day living and circulation. When the presently existing hospitals were planned, it seems that no thought was given to space for recreational activities for the patient. Thus we find that the average square footage allowed for on-ward recreation is approximately 7 to 18 square feet per patient. This figure includes all inter-ward circulation of the hospital, and quite often the space provided for recreation is nothing more than a converted corridor supplied with wall seating arrangements. This arrangement demands peripheral seating which, in itself, prohibits good ward socialization. Even more appalling than the quantity of space allowed for relaxation and recreation is the quality of this space (Illustration II-F). More often than not, it is dirty, poorly
SLEEPING SPACE

ILLUSTRATION II - E
LIVING SPACE

ILLUSTRATION XI - F
oriented for its use, overly confining, and technically poor for the treatment of the mentally ill (i.e., lighting, acoustics, ventilation, and organization of the space).

A strong relation was found between the destruction on the ward or nursing unit and the attendant's attitude and planned ward activities (Section II - Activities and Daily Schedule). For example, on one of the adjusted wards, when the television receiver was out for repairs or denied the patients for some reason, there were more windows broken. It is interesting to remember here that the suicide (the ultimate in destruction) in the hospital is often an expression of revenge to the attendant (no attendant wants a patient to die on his shift). Also, it is rare for a patient to commit suicide when he is occupied.* The following data is presented in the light of the above limitations of effect of personnel on destruction and should help the reader to get a better picture of what is likely to take place on a ward. The explanation of the ward or nursing unit classifications is presented in Section III.

---

*This information obtained from Dr. Hyde, of Boston Psychopathic Hospital.
<table>
<thead>
<tr>
<th>WARD</th>
<th>DESTRUCTION TO:</th>
<th>INJURIES</th>
<th>% ABLE TO USE KEY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BUILDING</td>
<td>FURNITURE</td>
<td>CLOTHING</td>
</tr>
<tr>
<td>Reception</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Open male</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Open female</td>
<td>None</td>
<td>Rare</td>
<td>Possible</td>
</tr>
<tr>
<td>Adjusted</td>
<td>Likely</td>
<td>Likely</td>
<td>Likely</td>
</tr>
<tr>
<td>Disturbed</td>
<td>Likely</td>
<td>Likely</td>
<td>Likely</td>
</tr>
<tr>
<td>Untidy</td>
<td>Likely</td>
<td>Likely</td>
<td>Likely</td>
</tr>
</tbody>
</table>

Explanation:

Building: Windows, walls, plumbing.

Furniture: Throwing, breaking, dismembering, using as weapons.

Clothing: Tearing, wetting, throwing out of windows.

*Injuries: In the male open ward, accidents are likely to happen by falling or slipping on a waxed floor. On the other hand, the female open ward falls are likely to occur because of pushing. The ladies are notorious for their pushing, shoving, etc. In the disturbed ward, injury is likely to happen by fighting. The seriousness of such fights can range from mild excitement to rage and, of course, there is the possibility of a fatality as in the case of one of the Massachusetts hospitals in the spring of 1954.

It is easily understood that such physical conditions have a negative effect on: socialization and rehabilitation of the mentally ill; and, attitudes of the personnel caring
for them. Thus we begin to see that the mental patient is improperly housed for a successful treatment program and that the humanitarian and economic considerations justify a comprehensive attack on the problems posed by mental illness.

The mental patient’s environment is very likely conducive to regression in his mental condition. The lack of facilities to practice his daily religious duties as he desires together with inadequate sleeping and recreational arrangements contributes to a provisional form of existence. Under these conditions, he is denied the traditional respect which is so valuable to the dignity of man.
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SECTION III

THE MENTAL PATIENT
CONTENTS

FOREWARD

INTRODUCTION

A. THE DISEASE

B. NATURE OF PATIENT'S BEHAVIOR

C. HOUSING QUALIFICATIONS

D. ACTIVITIES AND DAILY SCHEDULE

E. CONCLUSIONS
The basis for any improvement in the design of mental hospitals must come from an understanding of the people for whom the buildings are constructed – the mental patient.
Contrary to popular belief, the mental patient is not a person of blissful happiness in an escape from reality. Generalizations such as this have long justified the little consideration that the patient has received in the design of his living quarters. Care should be given to avoid the error of thinking of the patient as a man or woman without the capacity to experience from his environment. But, not all patients should be thought to profit from their environment to the same degree, a fact which has been established in hospitals with contemporary treatment programs. In any case, every patient should have the benefit of an optimistic environment, whether the patient is newly received to the hospital or a patient with serious custodial problems.

In reality, the patient is more often in a condition of disorientation and fear. In obtaining data for this report, this fact was observed by continued studies of on-ward patients in mental hospitals and discussion with workers who are in daily contact with the patient. The value of this information is that it provides for a positive approach to the design of the hospital environment, as discussed in Section IV - What Can The Architect Do?
A. THE DISEASE

There are many theories which contribute to the explanation of the disorientation of the patient. Many authorities believe that the incidence of mental disease is the result of the complexities of modern competitive society. It has been established that the pressures of society are a precipitating factor in mental illness, though constitutional factors should not be disregarded. The sociologists' concept of insanity, as presented by Eliot and Merrill, includes all persons "who are deranged, disorganized, and incapable of meeting the problems of life effectively, regardless of the etiology of the disease." Of course, this is unsatisfactory from the medical point of view, since it only implies the social inadequacy which is a result of a variety of mental diseases. It is beyond the capacity of this report to present a detailed classification of the diseases of the mental patient, but brief reference to the work of Doctörs Strecker, Ebaugh, and
Ewalt\textsuperscript{2} provides a relatively simple classification of mental diseases.

A. Organic Psychoses

\ldots all instances in which there is actual brain damage demonstrable, of which paresis and senile dementia would be examples.\textsuperscript{2}

B. Toxic Psychoses

\ldots consist of cases in which the abnormal mental phenomena were called forth in response to a toxic agent whether it is hypothetical or demonstrable. Delirium is a classic example of this group, whether it be due to exogenous agents like bromides, alcohol, or other drugs, acute infections and fevers, industrial poisons, etc., or to endogenous agents due to metabolic or endocrine disturbance.\textsuperscript{2}

C. Psychogenic Functional Psychoses

\ldots all psychoses in which constant organic and toxic factors have not been ascertained, as in the schizophrenic reaction types, manic-depressive reaction types and typically in the psychoneuroses and in a large segment of so-called psychosomatic disorders.\textsuperscript{2}

The simplicity of the above classification should not be misleading in its presentation of mental abnormalities.

The diagnosis of the patient's illness is, in reality, very difficult and requires the time of many professionals and technicians.
B. NATURE OF PATIENT'S BEHAVIOR

Reviewing two of the case histories as compiled by Miss Mary Dolan, Head Social Worker at Metropolitan State Hospital, will enable the reader to become acquainted with the real forces which contribute to the hospitalization of the mentally ill. These histories also show that the housing of patients in the hospital depends more on the behavior of the patient than on the psychiatric diagnosis.

Patient "A"

Family history of a woman thirty-five years of age at the time of admission to the hospital is negative for nervous and mental illness. Parents were of middle class economic status, conscientious in providing for the needs of their family, and participating to some degree in community activities. Four brothers and one sister, all older than the patient, are all described as well adjusted people.

Patient's early developmental and childhood history were uneventful. Patient was active and played normally with a mixed group of other children, was described by one informant as "bright as a button." In school patient was a good student, and completed two years of secretarial training following high school graduation. As an adult, patient
is described as being of good intellectual ability, good moral standards and ideals, honest, thoughtful and conscientious. She was somewhat shy and sensitive, would feel badly over any mistake she might make, was inclined to underrate herself. She had numerous friends, with whom she got along well; took an active part in church activities; enjoyed social affairs. In general, she was very well liked, was described as sympathetic, thoughtful and kind.

At the age of twenty-three the patient married a youth her own age, whom she had known since childhood. From the start there were several areas of stress in the marital situation. The couple was married during a period of widespread economic depression and income was limited. Patient's husband was described as somewhat less refined and sensitive than patient, rather self-centered, not demonstrative or affectionate, and it was felt that she missed the affection and security that she had received as the youngest member of her family group. Also, patient's first child was sickly from birth, at an early age developed asthma, and had several hospitalizations for serious medical and surgical reasons during his childhood. Financially and emotionally this was a great strain, and patient's husband took a seafaring job which gave him better income but also required his being away from home a great deal of time. A second child was born eight years after the first and was, for the most part, a healthy child, but the task of having two young children to care for alone, inasmuch as her husband was away most of the time, necessitated patient's staying at home practically all the time and gradually giving up all social contacts.

When the second child was almost two years old it was noticed that patient became increasingly anxious regarding her household responsibility, seemed to have difficulty getting all her chores done and in disciplining the children and became very tense and emotionally upset over trivial incidents. There was a question of a "Peeping Tom" in the neighborhood, and this made patient very fearful and relatives had to stay with her. For several months prior to her hospitalization she began to misinterpret the remarks people made, and gradually developed definite delusions, felt that neighbors were accusing her of being unfaithful to her husband, that people were plotting against her, and so forth. When the second child was a little over two years of age, patient tied a rope around its neck, and drowned it in the bathtub; stated that she did this to protect the child from the awful plots that were being made to harm her. Psychiatric hospi-
talization was advised, and after a period of observation a diagnosis of "Dementia Praecox, Paranoid Type," was made and the patient was regularly committed to the hospital.

During her entire hospital stay, patient has been cooperative to hospital routine, has been pleasant but somewhat seclusive in her contacts with other patients. She has shown a consistent interest in her personal appearance, always appears well groomed. Following her stay on the Admission Ward she was moved to a ward with patients whose general behavior was quiet and cooperative, and she was assigned to work in one of the hospital's industries - the Cafeteria. Patient accepted the routine outlined for her well, was always prompt at being at the appointed spot to be picked up by the industrial employee, was able to concentrate on her assigned duties in the Cafeteria. She was encouraged to go to Occupational Therapy Classes during her free time, attended church services, would willingly go to such social functions as movies and dances if asked to by ward personnel, but showed no initiative in attending these functions. The patient routinely performed such ward chores as making her bed, keeping her locker tidy, was never known to be involved in any argument or difficulty with other patients. After several months, on the initiative of ward personnel, patient was suggested for ground privileges, which were granted, and she now resides on a ward where patients have the freedom of the grounds, have little supervision from ward personnel, and assume most of the responsibility for ward housecleaning and management themselves. She is very punctual about reporting to her assigned duties each day, and in her spare time, in pleasant weather, can generally be found sitting out of doors quite apart from other patients but within the prescribed geographical limits, and in inclement weather sits in the same spot on the ward, apparently paying no attention to the activities of others about her, and generally employed with some hand work. She is pleasant and in good contact when spoken to, takes good care of her person and belongings, lives by the same routine day after day, and never comes in conflict with any hospital regulations.

Recent mental examination indicates the following thought content: Patient states that Mr. and Mrs. Blank are not her real parents, that her real father is a very prominent, wealthy inventor. She describes feeling electric currents going through her head, and that she is somewhat involved and responsible for present world conflicts. She stated that she has died and come back to life many times, that she has been used as a substitute for other girls
hundreds of times. She misidentifies people, stating that various persons around the hospital are really other people who are sent here to spy upon her. The patient showed no response to several courses of shock therapy as well as a course of subcoma insulin. In general, she has many paranoid, persecutory delusions, is very bland in emotional affect, and her pattern of adjustment which is to not try to do anything about these ideas makes it possible for her to reside on the most open ward of the hospital.

Patient "B"

Family history of a woman thirty-four years of age at the time of her admission indicates no nervous or mental illness, but excessive use of alcohol at times on the part of the father, a divorce of parents when patient was quite young, and the presence of a step-father, who treated her well. Mother was described as "a superficial person with little love to offer her children."

Childhood is described as having been normal, and at an early age patient developed an interest in music, following her graduation from high school attended a State University for two years, working towards a degree in music. Prior to her illness, patient was described as being very sociable and gay, had many friends, was an optimistic and cheerful person. She was married at the age of twenty-two and there was much conflict during the marriage, which ended in divorce in 1945, presumably over the patient's carefree attitude toward domestic responsibility, both in regard to household chores and the care of the couple's daughter. The marriage had endured for thirteen years, when the husband secured a divorce and custody of the child.

Apparently this was a situation patient could not readily accept, and she started to tell people that her ex-husband had kidnapped the child. She became preoccupied with the idea that the child was taken from her, gradually extended this to other abnormal ideas. She stated that people were out to persecute her, that people of a mysterious identity were out to rob her of her child, began to suspect that taxi drivers, communists, and others formed a spy ring, working against her. She repeatedly telephoned the police in an attempt to have them find a man with a camera, whom she stated was trying to get pictures of her indulging in immoral behavior. To escape her tormentors, she gave up her home and moved to various areas of the country, but wherever she went she imagined that people
were looking at her strangely and were plotting against her, would pack up and move at all odd hours, without any specific destination, to get rid of her tormentors.

Her admission to this hospital came about when she came to her grandmother's home in this area and called the police several times, stating that she was afraid to go out because every taxi driver was a member of a gang that was spying on her, and that taxis were waiting outside the house to watch her should she go out. She sent telegrams and wrote long letters to the police and political figures, begging their intervention.

During the early part of her hospital stay, while on the Admission Ward, patient freely expressed her abnormal ideas, stated that many people are against her, that cars going by have machines and people in them to spy on her through the windows. She decided that doctors and nurses were part of the spy ring and behaved in a very hostile manner toward them. She was very demanding of special privileges, was insistent that she does not belong in this hospital, that she is different from the other patients who are sick, and that her being here is part of the plot. At the end of her observation period a diagnosis of "Dementia Praecox, Paranoid Type," was made, and regular commitment was recommended and carried out.

As patient stayed in the hospital, she became increasingly more difficult, she was more insistent about being released, stood at the entrance door of the ward, attempted to get out of the door whenever any personnel opened it, and was extremely resistive and at times assaultive when attempts were made to stop her. There was no favorable response to electric shock treatment, and attempts at psychotherapy and other means of interpretation to patient were to no avail. Inasmuch as several people were required at a time to prevent her exit through doors when they were opened, it was necessary to transfer patient to the ward for disturbed patients. This is the only ward which has sufficient personnel on duty to ensure patients' staying on the ward.

During her hospital stay, patient has become increasingly more preoccupied with her delusions of persecution, has extended these ideas to the extent of believing that airplanes which fly by are messengers coming to rescue her. She denies her own name at the present time, stated that she is of British Royal Blood. She thinks that nearly all the people in her environment have some purpose in spying on her, and is so preoccupied with trying to watch every
move of everybody that she is not able to pay attention to her own personal appearance. She thinks that certain articles of clothing have special significance, at times will insist on wearing quite bedraggled garments and appearing rather unkempt. At times she refuses to bathe and dress or to have her hair combed or comb it herself. She often annoys other patients by snatching a magazine or some article of clothing from them which appeals to her and which she states belongs to her. She has managed to escape from the hospital on a few occasions, has gone to police asking for protection from her tormentors, and on one occasion managed to reach an airport, where she was attempting to board a plane for England. She still needs very close supervision to prevent these attempts at escape. It is not possible to take her to hospital activities off the ward, such as Occupational Therapy, movies, religious services, and so forth. Certain diversional activities are provided on the ward, such as movies, television, games, etc., but patient cannot be induced to participate in any of these because she misinterprets the purpose and because she is so preoccupied with trying to watch other people to guard herself against their supposedly harmful attempts toward her.

Patients "A" and "B" each had similar abnormal symptomology and the same psychiatric diagnosis, Dementia Praecox, now known as schizophrenia. However, the adjustment to their illness was so different that each required a different hospital living arrangement. Patient "A" was able, through her adjustment, to live on the most open ward, while in the case of Patient "B", it was necessary for her to be housed on the disturbed ward. These patients, like thousands of others, were hospitalized because of their inability to live successfully within the community. However, there is a danger found in prolonged hospitalization of the patient - what is termed "institutionalized." This is
simply an inability, on the part of the patient, to live successfully away from the hospital environment, though the patient seems to be cured and capable of living within a normal group.
C. HOUSING CLASSIFICATIONS

As we have seen in the above discussion, the housing classification is dependent upon the adjustment of the patient to his illness. In the past, hospitals have found it practical to organize the following living quarters for patients, depending on their ability to live successfully within a group of patients with similar behavior patterns.

<table>
<thead>
<tr>
<th>GROUP A AUTOMATIC</th>
<th>GROUP B BEHAVIORISTIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Reception</td>
<td>A. Open Ward</td>
</tr>
<tr>
<td>B. Tuberculosis Ward</td>
<td>B. Adjusted Ward</td>
</tr>
<tr>
<td>C. Geriatric Ward</td>
<td>C. Disturbed Ward</td>
</tr>
<tr>
<td>D. Medical Ward</td>
<td>D. Untidy Ward</td>
</tr>
</tbody>
</table>

Group A includes all patients, as the classification indicates: patients who are new to the hospital program; psychotics with tuberculosis; patients from the other classifications who are in need of medical or surgical treatment; and, the geriatrics whose classification is more often by disease than by behavior.
Under Group B, as the title indicates, the patients are classified by behavior. The Open Ward includes patients who are capable of having relative freedom of the institution. The Adjusted Ward is an intermediate category which provides security for possible runaways and behavior problems not included in the Disturbed Ward or the Untidy Ward. This group is the largest, and consequently there are many divisions within this classification, ranging from the deteriorated patients from the Disturbed Ward - who are no longer aggressive - to patients not yet ready for parole or discharge. The Disturbed Ward, often referred to as the "hell" or "back" ward of the hospital, houses patients who require intensive custodial care. The criminally insane constitute the only group requiring more secure facilities. The Untidy Ward, the second of the "back" wards, is the environment for patients who are incontinent and require assistance with toileting, bathing, and every phase of personal hygiene.
D. ACTIVITIES AND DAILY SCHEDULE

The following material is not valid as a statistical average. It represents an intensive study of a hospital of less than 2,000 patients in continued treatment. However, it was found that when the patient population increased and was not accompanied by sufficient personnel and adequate programming of patient help (The total push program utilizes patients capable of accepting responsibility in caring for other patients: 1) to supplement the regular staff; and, 2) to aid in their own rehabilitation), the activities of the hospital in terms of its recreation, industry, treatment, and inter-ward activities were lessened.
### ACTIVITIES BY WARD

<table>
<thead>
<tr>
<th>WARD</th>
<th>RECREATION</th>
<th>INDUSTRY</th>
<th>TREATMENT</th>
<th>INTER-WARD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reception</td>
<td>TV/radio Conversation</td>
<td>None</td>
<td>Observation</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Cards &amp; games Reading</td>
<td></td>
<td>Medical Tests</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Gen. Exams</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>OT*</td>
<td></td>
</tr>
<tr>
<td>Intensive Treatment</td>
<td>TV/radio Conversation</td>
<td>Gen. labor</td>
<td>Elec. shock</td>
<td>Chapel</td>
</tr>
<tr>
<td></td>
<td>Cards &amp; games Reading</td>
<td>Laundry</td>
<td>Insulin</td>
<td>Industry</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ward Work</td>
<td>Psychotherapy</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Group therapy</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Gen. Medical</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>OT*</td>
<td></td>
</tr>
<tr>
<td>Open and Parole (Freedom of hospital)</td>
<td>TV/radio Conversation</td>
<td>Laundry</td>
<td>OT/rest*</td>
<td>Chapel</td>
</tr>
<tr>
<td></td>
<td>Cards &amp; games Reading</td>
<td>Clothing</td>
<td>Medical</td>
<td>Movies</td>
</tr>
<tr>
<td></td>
<td>Reading Pool</td>
<td>Gen. labor</td>
<td>**</td>
<td>Dancing</td>
</tr>
<tr>
<td></td>
<td>Sports Dancing</td>
<td>Kitchen</td>
<td></td>
<td>Sports</td>
</tr>
<tr>
<td></td>
<td>Movies</td>
<td>Cafeteria</td>
<td></td>
<td>Industry</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ward work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted (Limited freedom of hospital)</td>
<td>TV/radio Conversation</td>
<td>Gen. repair</td>
<td>OT/rest*</td>
<td>Chapel</td>
</tr>
<tr>
<td></td>
<td>Cards &amp; games Reading</td>
<td>Laundry</td>
<td>Medical</td>
<td>Movies</td>
</tr>
<tr>
<td></td>
<td>Reading Sports</td>
<td>Kitchen</td>
<td>**</td>
<td>Dancing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Clothing</td>
<td></td>
<td>Sports</td>
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<tr>
<td></td>
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<td>Cafeteria</td>
<td></td>
<td>Industry</td>
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<tr>
<td></td>
<td></td>
<td>Ward work</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Gen. labor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disturbed</td>
<td>TV/radio Ward parties</td>
<td>Ward work</td>
<td>OT/rest*</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Ward movies</td>
<td></td>
<td>Medical</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ward dances/OT*</td>
<td></td>
<td>**</td>
<td></td>
</tr>
<tr>
<td>Untidy</td>
<td>Ward Parties</td>
<td>None</td>
<td>Medical</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Ward Exercise</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TV/radio</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Occupational Therapy **Other therapy as individually required: electric shock, insulin, psychotherapy, group therapy.
### DAILY SCHEDULE BY WARDS

#### RECEPTION WARD

- **14 patients**
  - 1 attendant
  - 2 student nurses
  - 1 graduate nurse

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.m.</td>
<td>5 Asleep</td>
</tr>
<tr>
<td></td>
<td>6 Awake</td>
</tr>
<tr>
<td></td>
<td>7 Breakfast/ on ward</td>
</tr>
<tr>
<td></td>
<td>8:30 TV &amp; recreation/ on ward</td>
</tr>
<tr>
<td></td>
<td>9 TV &amp; recreation/ on ward</td>
</tr>
<tr>
<td></td>
<td>10 TV &amp; recreation/ on ward</td>
</tr>
<tr>
<td></td>
<td>11 Lunch/ on ward</td>
</tr>
<tr>
<td>Noon</td>
<td>Lunch and rest/ on ward</td>
</tr>
<tr>
<td>p.m.</td>
<td>1 Rest and OT/ on ward</td>
</tr>
<tr>
<td></td>
<td>2 Rest and OT/ on ward</td>
</tr>
</tbody>
</table>

#### INTENSIVE TREATMENT WARD

- **36 patients**
  - 1 attendant
  - 2 student nurses
  - 1 graduate nurse

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.m.</td>
<td>5 Asleep</td>
</tr>
<tr>
<td></td>
<td>6 Awake</td>
</tr>
<tr>
<td></td>
<td>7 Breakfast</td>
</tr>
<tr>
<td></td>
<td>8:30 OT/ industry/ therapy</td>
</tr>
<tr>
<td></td>
<td>9 OT/ industry/ therapy</td>
</tr>
<tr>
<td></td>
<td>10 OT/ industry/ therapy</td>
</tr>
<tr>
<td>Noon</td>
<td>Lunch</td>
</tr>
<tr>
<td>p.m.</td>
<td>1 OT/ industry/ therapy</td>
</tr>
<tr>
<td></td>
<td>2 OT/ industry/ therapy</td>
</tr>
</tbody>
</table>
### OPEN WARD

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.m.</td>
<td>Asleep</td>
<td>3:00</td>
<td>Recreation or industry</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>4:30</td>
<td>Dinner</td>
</tr>
<tr>
<td>6:30</td>
<td>Awake</td>
<td>5</td>
<td>Back to ward</td>
</tr>
<tr>
<td>7</td>
<td>Breakfast</td>
<td>6</td>
<td>Recreation/inter-ward</td>
</tr>
<tr>
<td>8</td>
<td>Recreation or industry</td>
<td>7</td>
<td>Recreation/inter-ward</td>
</tr>
<tr>
<td>9</td>
<td>Recreation or industry</td>
<td>8</td>
<td>Recreation/inter-ward</td>
</tr>
<tr>
<td>10</td>
<td>Recreation or industry</td>
<td>9</td>
<td>Recreation/inter-ward</td>
</tr>
<tr>
<td>11:30</td>
<td>Lunch</td>
<td>10</td>
<td>Recreation/inter-ward</td>
</tr>
<tr>
<td>Noon</td>
<td>Lunch</td>
<td>11</td>
<td>Lights out; TV possible</td>
</tr>
<tr>
<td>p.m.</td>
<td>Recreation or industry</td>
<td>11</td>
<td>Lights out; TV possible</td>
</tr>
<tr>
<td>2</td>
<td>Recreation or industry</td>
<td>12</td>
<td>To bed</td>
</tr>
</tbody>
</table>

### ADJUSTED WARD

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.m.</td>
<td>Asleep</td>
<td>3:00</td>
<td>TV, conversation</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>4:30</td>
<td>Dinner</td>
</tr>
<tr>
<td>6</td>
<td>Some awake</td>
<td>5</td>
<td>TV/recreation/inter-ward</td>
</tr>
<tr>
<td>7</td>
<td>All awake</td>
<td>6</td>
<td>TV/recreation/inter-ward</td>
</tr>
<tr>
<td>8</td>
<td>Breakfast</td>
<td>7</td>
<td>TV/recreation/inter-ward</td>
</tr>
<tr>
<td>9</td>
<td>2/3 to industry</td>
<td>8</td>
<td>TV/recreation/inter-ward</td>
</tr>
<tr>
<td>10</td>
<td>OT/recreation/industry</td>
<td>9</td>
<td>TV/recreation/inter-ward</td>
</tr>
<tr>
<td>11:30</td>
<td>Lunch</td>
<td>10</td>
<td>Lights out; TV possible</td>
</tr>
<tr>
<td>Noon</td>
<td>Lunch</td>
<td>11</td>
<td>TV and rest/on ward</td>
</tr>
<tr>
<td>p.m.</td>
<td>OT/recreation/industry</td>
<td>11</td>
<td>TV and rest/on ward</td>
</tr>
<tr>
<td>2</td>
<td>OT/recreation/industry</td>
<td>12</td>
<td>To bed</td>
</tr>
</tbody>
</table>
**DISTURBED WARD**

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.m.</td>
<td>5 Few awake</td>
<td>3 1/3 to OT - 2/3 on ward</td>
</tr>
<tr>
<td></td>
<td>6 All awake</td>
<td>4:30 Dinner</td>
</tr>
<tr>
<td></td>
<td>7 Breakfast/on ward</td>
<td>5 Dinner/on ward</td>
</tr>
<tr>
<td></td>
<td>8 1/3 to OT - 2/3 on ward</td>
<td>6 On ward</td>
</tr>
<tr>
<td></td>
<td>9 1/3 to OT - 2/3 on ward</td>
<td>7 TV &amp; recreation/on ward</td>
</tr>
<tr>
<td></td>
<td>10 1/3 to OT - 2/3 on ward</td>
<td>8 TV &amp; recreation/on ward</td>
</tr>
<tr>
<td></td>
<td>11:30 Lunch/on ward</td>
<td>9 TV &amp; recreation/on ward</td>
</tr>
<tr>
<td>Noon</td>
<td>Lunch/on ward</td>
<td>10 TV &amp; recreation/on ward</td>
</tr>
<tr>
<td>p.m.</td>
<td>1 1/3 to OT - 2/3 on ward</td>
<td>11:30 To bed when ready</td>
</tr>
<tr>
<td></td>
<td>2 1/3 to OT - 2/3 on ward</td>
<td>12 Lights out</td>
</tr>
</tbody>
</table>

**UNTIDY WARD**

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.m.</td>
<td>5:30 All awake</td>
<td>3 Recreation/on ward</td>
</tr>
<tr>
<td></td>
<td>6 Showers*, etc.</td>
<td>4 Recreation/on ward</td>
</tr>
<tr>
<td></td>
<td>7 Showers, etc.</td>
<td>5 Dinner - 1/3 on ward</td>
</tr>
<tr>
<td></td>
<td>8 Breakfast - 1/3 on ward</td>
<td>6 On ward</td>
</tr>
<tr>
<td></td>
<td>9 Recreation/on ward</td>
<td>7:30 In bed</td>
</tr>
<tr>
<td></td>
<td>10 Recreation/on ward</td>
<td>8 Few to movies &amp; dances</td>
</tr>
<tr>
<td></td>
<td>11 Recreation/on ward</td>
<td>9 Few to movies &amp; dances</td>
</tr>
<tr>
<td>Noon</td>
<td>30 Lunch - 1/3 on ward</td>
<td>10 Few to movies &amp; dances</td>
</tr>
<tr>
<td>p.m.</td>
<td>1 Recreation/on ward</td>
<td>11 Toileted</td>
</tr>
<tr>
<td></td>
<td>2 Exercise/on ward</td>
<td>12 In bed</td>
</tr>
</tbody>
</table>

*Toilet every 1½ hours.*
Recorded along with the daily schedule is an indication of the ratio of patients to attendants and nurses (as required). Here, again, is the condition which is constantly being encountered in investigating the mental hospital building type — another variable. The number of patients an attendant can successfully care for depends on his ingenuity and the patient's behavior pattern. Thus, in answer to the question which is so vital to architects — What is the ideal number of patients to a nursing unit or ward? There is no quantitative answer; Dr. Hyde suggests this to be an interesting research program. For our design purposes, we can consider an answer of approximately six to eight for a sleeping room, which becomes a part of a group of sleeping rooms and living facilities grouped together to make a nursing unit. The figure six to eight comes from the ideal number of patients for group psychotherapy, so that every patient has an opportunity to have his say. This figure is further supported by research of existing hospitals where it was found that larger sleeping groups were unsatisfactory because of the restlessness of the patients.
E. CONCLUSIONS

The mental patient is an individual with preferences and feelings which must be considered in his care and treatment. However, we need much more information as to what conditions of environment make a positive contribution to the patient's individualities and preferences.

In considering the housing classification in the present arrangement, the character of the ward is determined not by the lowest common denominator in behavior but by the most degenerate behavior. This argues for a greater variety of divisions within a behavioristic category. Perhaps it would be possible to develop a character of group supervision where the attitudes of the group alter the behavior of the individual.
References

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   Social Disorganization  
   Harper & Bros., New York, 1950

2. Strecker, Ebaugh & Ewalt  
   Practical Clinical Psychiatry  
   The Blakiston Company, Philadelphia, 1951

3. Dolan, Mary  
   Metropolitan State Hospital Case Histories, Boston, Mass. 1954
SECTION IV

WHAT CAN THE ARCHITECT DO?
... a general education is put together like one body from its members. So those who are trained in various studies recognise the same characters in all the arts and see the intercommunication of all the disciplines. 

Vitruvius
"On Architecture"
The architect need not justify or question his value in the group of professionals working to combat mental illness. This has been done by the professionals who staff the hospitals—the psychiatrists. Dr. Kirkbride, the exception in the age of the rugged individual, saw the need of a collaboration between architect and psychiatrist. In our contemporary society, the need for this cooperation is intensified to demand an even more active participation of the architect. It was observed in beginning this study that the architect was welcomed with eagerness by the superintendent and the staff, anxious to cooperate in showing him the issues involved in operating a mental hospital. This spirit was expressed by many of the superintendents and staff members of the hospitals visited. But, it was especially made clear by Dr. McLaughlin of the Metropolitan State Hospital, and Dr. Solomon and Dr. Hyde, both of the Boston Psychopathic Hospital in Boston, Massachusetts. It appeared that this cooperation was based on the realization that the architect, through the process of design, can not only improve
spaces for the care of the patient and the efficiency and mobility of the staff, but also can aid in the treatment of the patient by understanding his capacity in the total push program. That is to say, it is within the scope of architecture to control the physical environment of the patient, and thus aid in the treatment of the mentally ill.

There are many difficulties facing the architect in the design of the patient's physical environment. Understanding the problems of operating a mental hospital program from the viewpoint of the administration, the superintendent, the staff, the patient, and the patient's relatives, demands a great deal of time. Paralleling this is the necessity that the architect be familiar with the use and value of spaces in existing hospitals. Then, there are the technical difficulties found in the need for information regarding the patient's relation to his physical surroundings. Perhaps the most formidable difficulty to the design of good hospitals is the attitude of the architect approaching the problem; he is very often mystified by the complexities of the operation of the hospital and the new situation of contact with the uninhibited mental patient. This creates in the architect a very receptive attitude to the staff's ideas of design. At this point, the value of the architect is distorted by ineffective communication due to differences in terminology; both the architect and the staff are at fault. This should
not discredit the valuable information that is available from the staff; it should serve as a reason for the architect to become aware of these difficulties and to learn enough of the problem to ask the necessary question that insure a successful building which answers the needs of the mental patient.

The architect can begin his services to the mental patient by designing the hospital environment so that it locates the patient in space. In other words, by coding the patient's hospital surroundings the patient is less confused in understanding his present location in the hospital and his relative location to the components which make up the nursing unit or ward. Then, of course, there would be clarity of direction within the hospital, the natural result of such coding. To be successful, the system of coding must come from the integrated design process. The elements of design which promise the most interesting possibilities are the surface finishes and the interrelation of spaces.

An even greater contribution than the reorganization of the mental patient in his space comes from the observation of the patient's need for contact with physical reality. It seems to be possible to make contact with the patient through the control of his physical surroundings as realities to the technical aspects of the environment. For
example, the control of light, sound, temperature, odors, and visual and physiological structuring of space, which define the patient's daily living surroundings, would be the means of inducing the patient to participate in his environment. Dr. Hyde gave an interesting support for this concept in a behavioristic definition of the mental patient as a person who no longer wants to participate in competitive life. This does not mean it is desirable for all patients to be induced to participate in the same way in their environment. Perhaps a better way to express this concept is to consider two extremes in the relation of the patient to his physical surroundings; the first patient who is excited and aggressive in his psychosis (the over-reactive\(^1\)), may be induced to be less active by reduced stimulation from his physical surroundings, whereas the second patient, quiet and retiring (the under-reactive\(^1\)), may be induced to be more outgoing by increased stimulation from his surroundings.* This is conditioned by the needs of certain patients who, because of their disease, require the full impetus of the physical environment in order that their senses of sight and hearing function. The schizo-

* This idea was developed by discussion with Dr. McLaughlin (Metropolitan State Hospital) during intensive study of a positive approach to the design process.
phrenic is one such example of a patient who has difficulty in using the available energy in the sense of seeing and hearing. This, of course, necessitates an approach which should at no time reduce the patient's primary physical surroundings to a muted reality. The value of this lies in the positive design approach for a controlled variety of space within the mental hospital which is introduced to the patient in the normal use of the buildings - either in going to or from his treatment or in the patient's living surroundings within the nursing unit or ward. This, of course, includes the consideration of the outdoor spaces as well.

The architect is aware of the nature and control of the technical aspects which define the building and has a working knowledge of the effects of these stimuli on the human organism. Traditional to the profession of architecture is the systematizing of man's environment to create order through the manipulation of space. Illustration IV-A³ presents, without the necessity of re-education, the importance of this spacial organization. Though this need is not peculiar to the mental hospital, it is vital to such an institution as a means of assisting in the rehabilitation of the patient.

The total services the architect, in the normal practice of his profession, can give the client have not
spatial organisation is the vital factor in an optical message

spatial organisation is the vital factor in an optical message

Language of Vision
Gyorgy Kepes

ILLUSTRATION IV-A
not been discussed - that is, the total design process from the programming of facilities to the completed building, ready for occupancy. The extensive nature of such a discussion is beyond the scope of this report. Thus, only the services the architect can specifically bring to the mental hospital were presented in this section (i.e., 1. coding of the patient's environment; and 2. contact with reality through physical environmental stimuli). The method of bringing about this concept is dependent upon the ingenuity and fresh thinking with which the architect approaches the total design process - a characteristic of our building approach.
References

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   Borderlands of Psychiatry
   Harvard Univ. Press, Cambridge, 1948

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   Lighting Seminar
   Mass. Inst. of Tech., 1953

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   Language of Vision
   Paul Theobald, Chicago, 1951
SECTION V

ACOUSTICS IN THE MENTAL HOSPITAL
CONTENTS

FOREWORD

A. THE INFLUENCE OF SOUND ON THE MENTAL PATIENT

B. ACOUSTIC REQUIREMENTS FOR A THERAPEUTIC ENVIRONMENT
   Control of Noise
   The Site
   Spaces for Living
   Spaces for Treatment
   Spaces for Circulation
Today in the design of mental hospitals one frequently hears the term "Environmental Therapy." But there is little information as to what conditions of environment contribute to the realization of this idea. The following study was conducted for the purpose of observing the needs and making recommendations on acoustic aspects in the design of a therapeutic environment.
A. THE INFLUENCE OF SOUND ON THE MENTAL PATIENT

There are many generalizations made as to the effect of noise on the health of the public. For example, it is said that noise is filling our mental hospitals,\textsuperscript{1} and that noise has caused a decline in the birth rate.\textsuperscript{2} But with information such as this it is impossible to arrive at any satisfactory specifications for the design of a physical environment for mental patients. It is equally difficult to find evidence in the literature as to the effect of noise on the behavior of the mentally ill.

The influences in which we are most interested are limited to physiological and psychological responses to familiar sounds of intermittent noise such as the sounds from flushing water closets or people speaking, and to unfamiliar sounds of unexpected or disturbing stimulus such as the sounds from a loud bell. Dr. Bolt and Dr. Newman report that the "physiological effects occur above 60 or 70 decibels sound level, and the deleterious effects of
of such noises increase with higher noise levels." The psychological effects occur on any level of sound intensity: the only requirement is that the hearing mechanism must receive an audible signal. The third influence of noise, damage to the hearing mechanism, occurs above 120 decibels, and is not within the scope of this study.

The importance of sounds in the life of the mentally ill can now be approached with this basic knowledge of sound intensity limits and their influence on normal people.

The mental patient is physiologically aware of his acoustic environment. Evidence of this is presented in Chart V-A, which is the result of a pilot test of six male and female patients, conducted with the cooperation of the staff of the Metropolitan State Hospital, Waltham, Massachusetts. The experiment was to observe the change in systolic pressure and recovery time to normal pressure for sounds caused by the movement of a chair and for unfamiliar sounds developed by a bell. This pilot experiment was limited by the number of patients tested, and should be reviewed as an opportunity to observe the mental patient's awareness of his acoustical surroundings. The results should not be the basis for argument in favor of the removal of all sounds from the life of the people in mental hospitals, because of the increase in pressure being a demand on the
Physiological response to auditory stimulus in mental patients

Auditory stimulus "I" was the sound of a draped chair, and stimulus "II" was the sound of an electric bell for the duration of 15 seconds.
system of the patient. Dr. McLaughlin, Superintendent of the Metropolitan State Hospital, observed that if mental patients lived in an environment with no sounds, their mental condition would degenerate. The change in pressure may very well be a part of the means nature has to prevent vegetation of the human organism. In order to appreciate the order of magnitude of pressure change due to sound stimulus, we should remember that the increased systolic pressure caused by audio stimulation in mental patients tested varied 4 to 8 mm of hg, depending on the nature of the sound, its intensity, and the person tested. The result of this experiment is successful in pointing out that the mentally ill can be conscious of their environment.

An interesting accident occurred during the test which pointed out the psychological effect of an attendant's keys on the patient. While waiting for his pressure to return to normal the patient heard the sound of keys, which reaction was evidenced in the pressure increase of 4 mm of hg above normal.

The behavior pattern of patients is sometimes very much affected by the stimulus of noise, as Dr. McLaughlin indicated after observing that some adult patients are unsuited to work in the children's unit because of their
annoyance by the noise of children. It is a more common experience with people working within the mental hospital to observe one disturbed patient excite a large percentage of his fellow patients who happen to be near. Perhaps this is a clear example of evidence that one nervous system may react upon another, which psychiatry labels interpersonal relations. The psychiatrist who feels this importance is no longer interested in a single nervous system, but in the effect of one man upon another and upon many, or vice versa.\(^4\) The building becomes more important as a control in interpersonal relations. This is a new aspect in the design of hospitals for the mentally ill. The architect must meet this challenge.

**CONCLUSIONS**

It is possible that the mental patient responds to the limits of annoyance in the same way as normal persons (See Chart V-B). But sound is much more important to the mental patient in that it is one of the few remaining contacts the patient has with the reality of being. For this reason it is important that careful consideration should be given to the nature of sounds to which mental patients are exposed.
CHART "B" 3

QUALITATIVE ZONES OF RELATIVE COMFORT IN RESIDENTIAL ROOMS

MAXIMUM COMFORT

BACKGROUND NOISE LEVEL IN DECIBELS

REVERBERATION TIME IN SECONDS

Outer zone is generally uncomfortable or annoying for normal living. Inner zone of maximum comfort also gives optimum conditions for ease and intelligibility of conversation. Contour numbers give per cent of speech sounds correctly heard under average conversation conditions.

From: Bolt, Beranek and Newman
Acoustic Consultants

CHART V - B
B. ACOUSTIC REQUIREMENTS FOR A THERAPEUTIC ENVIRONMENT

The importance of the patient's comfort was observed by Ambroise Pare, a doctor of the sixteenth century, in the treatment of the wounded M. le Marquis d'Aurst:

... and we must make artificial rain, pouring water from some high place into a cauldron, that he may hear the sound of it, by which means sleep shall be provoked of him. (1569)

The means of sound control Pare used in the above is called masking in our contemporary terminology.

CONTROL OF NOISE

It is not within the scope of this report to present detailed proposals for the control of noise, but it is important to state the general approach to the problem of noise reduction. Dr. Beranek presents this information in a very concise and complete way in the following:

(1) Reduction of noise at its source

   a. Decrease the energy for driving the vibrating system.
   b. Change the coupling between this energy and the acoustical radiating system.
c. Change the structure that radiates the sound so that less is radiated.

(2) Control of the path of sound

a. Change in relative position of source and listener.
b. Change in acoustic environment.
c. Introduction of attenuating structures between source and listener.

The most effective control of noise is accomplished at the source. If the source is unchangeable, like that of traffic sounds, it is possible to alter the path (2); by placing the observer further from the source (2-a); by introducing absorbing materials within the observer's environment; or by altering the original noise by masking, as illustrated in Pare's request for his patient's care; and last, by introducing sound energy reflectors and absorbers in the sound path (2-c). Acoustic zoning presents another method of noise control. The architect has the opportunity to group together - on the site or within the building - the spaces which are approximately equal in sound levels.

THE SITE

In the past, mental hospitals - then called asylums - were far removed from the communities they served. The selection of the site for the East Louisiana State Hospital was accomplished by herding the mentally
ill onto a river boat and steaming upstream until a suitable location for their new home was found within the limits of the land granted for their use. The intention was to protect society from its disgusting insane people. As far as sound level was concerned the area was within a reasonable decibel range, which is a favorable condition for the selection of a hospital site. There can be little doubt that this original location had a sound level much above 30 decibels (natural background noises). For insane asylums this location is probably well suited, but for a hospital it is very poorly located. The administrators can tell you the difficulties they have had in obtaining suitable staff for the operation of the institution.

The selection of the site for a mental hospital or clinic is the result of the consideration of factors other than the level of background noise. The general hospital, a building type with which we are more generally familiar, is usually located in an area of the city where the noise level is in the 65 to 85 decibel range. Realizing this, the architect is responsible for minimizing the acoustic disadvantages of the site. This can be accomplished through the knowledge of acoustics and planning. As indicated in the section on the Control of Noise, knowledge of acoustics is not limited to the application of "acoustic tile" and optimum reverberation time.
The sound levels of vehicular traffic - helpful in establishing a quick estimate in sound levels for a site - are presented in Charts V-C and V-D.³

**SPACES FOR LIVING**

Here the major demand on the acoustic environment is privacy of conversation. The patient should be allowed the opportunity to speak with his fellow patients and doctor without having to fear lest his conversation be overheard by all the patients on his ward. The therapeutic value of a patient's seeing other patients approach and talk to the visiting doctor in relative privacy would justify the design beyond doubt. Along with advances in the treatment and care of the mentally ill there is a movement to educate the relatives and families of the sick, and one very important means of realizing this objective is to allow visiting on the hospital ward. Thus there is an added justification for privacy of conversation on the hospital ward. The visiting relative may have personal matters to discuss with the patient and probably matters important to his mental condition.

Added to the above is the problem of control of noise sources within the building, the most objectionable source being, of course, the cries and shouts of the disturbed patient. As in the case of most suitable requirements,
SOUND LEVELS OF VEHICULAR TRAFFIC IN DECIBELS

Distance from Traffic in Feet

Average Sound Level in Decibels

From: Bolt, Beranek and Newman
Acoustic Consultants

CHART V-C
VARIATIONS IN SOUND LEVELS OF VEHICULAR TRAFFIC IN DECIBELS

Average passenger car, traveling at moderate speed, observed at edge of road. For heavy trucks add 15 decibels. At 150 to 200 feet from street, subtract 20 decibels.

From: Bolt, Beranek and Newman
Acoustic Consultants

From "Design of Sound Control Systems", American Society of Civil Engineers 1962.
a control to achieve one condition works for others as well. So it is in this case: control to achieve privacy of conversation can work in connection with sound isolation construction to reduce the unpleasant experience of hearing an excited mental patient. The control, along with details of ceiling height for the minimum distribution of sound, would be to incorporate the sounds of the ventilating system or any noise spectrum suitable to accomplish masking. This is the phenomenon Pare used to induce relaxation for his patient in the sixteenth century.

The acoustic environment for the mental patient should be very much like the environment one finds in a normal home. The noises from plumbing fixtures and pipes are as annoying to the resting or sleeping mental patient as they are to the family.

SPACES FOR TREATMENT

In the design of spaces for treatment we are most concerned in providing satisfactory hearing conditions. The ability to hear and speak in comfort could aid in the effectiveness of group therapy. In group therapy, psychotherapy, spontaneity theatre and music therapy, the environment must be designed for talking and hearing; excessive reverberation or a built-in flutter would impair the
communication of the patients with each other and with the doctor.

The construction of the electro-convulsive therapy and insulin therapy units presents along with other problems that of sound insulation within the units. In the case of electro-convulsive therapy the effect is very much like that of a dentist's waiting-room. In the case of the insulin therapy the patients going into coma are restless and would disturb the patients in other degrees of treatment.

Physical therapy incorporates a gymnasium within its facilities for treatment. The possibility of a gymnasium becoming a noise source within a building is, of course, well understood. The building of furniture, making of rugs, and activities one generally associates with a game room, take place in the mental hospital's occupational therapy department. Acoustic considerations should promote a pleasant environment for social activity in one section, and for the use of tools in another. Because of the effect of sufficient motivation of the patient these spaces are less critical in acoustic design, but this should by no means imply a casual acoustic solution.

The most important contributor to noise in a mental hospital is the often badly designed and located seclusion room. The environment of the room itself is conducive to shouting because the patient can get so much sound
out with so little energy. That is to say, because of the room's size, finish, and shape, the sounds made in such a room accentuate its normal modes of vibration. The room becomes an instrument capable of resonating at a number of frequencies.\textsuperscript{5} Seclusion rooms are important controls within the mental hospital and should be designed to reduce the annoyance to other patients by increasing the transmission loss of partitions in the construction and by proper location within the nursing unit.

\textbf{SPACES FOR CIRCULATION}

The movement of patients and staff within the buildings should be an opportunity to create a change in environment. What should not be done - and one sees it in every hospital - is to design the building in such a way as to force the patient, in normal use of the nursing unit, to pass the seclusion rooms and see his fellow patients in a disturbed condition. The effect of frightening contacts should also be avoided by not making it necessary to go through other nursing units to reach treatment facilities and other services.

The corridors are capable of transmitting unwanted sounds to all connected rooms. Hospital administrators have been aware of this for a long time. The control of such
noises as impact from walking and movement of carts can be reduced by the same controls mentioned earlier, by adjustments to the source and the path of noise.
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SECTION VI

COLOR IN THE MENTAL HOSPITAL
CONTENTS

A. DESIGN APPROACH

B. EXPERIMENT IN USE OF COLOR
A. DESIGN APPROACH

Color is a very important design element in the success of a building. This is especially true of the mental hospital building type, since the interiors are put to such constant use and are also used as a kind of therapy.

It is a false impression to consider use of color for the mental hospital as either restful or cheerful, for usually in achieving this oneness of environment a very important aspect of space is lost — that of interest. The subtle changes which create interest achieve the desired effects discussed in Section IV — locating the patient in space, and contact with reality, both so important to the comfort of the patient.

Color and light are so interrelated that it is hardly possible to discuss one without thinking of its ramifications to the other. We are all familiar with the change in color due to the light source. But color, or the reflective value of color, as a function of the daylight factor is vital to the successful interior. In other words, to paint
a school room ceiling black would destroy the potential distribution of daylight within that room. So it is, but in more subtle conditions, in the color treatment of walls, floors, and furniture with large horizontal surfaces in relation to the available daylight and its distribution.

The most objective clue we have in the selection of color for the mental patient comes from Dr. McCulloch, with a statement to the effect that the mental patient has difficulty in seeing in the shadows and requires brighter surroundings than those which are found in our present hospitals (helios 0.12 to 4.8 ft. lm. or less than 50% reflective value). Thus, color value, or the ability of color to reflect light, is a basis for selection of a color scheme for the mental hospital. The color, itself, has little effect on the reflective value; this is determined by the amount of grey in the color. Until we have specific information as to the preferences of the mental patient, this fact must serve as a basis for establishing color schemes in the mental hospital.

The selection of chroma (red, yellow, blue, etc.), as an individual color, is largely dependent on past experience and choice. For example, an individual may relate blue to a past experience which establishes the color blue as a symbol of that experience, pleasant or unpleasant, depending on the nature of the experience. However, the moment
a second color is introduced a more objective basis for selection is in effect. An example of this is expressed in thinking of the operating room where the operating field is red and the walls a light green. If the walls were white, they would act as a large screen and when the doctor or nurse looked up from the operating field, a large green afterimage of the operation would be projected on the white wall. The light green wall helps to absorb the afterimage which results from looking at the red operating field for long periods of time. So, in actual situations, there is a basis for selecting color relations. The importance of taste and preference is, of course, considered a part of this process, but could hardly be considered as primary.

It is said that color has an effect on certain emotions and moods. This may be true of primary colors, but it seems to be less true of the shades and tints. This is evidenced in observing the paintings of our artists — that color relations effect certain emotions and moods. For example, as illustrated in VI-A, the first color relation of white and blue seems to be crisp, inducing a feeling of clarity; and the second color relation of purple and blue seems to be

*If the color is a mixture of more white than black it is a tint. If the color is a mixture of more black than white it is termed a shade.
FIRST COLOR RELATION

SECOND COLOR RELATION

ILLUSTRATION VI-A
obscure, including a feeling of mystery or hesitation. Depending on the mood of the observer, such color relations may also have other effects on the observer. These are the things which must be considered when planning color schemes in mental hospitals.
B. EXPERIMENT IN THE USE OF COLOR

The following study of color use on a continued treatment ward - completed at the Metropolitan State Hospital, Waltham, Massachusetts - was the full scale application of the principles just discussed. This study was divided into four phases: 1) measurement of existing ft. lm. brightness; 2) measurement and selection of new color in existing conditions to test increase in brightness; 3) preparation of color schedule for painters; and 4) observation of the patients using the space to determine any preference, change in behavior, and difficulty of maintenance.

Table VI-B presents the results of Phases 1 and 2.
**HELIOS**

Table VI-B

Metropolitan State Hospital
Ward G-2

<table>
<thead>
<tr>
<th>CODE</th>
<th>SPACE**</th>
<th>SURFACE</th>
<th>FT. LM.</th>
<th>PAINT</th>
<th>FT. LM.</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td>FT. LM. PLAIN WALL</td>
<td>PAINT</td>
<td>W/COLOR</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>Large Dormitory</td>
<td># 1 4.8 a</td>
<td></td>
<td>5.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td># 4 7.7 a</td>
<td></td>
<td>8.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>open</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>window 500.0</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>mullion 10.5 a</td>
<td></td>
<td>17.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ceiling 0.005</td>
<td>white</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>North Side Dormitory</td>
<td>between</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>window 4.85 b</td>
<td></td>
<td>7.5</td>
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<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>window 470.0</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>mullion 11.5 b</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Corridor</td>
<td># 1 0.125 c</td>
<td></td>
<td>0.210</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Day Room</td>
<td># 1 0.02 d</td>
<td></td>
<td>0.022</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td># 2 0.03 d</td>
<td></td>
<td>0.037</td>
<td></td>
</tr>
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<td>open</td>
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</tr>
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<td></td>
<td></td>
<td>window 189.0</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>mullion 14.0 d</td>
<td></td>
<td>24.0</td>
<td></td>
</tr>
</tbody>
</table>

* Measure of brightness

** See floor plan, Illustration VI-C, for location and surface.

All measurements were made with ceiling in existing condition. It is assumed that when ceiling is painted white, there will be further increase in brightness.

Phase 3 of this study, the presentation of the color schedule, is illustrated in the following schedule.
<table>
<thead>
<tr>
<th>ROOM #</th>
<th>NAME OR USE</th>
<th>WALLS</th>
<th>DOOR</th>
<th>FURNITURE</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Day room/corridor</td>
<td>E</td>
<td>EE</td>
<td>EE</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Day room</td>
<td>E</td>
<td>EE</td>
<td>EE</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Day room/corridor</td>
<td>F</td>
<td>EE</td>
<td>EE</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Corridor</td>
<td>D</td>
<td></td>
<td>color same as inside face</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>S.S. closet/chute</td>
<td>D</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Storage</td>
<td>D</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Locker room</td>
<td>D</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Bedroom</td>
<td>A</td>
<td>3</td>
<td>AA</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Day room toilets</td>
<td>D</td>
<td>5</td>
<td></td>
<td>toilet part. white</td>
</tr>
<tr>
<td>10</td>
<td>Attendant's station</td>
<td>D</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Attendant's toilet</td>
<td>D</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Attendant's locker</td>
<td>D</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Single bedroom</td>
<td>B</td>
<td>1</td>
<td>BB</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Single bedroom</td>
<td>C</td>
<td>6</td>
<td>BB</td>
<td></td>
</tr>
<tr>
<td>15</td>
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<td>B</td>
<td>1</td>
<td>BB</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Single bedroom</td>
<td>C</td>
<td>6</td>
<td>BB</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Single bedroom</td>
<td>B</td>
<td>1</td>
<td>BB</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Single bedroom</td>
<td>C-D</td>
<td>6</td>
<td>BB</td>
<td>window/side wall color D (on job)</td>
</tr>
<tr>
<td>19</td>
<td>Middle corridor</td>
<td>G</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>N. side dormitory</td>
<td>C</td>
<td>6</td>
<td>BB</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>S. side dormitory</td>
<td>B</td>
<td>1</td>
<td>BB</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Small corridor</td>
<td>D</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Toilets</td>
<td>D</td>
<td></td>
<td></td>
<td>toilet part. white</td>
</tr>
</tbody>
</table>
(continued from preceding page)

<table>
<thead>
<tr>
<th>ROOM #</th>
<th>NAME OR USE</th>
<th>WALLS</th>
<th>DOOR</th>
<th>FURNITURE</th>
<th>REMARKS</th>
</tr>
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<tbody>
<tr>
<td>24</td>
<td>Wash room</td>
<td>D</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>25</td>
<td>Large dormitory</td>
<td>A</td>
<td>3</td>
<td>AA</td>
<td></td>
</tr>
</tbody>
</table>

NOTES:  All ceilings to be off-white color (to be selected on the job).  
All interior trim to match color of wall.  
Doors (2) entering to stair exit to be painted color #2.  
All walls to be painted from terazzo (or other) base to ceiling line EXCEPT in single bedroom, where the wall color will end before the ceiling line. This line to be decided on job.
WARD G-2 COLOR SCHEDULE SPACE LOCATION
METROPOLITAN STATE HOSPITAL

ILLUSTRATION VI-C
There are no definite conclusions for Phase 4 of the study at this time. This phase is concerned with the observation of the effects of the new color plan on both the patients and the staff members. This has been in effect for such a short length of time that any conclusions drawn now would be theory and not fact. Completed data will be added to the study as soon as it is available.
References

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   Lighting Seminar
   Mass. Inst. of Tech., 1953
SECTION VII

BUILDING REQUIREMENTS
A. THE SITE
   The Size
   Specific Characteristics in Selection of the Site
   Orientation and Site Planning
   Landscaping

B. THE BUILDING
   Living Spaces
   Spaces for Treatment
   Common Facilities

C. SPECIFICATIONS
   Plumbing
   Lighting and Heating
   Heating
A. THE SITE

In general, the location of the mental hospital is dependent on the treatment program, the proximity of the people it is to serve, and the availability of the staff to operate the hospital. These considerations introduce the need for the third member to the collaborative team - the urban and regional planner, whose ability can relate the hospital as an integral part of the city or regional master plan. The denial of this phase of the building process has been responsible, in some ways, for the poor treatment the patients have received in our state hospitals. When there is a limited selection of personnel, the administrator cannot get suitable staff, which directly affects the care the patient receives. When the area a hospital serves approaches a four-hour ride to visit the patient, over a period of years the patient is forgotten. And when relatives and friends forget the patient, who will speak in his behalf? This lack of interest on the part of friends and relatives is often responsible for the impersonal treatment of the patient. It is vitally important to
consider the planning of the mental hospital services for continued care on the urban and regional level as a result of understanding what contributes to a dynamic hospital environment.

THE SIZE

The mental hospital site does not require large tracts of land to be successful. The size of the site is, of course, dictated by the land requirements for the operation of the work program (i.e., farming, dairy, industry, etc.) and the treatment program in terms of the number of beds available. But, not all hospital treatment programs include a work program, and when it is found, its use ranges from therapy to an aid in budgeting. If any quantitative statement can be made as to the number of beds to which a mental hospital should be limited, it can only come in a statement to the effect that our present hospitals are much too large. For example, East Louisiana State Hospital, with a population of 4,631 patients in 1952, requires an exceptional staff to maintain a distinction of the individual identities found in each patient. Consideration of the land coverage and building design plays an important part in the size of the site. Boston Psychopathic is an illustration of the effect of a congregate building design on the selection and size of a site (Aerial photograph VII-A) as compared to
Boston State Hospital, a cottage type plan, where each building is a unit in itself (Aerial photograph VII-B).

SPECIFIC CHARACTERISTICS IN SELECTION OF A SITE*

The following presents some of the factors which must be considered in the selection of a site for a mental hospital.

Transportation: Site should be readily accessible by car and reasonably accessible by public transportation.

Zoning: The development of the site should be integrated with the community's land use plan.

Nuisances: The site must be free from all unpleasant odors, sounds, and views.

Utilities: Should be available without increase of cost of construction and maintenance.

Availability of Personnel: Competent personnel must be available as well as adequate recreation, shopping, and general living facilities for their convenience.

Teaching and Cultural Facilities: The location should be near a community which provides students and professionals who can aid in the operation of a volunteer program.

*Reference is made to Section V - Acoustics in the Mental Hospital.
and which provides the use of the community's facilities to re-introduce the patient to his normal environment.

**Medical Facilities:** Availability of medical facilities which could be used as a means of reducing the cost of operation of a full-scale medical department within the mental hospital is desirable.

**Expansion:** Size and amount of land available for anticipated increase in construction should be considered.

**ORIENTATION AND SITE PLANNING**

The consideration of solar and visual orientation in a mental hospital is perhaps one of the most positive approaches to the solution of the site plan. The interiors, regardless of climate and region, should receive deep penetration of sun. In studying the existing hospitals it was found that where the sun did not penetrate, the odors were more concentrated. This was found to be true in every instance, and the only other building factor which was in some measure an aid in dispelling odors was ventilation. But it must be emphasized that ventilation, though important, was not found to be as effective as the penetration of sun. It would seem that the ideal solution should account for both in acting to eliminate odors and in providing a normally comfortable bioclimatic environment, which is best solved by flexible sun control. The visual orientation must not
consider just the effect of the building on a passing spectator but, more important, the consideration of the patient's view in terms of interest.

LANDSCAPING

The process of landscaping a hospital site should, of course, come from the consideration of the designed building and the peculiarities of the site. The following factors can be considered as special needs to be evaluated in the design of landscaping.

Drives and walks to building for pedestrian and automobile traffic from all main streets.

Separation of pedestrian and automobile traffic for safety.

Planting of strong trees for shade.

Zoning site for noise control.

Use of various play surfaces as to function, maintenance, and design elements to achieve variety and interest in the landscaping.

The ratio of controlled to natural landscaping in keeping with economy of maintenance.

Provision for patients and visitors to feel an atmosphere of privacy while visiting outdoors, yet maintaining a simplified plan of circulation at the same time.
Provision of adequate parking facilities for staff and visitors.

Arrangement of buildings to provide outdoor spaces for patients to have a supervised play and resting space.
B. THE BUILDING*

The space requirements for the mental hospital building can be divided into three logical groups: 1) Living Spaces; 2) Treatment Spaces; and 3) Common Facilities.

LIVING SPACES

Nursing Unit . . . . . . min. 72 sq. ft. per patient

Sleeping arrangements in the design of the building should consider the possibility of reducing the number of patients sleeping in one room to a maximum number of six to eight. Included in the space should be patient's personal storage with clothes hanging and drawer space. Additional sleeping space must be made available for the occasionally disturbed or over-active patient.

Recreation . . . . . . min. 10 sq. ft. per patient

General sitting area developed very much in keeping with the living room of a private home. It is customary in some hospitals to allow this space for patients to receive visitors.

*Reference is made to Section V - Acoustics in the Mental Hospital.
Nurses station . . . . . Varieties

The nurses station can be considered in a number of ways. However, there is a tendency to provide the attendant or nurse with a desk (with lock) at a control point in supervising the ward. The necessary drug and medical supplies should be in convenient location to the nurse. It must be understood that the attendant is in activity on the ward and is not constantly at the station. Attendants and nurses prefer to leave the nursing unit in using toilet facilities.

Interview . . . . . . . Approx. 100 sq. ft.
Patients should not have to leave the ward for private discussion with doctor, patients, etc.

Medical Examination . . Approx. 150 sq. ft.
For treatment of patients for minor injuries and medication. This space should incorporate medical and drug storage.

Washroom . . . . . . Min. 120 sq. ft.
For the convenience of patients who wish to personally launder a few items of their clothing - provided for men and women patients alike.
Minimum Kitchen . . . . Varies
The provision of a minimum kitchen makes it possible for patients to prepare a cup of tea or coffee, which is so important to their rehabilitation.

Overactive Patient Living. Min. 100 sq. ft.
The seclusion room or guarded room is designed for the overactive patient to prevent injury to himself or others and at the same time to exercise a self-imposed control upon him in his own time. Here the patient should be isolated from his fellow patients both to insure undisturbed rest and their personal respect. In considering the latter requirement, patients should have bath and toilet facilities along with access to outdoor light and air as a part of smaller recreation room.

SPACES FOR TREATMENT

Psychotherapy Suite

- Interview: min. 100 sq. ft. per pt.
- Group: min. 250 sq. ft.
- Drama: min. 350 sq. ft.

As far as the architect is concerned, this incorporates the use of three distinct spaces. 1) Private interview office where the doctor analyzes the patient's past experiences. Equipment in this space is limited to a desk and two chairs.
2) Group therapy requires facilities to accommodate six to eight patients with a possibility of more at times. This space is used for the interchange of group ideas and discussion of each other's problems. Occasionally this space can be used for teaching purposes to accomplish a more flexible use of space. 3) The most demanding space requirement in psychotherapy comes with the space use of psychodrama. Psychodrama is termed the psychic in action, where the patient re-enacts a previous social situation, with patient and staff audience participating in the action. This requires what is romantically called by some therapists a "womb of action," which is simply a circular stage with audience intimately connected with the actor. The number of patients using this facility varies from eight to fifteen.

Hydrotherapy Suite

- Showers & sprays: min. 180 sq. ft.
- Massage & radiation: min. 90 sq. ft. per patient
- Dressing & toilets: Min. 300 sq. ft.
- Exercise: Min. 700 sq. ft.
- Office: Min. 100 sq. ft.

Because of the shortage of personnel and general improvement in the treatment of patients, there is a lesser need for tubs in the Hydrotherapy Department. 1) Everything that can be done in the treatment of the patient is now accomplished by using sprays and alternate hot and cold showers. This requires a room of elongated proportion approximately 6 x 30.
2) The Hydrotherapy Department should include radiation treatment facilities, namely: radio, ultra-violet, and infra radiation equipment. The use of these facilities can be incorporated in the massage room. 3) Dressing and toilet spaces next to a waiting space is an important space in the Hydrotherapy Department. 4) An exercise room for gym equipment is one of the required spaces. 5) Office for therapists is the last necessary space.

Electric Shock Suite

<table>
<thead>
<tr>
<th>Waiting</th>
<th>Min. 200 sq. ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>Min. 150 sq. ft.</td>
</tr>
<tr>
<td>Recovery room</td>
<td>Min. 90 sq. ft.</td>
</tr>
<tr>
<td>per patient</td>
<td></td>
</tr>
<tr>
<td>Minimum kitchen</td>
<td></td>
</tr>
</tbody>
</table>

1) Electro-convulsive therapy is often terrifying for the patient waiting for treatment. This seems to demand an interesting space, easily controlled. 2) The treatment room must accommodate a shock table or bed with ample room for from three to five attendants to hold patient when shock treatment is begun. The equipment used in shock is portable and requires only an electric outlet. 3) Patients coming out of electric shock treatment are kept in special recovery rooms for supervision until they regain their motor coordination. Such recovery rooms may take the form of individual bedrooms, but it is preferable to have a ward-type
arrangement to facilitate supervision. 4) A minimum kitchen is required for the preparation or re-warming of a light breakfast. Patients are not allowed to eat before shock. To conserve space, this could be incorporated in an alcove of the waiting room.

Insulin Suite

. . . . . . . Treatment: Min. 90 sq. ft. per patient
. . . . . . . Showers & toilets: Minimum
. . . . . . . Minimum kitchen
. . . . . . . Utility closet: Min. 100 sq. ft.
. . . . . . . Supplies & supervision: Min. 200 sq. ft.
. . . . . . . Breakfast area: Min. 12 sq. ft. per patient

1) Each patient is provided a bed during treatment. This constitutes the treatment area. Thought must be given to insure easy access on three sides of the patient because in this treatment a prolonged coma could be fatal. The patient in coma very often perspires and salivates excessively. In administering glucose and egg white by gavage to return the patient to consciousness from deep coma, the patient very often vomits. This necessitates easily cleaned floors and electric outlets for portable suction pumps to prevent strangling. 2) Because of severe physical reactions - perspiration and vomiting - it is necessary to provide showers and fresh clothing before the patient returns to his ward. 3) Breakfast area and minimum kitchen facilities are provided
for patients to aid in regaining physical coordination before returning to their regular living quarters. 4) The control unit is the location of all supplies and equipment where total supervision of the treatment space is at its best. This is the core of the Insulin Unit.

Occupational Therapy

General Recreation: Approx. 1000 sq. ft.
Hobby rooms: Varies
Reading rooms: Min. 200 sq. ft.
Solarium: Approx. 120 sq. ft.
Music room: Min. 250 sq. ft.

This is probably one of the most valuable facilities in a mental hospital. Here the patient is given an optimistic environment in which he can express his desires in hobbies, sports, and other interpersonal relations. Spaces in this treatment group are self explanatory and can be treated in the same manner as like facilities of the school building type.

Diagnostic Suite

Interview: Min. 100 sq. ft.
X-ray: Minimum
Medical Examination: Min. 150 sq. ft.
E.E.G: Min. 200 sq. ft.
E.K.G. & Metabolism: Min. 200 sq. ft.

X-ray, interview, and medical examination are all common to other building types. The use and space requirements for
these remain the same. Equipment for E.K.G. - Electro-Kardiogram - and metabolism is portable, and treatment requires only a bed and an electrical outlet. Only E.E.G., or Electro-Encephalograph, needs explanation. The use of this space is to house the recording equipment for determining brain damage. It is necessary to provide a bed and a comfortably upholstered chair for the patient's use. This room should be isolated from any undue noise or disturbance so that the therapist can accomplish a sleep study of the patient. It is not necessary to screen the equipment from the patient's view since a capable therapist prefers that the patient know what is happening at all times. The quality of this space must be intimate to insure a friendly atmosphere.

COMMON FACILITIES

Below is a summary of building requirements necessary to a mental hospital, but no explanation of these is required since these spaces are known to the architect from experience with other building types.

Administration
Medical
   Examination
   Dental
   Surgery
Isolation Ward
Pharmacy
Educational
Lecture Rooms
Library
Staff Residence
Concession
Canteen
Barber and Beauty Shop
Shopping
Chapel
Dining
Congregate
On-ward
Maintenance
General Recreation
Gymnasium
Auditorium
C. SPECIFICATIONS

The selection of materials in the mental hospital building type must begin with the realization that the uninhibited mental patient will void or defecate at will on himself, walls, or floors. A porous material used for flooring or wall finish will retain the organic matter and become an accumulator of odors. Many of our mental hospitals have miles of wooden floors and unglazed masonry walls. This, coupled with poor orientation to sun and breeze, makes a very unsuitable hospital environment.

No material has more rigid demands in its selection than flooring. Flooring must be resistant to fire, grease, acid, and wear as well as easily cleaned. There must be few seams or joints by which a patient can begin to destroy it (See Section II).

The only space that presents an acute problem in the selection of materials is the guarded or seclusion room for the temporarily disturbed patient. Here the selection of material is dependant on the maintenance of the space and the safety of the patient.
The use of materials in mental hospital construction is usually approached with an idea of building for permanence. This is very necessary when the state's annual budget for maintenance and construction is taken into consideration. But, in the search for permanence, very often the architect loses sight of the other aspects of the building - the design of space. It is important, then, to explore the possibility of using materials which in some way achieve both permanence and interest, so necessary to a well designed building. But even more important than this is the possibility of introducing a controlled detail where the material is destructible and gives the mental patient a means to react and express his hostility in the destruction of something easily replaced instead of an expensive detail. Observation of the mental patient seems to indicate the possibility of reducing the index of expensive building damage by placing him in an optimistic environment which would induce an improved behavior.

Buildings often present a challenge to the patient and in answering this challenge the patient is very often the superior. This is proved in the amount of building damage year after year.
PLUMBING

The problem of plumbing in the hospital is stoppage of the water closets. The location of toilet and bath facilities in a relatively supervised and active area would aid in reducing this problem. Hospitals built in recent years are over-designed in plumbing. There is no reason why toilet facilities cannot be located to serve both sleeping area for night use and recreation area for day use. Other than these points, there is no specific problem in designing for good sanitation and for roof drainage.

LIGHTING AND ELECTRICAL

The design of lighting should be prefaced by the realization of the need for night supervision and the protection of both the patient and the staff. With the change in light from day to night comes special supervision problems found in the increased fear on the part of the patient and an almost as aggravated condition with the personnel. Adequate lighting and few "hiding corners" will greatly aid in dispelling such fears - and provide for a better hospital atmosphere. An emergency lighting system is necessary. Other problems introduced in this building type can be solved by the use of tamper proof fixtures and switches.
HEATING

Along with the regional differences which must be considered in the solution to heating a mental hospital, there are conditions which are imposed in the patient's use of the building. Usually, in a continued treatment group, there is a tendency for the patients to sit huddled on the floor. Patients very often go about barefooted. In one of the hospitals visited, where circulated hot water was used, the wall radiators, though screened, were coated with urine and collectors of dirt. This not only provides a nuisance to the ward, but also makes it possible for the patient to receive mild burns. Particular care must be used to avoid creating a similar condition in the selection of a heating system for new hospital construction.
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NURSING UNIT FOR QUIET PATIENTS

3rd, 4th, 5th, 7th, 8th, 9th, & 10th FLOOR PLAN

- ENTRY
- RECREATION
- GALLERY
- BEDROOMS 6 beds/room
- PRIVATE GALLERY
- DINING ROOM
- PHYSICAL & MEDICAL EXAMINATION
- INTERVIEW & GROUP THERAPY
- OUTDOOR FREE SPACE - RECREATION
- WASH ROOM - PATIENTS SMALL LAUNDRY
- MINIMUM KITCHEN
- NURSES STATION
- STORAGE

NURSING UNIT FOR OVERACTIVE PATIENTS

11th FLOOR PLAN

- ENTRY
- GALLERY
- SECLUSION ROOM
- CLOSED GALLERY - OBSERVATION
- DINING ROOM
- PHYSICAL & MEDICAL EXAMINATION
- INTERVIEW & GROUP THERAPY
- OUTDOOR FREE SPACE - RECREATION
- WASH ROOM
- SUB RECREATION
- MINIMUM KITCHEN
- STORAGE
- NURSES STATION

EAST
1/16" = 1' 0"

NORTH
1/16" = 1' 0"

A mental hospital for new orleans, louisiana
m.l.t masters thesis study 1954 irvin j. kohler
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