COMMITTEE FOR THE STUDY OF PHYSICAL
FACILITIES FOR THE HEALTH SCIENCES

Gaylord W. Anderson Prof/Director, School of Public Health Chairman: Public Health Sub-Committee	Hosp 2775	Mayo 1325, Box 197
Cyrus P. Barnum Professor, Bio-Chemistry	373-3211	Lyon Labs. 180
Winston A. Close Architectual Advisor	373-2204	Architecture 150
Lyle A. French Prof/Director, Division of Neurosurgery	Hosp 2517	Mayo B -590, Box 281
Edna Fritz Prof/Director, School of Nursing Chairman: Nursing Sub-Committee	373-3462	Owre 125
Sterling B. Garrison Assistant to Vice President of Business Administration	373-2130	Morrill Hall 118
N. L. Gault, Jr. Associate Dean, College of Medical Sciences Chairman: Clinical Medicine & Hospital Sub-Committee	Hosp 2771	Mayo 1360, Box 293
Gertrude M. Gilman Prof/Director, University Hospitals	Hosp 2271	Mayo B-313, Box 94
Eugene D. Grim Professor, Physiology Chairman: Basic Sciences Sub-Committee	373-2908	Lyon Labs. 472
Mellor R. Holland Assistant Dean, Dental School Chairman: Dentistry Sub-Committee	373-3454	Owre 136
Robert B. Howard Dean, College of Medical Sciences	Hosp 2771	Mayo 1360, Box 293
Robert J. Isaacson Associate Professor, Division of Orthodontics, Dental School	373-4547	Owre 148
Ione Jackson Associate Professor Dentistry	373-3271	Millard 360A
James R. Jensen Professor of Dentistry	373-2809	Owre 364D

Frederic J. Kottke Prof/Head, Physical Medicine and Rehabilitation Chairman: Other Professions Sub-Committee	Hosp 2721	Mayo 860, Box 297
Elmer W. Learn Assistant to the President	373-2025	Morrill 202
Richard M. Magraw Associate Professor, Medicine, Psychiatry, Director, Comprehensive Clinic	Hosp 2841	Mayo A269, Box 381
Erwin M. Schaffer Dean, Dental School	373-3260	Owre 402
William G. Shepherd Vice President, Academic Administration	373-2033	Morrill 213
John H. Westerman Research Associate, Medical Administration	Hosp 2555	Powell 3114, Mayo Box 1

UNIVERSITY OF MINNESOTA

Minneapolis 14

Office of the President

COMMITTEE FOR THE STUDY OF PHYSICAL FACILITIES FOR THE HEALTH SCIENCES

Minutes of meeting February 1, 1965

Present: Elmer Learn, Chairman, Gaylord W. Anderson, Cyrus P. Barnum, Winston A. Close, Edna L. Fritz, Gerard Frawley (for Gertrude Gilman), Mellor R. Holland, Robert B. Howard, Robert J. Isaacson, Ione Jackson, James R. Jensen, Richard M. Magraw, Erwin M. Schaffer, William G. Shepherd, John H. Westerman

Absent: Lyle A. French, Sterling B. Garrison, Neil L. Gault, Jr., Gertrude M. Gilman

I. ORGANIZATION OF SUB-COMMITTEES AND SELECTION OF CHAIRMEN

The committee approved the following organization

SUB-COMMITTEE	CHAIRMAN
Basic Sciences	Cyrus P. Barnum
Clinical Medicine and Hospital	Neil L. Gault, Jr.
Dentistry	Mellor R. Holland
Nursing	Edna L. Fritz
Other Professions	Frederic J. Kottke
Public Health	Gaylord W. Anderson

Research and continuation education will be considered in the review of each sub-committee program.

Sub-committees will have representatives from other disciplines. Before the next meeting Mr. Westerman will interview each chairman for:

1. Names of department members to serve on the sub-committee.
2. Names of department members to serve on other sub-committees.
3. Names of members from other departments to serve on his sub-committee.

A list will be submitted for the consideration of the whole committee at the next meeting.

II. CHARGE TO THE SUB-COMMITTEES

Mr. Westerman will interview every member of the whole committee to receive suggestions for the charge to the sub-committees. The charge will include the objectives

of the study and basic items of data required from each sub-committee for planning purposes.

A draft of the charge will be submitted for consideration of the whole committee at the next meeting.

III. PRESENTATION BY WINSTON A. CLOSE

Mr. Close presented a review of planning developments in the Health Sciences area. He noted that the basic Schmidt-Gardner-Erickson plan of 1945 has been followed up to this time. It is particularly timely for this committee to develop further long range plans because a decision must be made on the next stage of Health Sciences expansion. The alternatives in the SGE plan were:

1. River Flats
2. East between Washington and Delaware

The second overlook of University expansion was at the time the Willey Committee developed the West Bank Plan. At this time the area east of the Health Sciences Center (SGE alternative #2) was reserved for future expansion.

Two years ago the University Board of Regents defined the areas of University expansion at the request of the Metropolitan Planning Authority. Subsequently, a Southeast Community Plan has been drafted, incorporating the River Flats as a recreational area.

Therefore this committee must consider the best way to cope with the limited availability of land by:

1. Utilizing the land to the east for expansion.
2. Consider de-centralizing some aspects of the program.
3. Concentrate some aspects of the program where land is available, but at some distance from the existing complex - a second Health Sciences Center.

Respectfully submitted,

John H. Westerman
Executive Secretary

M. Ward
(Elaine)
Jan. 18

January 11, 1965

To: Gaylord W. Anderson
Cyrus P. Barnum
Lyle A. French
Edna L. Fritz
Sterling B. Garrison
Neil L. Gault, Jr.
Gertrude M. Gilman
Mellor R. Holland
Robert B. Howard
Robert J. Isaacson
Ione Jackson
James R. Jensen
Richard M. Magraw
Erwin M. Schaffer
William G. Shepherd
John Westerman

Subject: Committee for the Study of Physical Facilities for the Health Sciences

Dear Colleagues:

The first meeting of our committee will be held on Monday, January 18, at 3:30 P.M. in the Regents Room. The agenda will consist of a discussion of the committee's assignment and alternative ways to organize to fulfill that assignment.

Because of the size of the committee I have not attempted to determine the availability of all committee members prior to establishing the date of the meeting. I hope that all of you will find it possible to attend. If you cannot attend would you please inform Miss Skoog at 373-2025.

Sincerely,

Elmer W. Learn
Assistant to the President

EWL:lp

Memorandum for Elmer W. Learn's Files December 16, 1964

Subject: Committee for the Study of Physical Facilities for the Health Sciences

I met with Dean Howard today for a discussion regarding the activation of the above-named committee, and we agreed that it would be desirable to call a meeting of the committee in the first or second week of January. Tentatively, we agreed that we should attempt ~~for~~ a meeting in the late afternoon of the 5th, 7th, or 12th.

Regarding organization, we agreed that it would be undesirable to attempt to operate as a full committee on the problems that lay before us. It was agreed, therefore, that the committee should be broken up into a series of subcommittees which would include, but not be limited to, members of the overall committee. Tentative listing of the subcommittees to be established would be (1) clinical regarding medical instruction and this would relate to research, instruction, and service in the medical area, (2) basic sciences relating to teaching and research, not only for medicine, but for nursing, dentistry, etc., (3) nursing, (4) dentistry, (5) ancillary areas such as public health, medical technology, occupational therapy, medical library, and bio-engineering and I think we should also include pharmacy some place in this scheme, and (6) continuing education. Dean Howard suggested that we may want to consider the appointment of John Westerman as executive director of the overall committee responsible for coordinating the activities of the various subcommittees.

We agreed that the first meeting would be devoted primarily to establishing the charge of the committee, a discussion of problems giving rise to the development of the committee, and establishing a general feeling regarding the direction that the committee study should take. The second meeting would be set for approximately two weeks later and prior to that time an executive committee would meet to design the specific nature of the subcommittees and the membership thereon.

A tentative timetable would assume that subcommittees would be assigned initially the problem of determining programmatic changes related to their specific area of responsibility within some definite time period, say prior to 1980. They would be expected to provide a tentative report within a three-month period following which each subcommittee would be expected to further refine the programmatic projections and begin to consider the physical implications of such projections. When the subcommittee reports are reasonably complete, say by next fall, it would then become the responsibility of the total committee, with the assistance of the executive director, to consolidate the various subcommittee reports into a meaningful total proposal for the future development of the medical science area.

Elmer W. Learn
Assistant to the President

EWL:js

University Of Minnesota
Minneapolis 14

Office of the President

February 15, 1964

To: Gaylord W. Anderson
Cyrus P. Barnum
Winston A. Close
Lyle A. French
Edna L. Fritz
Sterling B. Garrison
Neil L. Gault, Jr.
Eugene D. Grim
Gertrude M. Gilman
Mellor R. Holland
Robert B. Howard
Robert J. Isaacson
Tone Jackson
James R. Jensen
Frederic J. Kottke
Richard McGraw
Erwin M. Schafter
William G. Shepherd
John H. Westerman
Learn

Address

Subject: Meeting Dates and Agenda for the Committee for the Study of Physical Facilities for the Health Sciences

Dear Colleagues:

The next meetings of the Committee will be on March 1 and March 8 at 3:30 p.m. in the Regents Room. Because of legislative business there will be no meeting on March 23.

The agenda for March 1 will include:

1. Presentation of the list of sub-committee membership

2. Introduction of a draft of the charge to sub-committee members.

3. Reports by Robert B. Howard and Gaylord W. Anderson

Sincerely,

Elmer W. Learn
Assistant to the President

UNIVERSITY OF MINNESOTA
Minneapolis 14

Office of the President

COMMITTEE FOR THE STUDY OF PHYSICAL FACILITIES FOR THE HEALTH SCIENCES

Minutes of meeting March 1, 1965

Present: Elmer Learn, Cyrus Barnum, Richard Bond (for Gaylord Anderson), Edna Fritz, N. L. Gault, Gertrude Gilman, Eugene Grim, Mellor Holland, Robert Howard, Robert Isaacson, Ione Jackson, Frederic Kottke, Erwin Schaffer, John H. Westerman.

Absent: Gaylord Anderson, Winston A. Close, Lyle French, Sterling Garrison, James R. Jensen, Richard Magraw, William Shepherd.

I. Chairman Elmer Learn welcomed Eugene D. Grim and Frederic J. Kottke as new members of the committee. The procedure for approval of minutes will be to contact John Westerman for desired revisions.

II. SUB-COMMITTEE APPOINTMENTS

The committee reviewed the tentative list of sub-committee appointments. Miss Gilman suggested a Student Health Service representative be added to the Hospital Task Force Committee under Dr. Gault's sub-committee for Clinical Medicine and Hospital. The suggestion was approved and Dr. Gault and Mr. Westerman were instructed to arrange the addition. The committee then approved the entire list as ammended.

III. APPOINTMENT LETTER

The committee reviewed a draft of the sub-committee appointment letter to be sent by Elmer Learn. With minor corrections the letter was approved and will be posted by Elmer Learn by March 5.

IV. PRESENTATION BY ROBERT B. HOWARD

Dr. Howard outlined the programs of the College of Medical Sciences with particular emphasis on the teaching program of the Medical School.

Approximately 600 students are enrolled in the undergraduate Medical School. Over 50% of this number have Bachelor Degrees prior to entering Medical School. There is an 8-10% attrition the first two years but this is evened out by the addition of Junior Year medical students from other institutions. There is an agreement to accept three medical students from each of the North Dakota and South Dakota two year medical schools.

There are 425 College of Medical Science graduate students physically located within the University Medical Center. Another 175 graduate students are located at various Twin City hospitals.

Medical Technology has an enrollment of 60-80 students who come after three years of college for a two year program leading to a Bachelor degree. Physical Therapy and Occupational Therapy each accept 24 students per class per year in a two year program for a combined total enrollment of 96 students. These students have had at least two years of college and earn a Bachelor degree upon the completion of their course. It should be noted that a Bachelor of Science degree is available to medical students with three years of pre-medical school preparation, after the first two years of Medical School.

Faculty members serve as advisors to upper division students in CLA, particularly in Physiology and Microbiology. The Basic Science faculty is also charged with the responsibility for teaching basic health science courses for various allied groups. For instance, all six basic science courses for Dental School students are taught by the College of Medical Sciences Basic Science faculty. A course in Pharmacology is offered to the College of Pharmacy students. Formerly, Vet Medicine courses were taught, although of recent years most of this reponsibility has been undertaken by the St. Paul Campus. Undergraduate courses for CLA and other students are taught in Biochemistry and Microbiology and to a lesser extent, in Physiology and Anatomy.

Non-degree courses are offered to 30 Laboratory Aid students in a one year course and X-Ray Technicians in two programs. One X-Ray program involves 30 students for a 15 month period at the medical center. A second program offers 150 students their introductory courses at the University with practical work assigned at other Twin City hospitals. It is not true that the College of Medical Sciences teaching program has been a static one. In the last ten years the credit hours taught by the College has increased by an amount parallel to the increase in total University credit hours taught. Dr. Howard did not mention the teaching programs in the College of Medical Sciences carried on by Nursing or Public Health, because they will be covered at a later date. He also deferred on the Hospital programs for the same reason, although pointing out the Hospital had key relationships with all of the College educational programs.

RESEARCH

Over 12 million dollars was spent on research last year, not including 3 million dollars spent on training grants. While the total of 15 million dollars does include some faculty support, (more at the junior than senior level), it is primarily used for equipment, supplies, and technicians used in the various projects. The budget for the College educational program, including Public Health and Nursing, is 3.2 million. The Hospital budget, which includes a few academic positions, is 12 million dollars. The total College budget for teaching, research and service is approximately 30 million dollars.

Dr. Howard then answered questions about graduate programs in the Basic Sciences and clinical affiliations in the Twin Cities. It was pointed out that the Rochester, Minnesota campus was not related to the College of Medical Sciences, but to the Graduate School. Dr. Howard is a member of the Graduate School Medical Science Group Committee. Medical School representatives sit on the Exam Committee with faculty members from Rochester.

V. ERRATA

1. A corrected copy of the list entitled "Committee for the Study of Physical Facilities for the Health Sciences" will be posted to each sub-committee member, along with Mr. Learn's appointment letter.

   On your list, Robert J. Isaacson should be Associate Professor and his telephone number is 373-4547.

   Elmer W. Learn will be added to the list.

2. Sub-Committee List

   a. Ancillary - Anna Hampel is Associate Professor

   b. Clinical Medicine and Hospital

      Add Paul G. Quie, Assistant Professor of Pediatrics
      373-5032 Mayo Box 389
      to the Clinical Medicine Task Force.

      Add Donald W. Cowan, Professor and Director, Student Health Service 373-3950 University Health Service to the Hospital Task Force.

3. Minutes of February 1

   Eugene D. Grim is the Chairman of the Basic Sciences sub-committee not Cyrus Barnum.

VI. FUTURE AGENDAS

1. March 8th 3:30 p.m. Room 510, 5th Floor, Diehl Library

   a. Presentations by Public Health - Richard Bond
      Dentistry - Erwin Schaffer

2. March 22nd. 3:30 p.m. Room 510, 5th floor, Diehl Library

   a. Presentations by Nursing - Edna Fritz
      Hospital - Gertrude Gilman
      Basic Sciences - Eugene Grim, Cyrus Barnum

   b. Final adjustment to the sub-committee appointment list

Respectfully submitted,

John H. Westerman
Executive Secretary

University of Minnesota
School of Nursing

Report to Committee for the Study of Physical Facilities for the Health Sciences

March 22, 1965

An Historical Note

1. An educational unit in nursing opened at the University of Minnesota in 1909. As a result, this 65 year-old School is now generally cited as being the oldest university school of nursing in the United States.

   Here as elsewhere, however, the School was initially established as a service arm of University Hospitals. Even after a program was initiated in 1919 that led to a bachelor's degree, the nursing portion of it was identical to that of the concurrent 3-year diploma program that continued to operate until 1950.

2. The history of nursing education at Minnesota to a considerable extent mirrors that of nursing education throughout the United States. It has only been within the recent past that efforts have been directed at differentiating levels of nursing practice and levels of preparation for different levels of practice.

Current Nursing Programs and Enrollments Within Them As of Fall 1964*

	Full-time	Part-time
Baccalaureate Program		
Pre-service students (Plan A+B)	214	1
Registered Nurse students (Plan C)	37	15
Masters		
Master of Education (Students enrolled in the College of Education)	23	
Master of Nursing Administration	6	
Master of Science (Psychiatric Nursing - Graduate School enrollees)	13	3
Practical Nursing	45	
Adult Special		3
Total Enrollments	338 full-time	22 part-time

Faculty

Total number on School's 1964-65 budget: 28

*Masters programs in public health nursing are offered by the School of Public Health.

A Look Toward the Future

1. Educational planning for nursing at the University cannot be undertaken apart from an examination of the needs and resources for nursing education in the state, the region, and the nation.

2. Projected national needs for nursing appear in the 1963 Report of the Surgeon General's Consultant Group on Nursing titled, Toward Quality in Nursing: Needs and Goals. The findings in this report gave rise to passage of The Nurse Training Act of 1964.

   a. Among many other recommendations, the report calls for expanded enrollments in all types of nursing programs but highlights the special need to expand enrollments at the masters and post-masters levels and to double the numbers graduating from pre-service baccalaureate programs by 1970 in order to swell the reservoir from which graduate students can be recruited.

   b. Projected needs

	1962	1970 (needed)
Nurses with masters or higher degrees	11,500	100,000
Nurses with baccalaureate preparation	43,500	200,000
Total employed registered nurses	550,000 (incl. 70,000 part-time)	850,000 (full-time)

3. Needs in Minnesota

   a. Minnesota is a supplier state of nurses, ranking second in the nation in the yearly number of graduates from baccalaureate programs.

   b. Some Facts About Nursing Education (See attached)

4. The above facts, coupled with awareness that the University is the only higher educational institution in the state where registered nurse students can obtain preparation at either the baccalaureate or masters levels, causes the School's faculty to consider that:

   a. We should conserve resources by discontinuing the practical nursing program before long.

   b. We should not view ourselves as a major supply source for pre-service students at the baccalaureate level, but rather exemplify quality in the program as a stimulus to other programs and as a laboratory in which to test the potential of baccalaureate education as a base for graduate study in nursing.

   c. We should expand enrollments at the masters level in programs that extend students' competencies in nursing per se as well as equip them for a functional area within the field of nursing, such as teaching, supervision, administration, or consultation.

d. Continuing educational opportunities for employed nurses should be expanded.

e. Research in aspects of nursing care, nursing service, and nursing education should be undertaken as competencies for it are developed and as resources can be made available for its accomplishment.

ELF:mjs

1-15-65

MINNESOTA BOARD OF NURSING

SOME FACTS ABOUT NURSING EDUCATION
(Sources: Minn. Board of Nursing and Univ. of Minn.)

	1952	1964-65 (1-15-65)
No. of Schools		
For R. N. Licensure	25	27
Baccalaureate Degree	5 year)	8 (1 new in 1964)
Diploma	20+3 closed this)	17 (1 closing in 1966)
AssociateDegree	0	2 (2 new in 1964)
For L. P. N. Licensure	13	24+1 to begin in 1965
No. admitted to schools		
For R. N. Licensure	1494	1447
Baccalaureate Degree	283	294
Diploma	1211	950
Associate Degree	0	203
For L. P. N. Licensure	340	851
No. Graduated from Schools		
For R. N. Licensure	986	1133
Baccalaureate Degree	117	262
Diploma	869	871
Associate Degree	0	0
For L. P. N. Licensure	278	719 61%

No. Graduated from Univ. Program for Graduate Nurse Students	1952	1962-63
B. S. Nursing Education	62	20
Master Education	4	17
Master Nursing Administration	5	15
B. S. Public Health Nursing	?	28
B. S. Nursing Administration	0	11
M. Sc. or M. P. H. Nursing	?	19
	71+?	110

NOTE: In accordance with the Learn Committee policy of distributing significant papers that are of interest to the planning group, I am forwarding the following papers by Dr. John Anderson. The material was originally presented to community groups interested in pediatrics health care.

John Westerman
Executive Secretary

Sent by Dr. John A. Anderson, Professor and Head
Department of Pediatrics, University of Minnesota

In the past it was fitting to measure health programs for children in terms of mortality rates--so many deaths per 100,000 population from diphtheria, whooping cough, polio and so on. We continue to do this, but are faced with the fact that mortality rates reaching almost to zero poorly described the state of our children's health. If we substitute morbidity rates for many of our very low death rates in children, we get a better picture of the problem. We find that probably 50% of our children, receive only minimal well-child care, that 20% live in poverty and receive equally impoverished care, that severe health impairment from emotional disorders is frequent, that one-third of the draftees in the Korean war were turned down for health reasons, that at least 5% are born with major malformations needing diagnosis and correction, that at least 3% are mentally retarded and 1-2% have serious loss of hearing by 14 years of age. These statistics serve to introduce the main thesis, the number one health problem facing children, namely, the short supply of professional personnel to meet these and other health needs of children.

A reason for selecting this subject will perhaps become clearer by citing some figures recently assembled by Dr. William Stewart, the new Surgeon-General of the United States. He reports that in 1940 there was one pediatrician for every 14,000 children under 15 years of age in the United States. By 1961 the ratio had changed to one pediatrician for every 6,000 children. General practitioners, he finds, were in more abundant supply. In 1940 there was one general practitioner to about every 300 children. By 1961 this ratio had dropped to one for every 750 children. If one combines pediatricians with general practitioners, there was in 1940 one of these for every 284 children, but by 1961 the ratio was one for every 662 children. This ratio of 1:662 does not give an accurate picture of conditions, because two-thirds of the general practitioners time is spent with adults, and children have 3 times as many illnesses as adults. These statistics clearly indicate that general practitioners have been and still are the backbone of medical programs for children and that the numbers of general practitioners relative to the child population has declined drastically. What makes the future care of children a matter of immediate concern is the fact that the numbers of general practitioners are now declining not just relatively but absolutely at a rapid pace. From 1931 to 1964, the number of general practitioners declined from 112,000 to 67,000. The Weiskotten report in 1960 indicated a steady decline in the proportion of medical school graduates entering general practice from 70% in 1930 to 33% in

1950 to 18% in 1961. I have found no one yet who believes this downward trend will be reversed. The United States Census Bureau predicts 76,000,000 children under 15 years of age by 1980. If all these children are to be cared for by pediatricians at the ratio of 1:662, we will need to turn out 100,000 pediatricians during the next 15 years, or nearly the total output of our medical schools. Contrast these figures with the net gain of 798 pediatricians for the year 1963-64 according to A.M.A. reports.

Let us come back to the present and look at some other significant developments. First, the growth of medical knowledge about children has been so revolutionary that it has been difficult even for pediatricians to keep abreast of the times. General practitioners have had even more troubles keeping up. In some of the larger hospitals the responsibilities of the general practitioner have been limited, thus throwing additional burdens on other physicians, especially pediatricians. Second, more and more pediatricians are leaving private practice to work full time in industry, public health, and large medical centers. This is evidently a part of a general trend that has seen an increase in numbers but a decrease in the percentage of physicians in private practice. Third, the total number of pediatricians in the United States has held constant in recent years, thanks to an influx of medical graduates from other countries. Fourth, shortages in the supply of psychiatrists, pathologists, public health physicians, ophthalmologists, roentgenologists and otolaryngologists also exist in this country. Fifth, the passage of Medicare and the new bill to explore the feasibility of establishing 30 new medical centers across the country for the treatment of Heart Disease, Cancer, Stroke will add demands on a profession already stretched thin. Both of these bills provide funds for the care of children. Add these amounts to increasing Federal support for chronically handicapped children, all of which is essential to their proper care, and you get rapidly increasing medical services without any gain in doctors, nurses and other allied professional personnel to render these services except by pulling them away from other important activities. Sixth, the United States presently stands below the top ten reporting countries of the world in neonatal and infant mortality. Mortality in this country for all individuals under 26 years of age is higher than in Great Britain and Scandinavia, leading many to believe that the emphasis now being put on Heart Disease, Cancer and Stroke is a mistake at a time when much remains to be done for the young.

There are good prospects for the child with a major medical problem. Hospitals for children will be able through local and Federal support to provide the complicated diagnosis and treatment these children need. The great children's hospitals throughout the United States were started with private money obtained from citizens who had the foresight and wisdom to affiliate with medical schools. These institutions now are supported by private and Federal funds, working I would say quite harmoniously for an obvious need. Affiliation with a medical school education and research program is usually an essential requirement for Federal, National or private foundation funds.

The other fortunate group of children is made up of those whose parents can obtain pediatric and other specialty services on a private practice basis. This group at least includes about one-third of all children.

The great problem for the future is two-fold: the great multitude of children who ordinarily would be cared for by general practitioners and the 20 percent of our children who live in economic poverty.

For the impoverished children the Federal government apparently hopes to provide comprehensive care by purchasing medical and nursing services outright. Just where the doctors, nurses and other professional personnel will come from is difficult to say. It is axiomatic that if you want to meet the needs of these children, you have to take it to them. You cannot set up facilities and personnel away from them and expect them to avail themselves of the opportunity in large numbers. At present the Federal government appears to be depending on local action to provide facilities. If no local action is taken, no program.

The second problem for the future is the great multitude of children who have neither pediatrician nor general practitioner to administer to their daily needs. Children do get sick. Children are born with complicated problems that need early diagnosis and treatment--whether their families are poor or well off. Who is going to make the correct diagnosis? Who is going to provide the proper treatment? These concerns may be premature; however, changes are occurring in other medical disciplines--particularly psychiatry--where admittedly the shortages of trained specialists is presently greater than in pediatrics. According to an article in the October issue of Harpers, New York City has one area of 350,000 people but not one psychiatrist. Psychiatric help is being organized for these people by using ward attendants, clerks and nurses aides, who listen to other people's problems. These aides are recruited from the neighborhood they serve and are given three weeks full-time training before they start on the job. On the job they are supervised by a clinical psychologist or social worker. The future will have to bring some change in present methods of caring for children. More non-medical personnel will be involved; but, hopefully, they will have more than 3 weeks of training.

One of the future developments will no doubt include the widespread use of screening techniques. We have had some experience with these in the past, such as tuberculin testing, blood tests for syphilis, mass chest x-rays. Other screening tests are available now, but lack the personnel and organization to put them into large-scale operation, including screening for dental, visual and auditory defects. These can and should be done by trained technicians. Dentists, ophthalmologists and physicians should not, in view of their short supply, be involved in screening techniques except to see that they are properly done by others. Tests for PKU are becoming mandatory for newborn infants in more and more states. This is only a beginning and in another few years technical advances will allow us to screen the newborn population for many more inborn errors of metabolism. Screening for mental and emotional illness in children on a mass basis would be desirable, but probably is farther off.

A second possibility for meeting future needs lies in the reorganization of private pediatric practice. There is need for pediatricians to organize their time and efforts, so that they make maximal use of their training and experience. This may not be easily done in all cases for some physicians in private practice

have not consciously set out to organize themselves and their skills in relationship to community needs. Furthermore, someone or some group will have to determine what is the best use of their training and experience, and this may--and almost certainly will--run counter to public demands. During and after the war years, pediatricians began making fewer house calls in order to meet increasing demands that could be handled better in the office or hospital. The public did not like it and responded vocally but went along because it had to. In the interest of saving a great deal of travel time through congested city streets, it would be helpful if the pediatrician visited only one newborn nursery instead of six or more. But will the pediatricians accept this change short of a dire emergency or national catastrophy?

Other areas of private pediatric practice could be examined. For instance, there is every reason to believe that nurses, psychologists, social workers and others will be playing a larger role in the health care of children, if for no other reason than the acute shortage of doctors. It is unlikely that the best use will be made of these allied professions, unless they work in close relation with physicians. These allied professions now tend to congregate in medical centers, large hospitals and large clinics. There are ways of bringing them into closer contact with practicing physicians than now exists. There would be great advantages if the private physician, the practicing pediatrician, located his office in and near medical centers and hospitals. In this country tradition has led them to locate away from these centers. Close geographical proximity of practicing physicians and hospitals would also make continuing education of the physician more feasible. Suburbanization of pediatrics, no doubt, will make close geographic proximity difficult; however, location of centers adjacent to rapid freeway channels of transportation will help.

The chief purpose of the above is to stimulate interest in planning what can and should be done and not to push forward any of the personal proposals. Changes in pediatric practice will come about not because of a single person's views but because of powerful social and economic forces or because of broad-based planning. Planning must involve the consuming public as well as the profession. If you examine the history of social planning for health, you will find that organized medicine in Europe and this country has fought against every proposed change and lost every battle. Organized medicine has repeatedly underestimated the social and economic forces that were operating, while the politicians like Bismark, Churchill and Lloyd George understood them very well and led one successful campaign after another in the Reichstag and Parliament. It is a curious paradox that about 100 years ago European countries began taking legal action to extend medical benefits to all people but neglected to do the same for their education. We in this country, on the other hand, began taking legal action to provide education for all children, but neglected to do the same for their health. The first legal action to provide education for all children was taken by the Massachusetts Legislature in 1852. The first health insurance law was passed by the Reichstag under Bismark in 1884. The explanation for this paradox is difficult, but it would appear on the surface that one-half the Western family decided health was socially important, while the other half voted for education. Neither half is planning to

rescind its actions. This paradox, is mentioned because it illustrates that people do plan and do take action. Furthermore, some of the best planning is done locally. The health problems of children in Minneapolis and in Minnesota and their resolution are not necessarily identical with other areas.

Information presented by Dr. John Anderson to a group interested in p'ediatric health care. This format of presenting data leads one to a variety of conclusions. Implicit in the data is the question of whether we can meet the needs in this area by expansion of current practices or do we need to take a new appraoch to the way in which we provide pediatric health care.

John Westerman

Executive Secretary

The following are statements and figures obtained from a variety of reports which may provoke or aid discussion.

1. Probably 50% of the children in the U.S. receive minimal wellchild care.

2. Probably 20% of the children in the U.S. live in poverty and receive equally impoverished care.

3. Severe health impairment from emotional disorders is frequent (probably four million children).

4. The suicide rate among adolescents has doubled in the last ten years.

5. One third of the draftees for the Korean war were turned down for health reasons.

6. Five per cent of our children are born with major malformations needing diagnosis and correction.

7. Three per cent are mentally retarded.

8. One to two per cent have serious loss of hearing by 14 years of age (estimated 1.5 million).

9. The Head-Start Program suggests about 1.3 million pre-school children are socially disadvantaged.

10. Limited surveys in certain parts of the country indicate that 50% of the children encountered in the Head-Start Program in the summer of 1965 needed medical attention.

11. One half of the U.S. children have never been to a dentist.

12. Population islands exist in our metropolitan as well as in certain rural areas where infant mortality in the first year of life is as high as 50 per 1,000 live births.

13. Children in families who receive an income above $7,000 visit a physician twice as often as children from families with an income of $2,000 or less.

14. In 1940 there was one pediatrician for every 14,000 children under the age of 15 in the U.S.

15. In 1961 there was one pediatrician for every 6,000 children.

16. In 1940 there was one general practitioner for every 300 children under 15 years of age.

17. In 1961 there was one general practitioner for every 750 children under the age of 15.

18. The ratio of physicians to children under 15 has decreased from one per 284 children in 1940 to one per 662 in 1961.

19. Pediatricians spend approximately 2/3 of their time in wellchild care.

20. General practitioners spend approximately 2/3 of their time with adults.

21. Children have three times as many illnesses as adults.

22. In 1931 to 1964 the number of general practitioners declined from 112,000 to 67,000.

23. Medical graduates entering general practice were 70% in 1930, 32% in 1950, and 18% in 1961.

24. General practitioners are now limiting their professional responsibilities and are thrusting an increasing burden upon pediatricians and other physicians for pediatric care.

25. More pediatricians are leaving practice to work in industry, public health, large medical centers, and special research programs.

26. The U.S. stands below the top ten reporting countries in neonatal and infant mortality.

27. The mortality in the U.S. for all individuals is higher than in Great Britain and Scandinavia. "Is heart, stroke, and cancer a mistake when so much needs to be done for the young?"

28. The prospects for a child admitted to a hospital in the U.S. are good.

29. Children receiving private medical services and specialty services are the most fortunate group and represent at least one third of our children.

30. In 1956 76% of internships were rotating, 20% were straight, and 4% were mixed. In 1965 50% were rotating, 35% were straight, and 14% were mixed, 1% others. In 1964 there were 90 straight pediatric internships training 419 individuals. Fifty-five of these programs were affiliated with University Hospitals and trained 286. Thirty-five were in non-affiliated hospitals and

trained 133.

31. Residents constitute 11% of all physicians in the U.S. Pediatrics residents constitute 13% of all pediatricians in the U.S.

32. In 1950-51 14% of all residencies were filled by foreigners. In 1964-65 29% of all residency positions were filled by foreigners.

33. In 1964-65 37% of the filled pediatric residency positions were filled by foreigners.

34. In 1964-65 34% of the filled positions in affiliated pediatric hospitals were filled by foreigners and in non-affiliated hospitals 41% were filled by foreigners.

35. In 1964-65 there were about 2,000 pediatric residents in training in 308 pediatric hospital programs. There were 1059 in 128 affiliated programs and 876 in 180 non-affiliated programs.

36. Each day, each resident cares for seven new sick hospitalized patients, 4.8 new pre-matures and newborns, and sees 7.2 out patients (1963-1964).

37. There are 222 professors, 267 associate professors, 409 assistant professors and 264 instructors (total 1162) fulltime faculty in pediatric departments in the U.S. This represents 9% of the total fulltime clinical faculty. (Internal medicine, 25%; psychiatry, 15%; surgery and surgery subspecialties, 15%).

38. Federal support to pediatric departments, training or research. 231 of faculty receive 100% of their support from federal sources. 126 receive 50-99% from federal support. 202 receive 1-49% federal support.

39. 43% of the pediatric departments of the U.S. are without significant research activity in their environment.

40. Survey of research activity in 75 pediatric departments in the U.S. indicate the following:

    A. Range of volume of research--1-70 projects. Thirty-six departments had less than 10; 27 departments had 10-19 projects.

    B. Inter-departmental associated research activity.

        1. 18 departments had no association.
        2. 23 departments had one association.
        3. 5.2% of all projects were associated with other clinical or basic science department research activity.

    C. Fiscal support of 702 projects in pediatrics departments. Eighty percent were funded from one source, 62.3% from federal sources,

23.4% from private foundations or philanthropy and 9.3% from a variety of other supports.

D. Research expenditures in fifty-seven departments. The range was $3,000 - $2,000,000.

E. Category of research (890 projects from 73 schools).

1. Related to disease state - 520 projects.
2. Physiologic research - 310 projects.
3. Organizational research - 27 projects.

F. Emphasis of the project orientation.

1. Biochemical - 170 projects.
2. Clinic medical specialty - 141 projects.
3. Immunology and microbiology - 135 projects.
4. Physiologic research - 150 projects.
   (Total 75% of all projects).

41. Self-evaluation of residency training. Thirteen thousand questionnaires were sent to board diplomates or those having two years or more of residency training. (85% response). 68.6% of responders were American Board diplomates.

A. 45% had taken more than two years of residency.

B. Residents taking straight internships were more likely to take residency in the same institution.

C. 60% of residencies were taken under the head of the department of pediatrics.

D. 75% of the respondents are in private practice.

E. 18.8% of all respondents do some specialty work. Allergy was most frequent.

F. Expressions of low level of interest or desire to have the are deleted from their private practice:

1. 260/7,844 said child care.
2. 245/7,844 said psychology and behavior problems.
3. Also mentioned were office management problems, house calls, minor surgical problems and mental retardation. The predominant reason was a low level of competence, or interest or not economical.

UNIVERSITY OF MINNESOTA
Minneapolis 14

Office of the President

COMMITTEE FOR THE STUDY OF PHYSICAL FACILITIES FOR THE HEALTH SCIENCES

Minutes of meeting March 22, 1965

Present: Elmer Learn, Chairman, Cyrus Barnum, Winston Close, Edna Fritz, N. L. Gault, Jr., Gertrude Gilman, Mellor Holland, Robert Howard, James Jensen, Frederic Kottke, Richard Magraw, Erwin Schaffer, John Westerman

Absent: Gaylord Anderson, Lyle French, Sterling Garrison, Eugene Grim, Robert Isaacson, Ione Jackson, William Shepherd

I. PRESENTATION BY EDNA FRITZ

Professor Fritz spoke from an outline circulated to the group. In commenting on the outline, Miss Fritz noted that the current masters programs in education and administration have carried over from an earlier time when most such programs prepared for specialized functions within the field of nursing, but did not contain substantial content in nursing, per se. The present values in graduate education for nurses are exemplified in programs such as the School's newest one in psychiatric nursing which leads to a master of science degree under Plan B of the Graduate School. However, consideration of further revisions at the graduate level has been so far deferred to permit a thorough strengthening of the undergraduate program.

Nursing is just beginning to differentiate among levels of practice within the field. The Surgeon General's 1963 report, Toward Quality in Nursing Care, noted that nurses were needed at all levels and therefore urged a general expansion in training in spite of the ongoing review of levels of preparation. The Nurse Training Act of 1964 which stemmed from this did not provide as much financial support to baccalaureate level programs as to hospital schools, however.

Since Minnesota is a supplier state of nurses, the persistent complaint of shortage may be related to utilization and quality as well as to quantity.

The trend is to develop levels of preparation in terms of emerging levels of practice.

PROGRAM LEVELS	PRACTICE LEVELS
Graduate	Expert practice/Administrative/ Supervisory/Teaching
Baccalaureate	Beginning professional
Diploma/Associate	Technical
PN	Supportive (vocational)

What number of beds are required per student to be taught?

There is no standard ratio. The student-faculty ratio is more important. Not all patients are appropriate for teaching nursing to students at every educational level, and there is a question of how much of being a subject for teaching any one patient can tolerate. However, if we had sufficient faculty to guide more students in their clinical laboratories, I suppose we could expand enrollments here beyond the current class size of 95 in the basic program.

Would the question of affiliation with other city hospitals be seen in a different perspective if full-time faculty were based in the affiliated hospital?

Yes; however, it should be pointed out that at this time most of the major hospitals in the Twin Cities have their own programs and/or affiliations. Another approach to the faculty-student ratio is illustrated by a recent report of the use of TV enabling one instructor to monitor up to 15 students as they carry out nursing activities with patients. This experiment has taken place in Montiefieore Hospital, New York, N.Y., which serves as a practice field for the associate degree program at Bronx Community College.

Another difficulty in planning for the most effective use of physical and personnel resources is that nursing education is not coordinated on a regional basis in the midwest. Minnesota is again trying to have an association of the various involved groups, but past efforts at this have been abandoned because the individual educational programs are unable to reconcile their personal goals with the need for state-wide and regional planning.

Is Minnesota the only advanced degree school in the state?

Yes.

There is Mankato.

At the baccalaureate level, yes. However, Mankato's program is not professionally accredited. There is real question, too, as to whether it was wise to start the Winona program on limited resources and in light of the serious shortage of qualified candidates for faculty positions.

Is your LPN program integrated into the other programs?

It is a separate program involving four full-time faculty. The PN students have different instructional needs and very few live on campus. It was once felt that future teachers for practical nursing programs needed practice teaching experience in exemplary programs. Now it is thought that sound preparation for teaching, coupled with a knowledge of nursing, prepares one for teaching at any educational level.

It is true that one-half of the 45 LPN graduates do work for University Hospitals after graduation. We value that.

Yes, that is so; and if the School is to be looked to as a supply source for University Hospitals, then it might be said that the program should be continued indefinitely. However, looking at the state and region, proportionately more practical nurses are being prepared than are others and ours is the only setting now that can prepare the teachers for the programs at all levels that are being urged to expand. Where should the University place its emphasis?

Miss Fritz would predict that in 25-30 years there would be (1) a nurse trained at the technical level, most likely in junior college programs leading to an associate degree; (2) a nurse trained at the baccalaureate level for beginning professional practice which is only now being truly delineated; (3) the discontinuance of PN programs. At present the LPN group is asking for "post-graduate" training programs because they realize they are being called upon to do more than they are prepared for in situations with little or no supervision.

How many baccalaureate students do you graduate per year?

Approximately 70. The attrition rate averages about 25%.

How would the degree girls compare in employment durability to the LPN?

There is no evidence on this.

Most of the degree girls marry. It seems to me you would get more work life out of practical nurses.

Possibly, but some 54% of the employed registered nurses are married. The interruption period before re-entry into the field seems to be 10-12 years for many.

Because of the shift in emphasis in baccalaureate programs, is it possible that an internship or OJY program may evolve for nurses?

Perhaps. However, internships have not proved an unmixed blessing even to medicine. I wonder, too, about the time involved in them in a woman's field. Other industries spend a great deal of time and energy on employee orientation and development for beginners, and hospitals may well have to improve their in-service education programs.

II. PRESENTATION BY GERTRUDE GILMAN

Miss Gilman spoke from notes she will have circulated when the dates and figures are verified. (outline)

A History
B Current Projects
C Needs-long run
D Budget
E Staff
F Problems
G Community Relations-memberships
H Summary

Dr. Howard commented that 1) A striking feature about this hospital is how well it has been maintained. Major credit should go to Mr. Amberg in instituting this far-sighted program. 2) While the legislature sometimes question the support for facilities that were given to the medical center, it is clear we could not have developed without the support of private donors and federal programs. Mr. Learn asked Miss Gilman if she could develop a list of the capital expenditures in major hospital construction since its founding and the source of building funds.

The site was deliberately chosen to limit the future growth of the University Hospital in accord with the pressure of the state medical society. This was a typical pattern in the development of medical schools in this country. Relations with the local community are reasonably good.

What about future expansion?

Expansion plans will have to meet the approval of planning agencies. There is a need for more beds. The development of the Eye Department is an example of why there is a need, and how rapid such a demand for additional beds can come about.

Will there be more emphasis on out-patient facilities?

Yes. The Out-Patient Clinic Directors Committee is working on just such a proposal. There are a number of reasons for this need, both economic and educational. It is fair to say that the out-patient department lags behind the in-patient departments in facilities, because the needs have changed so much over a period of time.

Are funds more difficult to secure for out-patient facilities than in-patient?

Yes

III. PRESENTATION BY CYRUS BARNUM

As of 1965 the six basic science departments have from 9 to 16 full-time resident faculty members and from 1 to 10 affiliated members whose major appointments are in other departments or in an affiliated hospital. Looking at one department, Biochemistry, one can see the growth in faculty over the last 25 years; in 1940 this department had 6 full-time resident faculty members and one affiliated member; today the corresponding numbers are 12 and 9. It is presumed that faculty growth will continue and that dual appointments will become increasingly significant for several of the basic science department.

The number of graduate students ranges from 17 in Pathology to about 50 in Physiology and Biochemistry. Again for Biochemistry this represents a dramatic increase from the 8 to 10 graduate students in 1940.

For most of these departments the basic medical school course(s) is(are) essentially only for medical students. In the case of Biochemistry, where medical technologists and graduate students still take the same course with the medical students, there will be a separate course for medical technologists in the fall of 1965 and a larger fraction of graduate students will be enrolling in a new course that began in the fall of 1964.

All of the basic science departments offer courses for dental students and several of them offer various courses for students in nursing, medical technology, pharmacy, mortuary science, dental hygiene and/or physical therapy.

In addition to these courses for students in professional programs several of the departments (notably Microbiology, Physiology and Biochemistry) offer courses that are available to students in CLA and/or I. T. The increasing appearance of various basic medical science courses in undergraduate curricula has at least two important implications for the future: 1) we shall have to begin and/or increase our training to prepare teachers for such undergraduate courses in various colleges and universities; 2) we may expect to facilitate our recruitment of graduate students as more and more undergraduates become aware of the opportunities.

All of the departments have courses specifically designed for graduate students (200 - level courses) but particularly in the case of Biochemistry this represents a substantial number of didactic courses that are taken by a large number of graduate students from various departments and colleges of the University.

In considering future construction of facilities for basic sciences several points might appropriately be kept in mind:

1) It will be highly desirable to bring the six basic disciplines into close working relationship in order to facilitate cross-fertilization;

2) It would seem quite feasible to construct certain teaching laboratories and research facilities that could be usefully shared;

3) The ability of basic science faculties to interact with clinical faculties should also be borne in mind.

IV. CHAIRMAN LEARN ANNOUNCED that no rejections to sub-committee appointments have been received and the sub-committee chairman may proceed with their meetings. Mr. Learn would hope that each chairman will have met at least once with his group and report to the next parent committee meeting on April 26th, 3:30 p.m., 510 Diehl Hall. This is a tenative date and Mr. Westerman will work with the sub-committee chairman to set a definite time.

Respectfully submitted

John H. Westerman
Executive Secretary

COMMITTEE FOR THE STUDY OF PHYSICAL FACILITIES FOR THE HEALTH SCIENCES

Suggested agenda for Monday, May 10

1. Welcome representatives for absent members
   Mr. Gerard Frawley for Miss Gertrude Gilman

2. Note that minutes of last meeting (March 22, 1965) have been circulated

along with sub-committee minutes from:

Clinical Medicine & Hospital	N.L. Gault, Jr.	4-19
Ancillary	Frederic Kottke	4-26
Basic Sciences	Eugene Grim	4-27

note No Public Health

When you came in you were handed the following material

Nursing	Edna Fritz	4-28
Hospital Task Force	James Stephan, N.L. Gault	5-3
Dentistry	Mellor Holland	5-4
Ancillary (#2)	Frederic Kottke	5-6
Clinical Medicine Task Force	Lyle French (Gault)	5-6

- Note DR French's excellent letter as enclosure

At this point I'd like to express the appreciation of Mr. Westerman and myself for the most cooperative way your secretarial staffs have reproduced these minutes, often on short notice.

??In keeping with our policy of distributing papers bearing on our task, also included in the material you have are reports by:

Dr. Graham Beaumont, Dept of Medicine, On a "Seminar on research in patient care" he attended at the University of Chicago, March 1-5 , 1965

John Westerman, "Conference on medical schools, teaching hospitals: Curriculum, programming and planning" March 17-20, NY,NY

3. If there are no objections, I'd suggest we proceed with our reports on the order that the meetings were held, but including Dr. Gault's two task force reports after his full sub-committee report.

4. ??Within a short time, I will be posting this committee a letter addressed to the sub-committee chairmen, in which I will attempt to define with more precision the scope of our study and what kind of data we expect

in the fall report from the sub-committees.

UNIVERSITY OF MINNESOTA
Minneapolis 14

Office of the President

COMMITTEE FOR THE STUDY OF PHYSICAL FACILITIES FOR THE HEALTH SCIENCES

Minutes of meeting May 10, 1965

Present: Elmer Learn, Chairman, Gaylord Anderson, Cyrus Barnum, Lyle French, Edna Fritz, Eugene Grim, Mellor Holland, Robert Howard, Frederic Kottke, Richard Magraw, Erwin Schaffer, John Westerman

Absent: Winston Close, Sterling Garrison, N. L. Gault, Jr., Gertrude Gilman, Robert Isaacson, Ione Jackson, James Jensen

NEXT MEETING MONDAY, JUNE 7, 1965, 3:30 P.M., ROOM 510 DIEHL HALL

1. Dr. Learn noted that the minutes of the last meeting (March 22, 1965) had been circulated in advance, along with sub-committee reports from:

Clinical Medicine & Hospital	N. L. Gault, Jr.	4-19
Ancillary	Frederic Kottke	4-26
Basic Sciences	Eugene Grim	4-27

Sub-committee reports handed out at the meeting included:

Nursing	Edna Fritz	4-28
Hospital Task Force	N. L. Gault, Jr. & Jim Stephan	5-3
Dentistry	Mellor Holland	5-4
Ancillary (#2)	Frederic Kottke	5-6
Clinical Medicine Task Force	N. L. Gault, Jr. & Lyle French	5-6

In keeping with the policy of circulating papers of general interest to the committee, two reports were distributed.

Graham Beaumont, M.D. Director of New Medicine Clinic, Department of Medicine, Report of "Seminar on Research in Patient Care," University of Chicago, March 1-5, 1965.

John Westerman, Report of "Conference on Medical Schools, Teaching Hospitals: Curriculum, Programming and Planning," New York, N.Y., March 17-20, 1965.

2. The sub-committee reports were presented. Some sub-committees requested decisions from the parent committee. These included:

a. Ancillary

The committee recommended the Ancillary group study the programs outlined in their minutes. Dr. Howard raised the question of what mechanism do we have to establish the needs for ancillary personnel? There was no clear answer, but a survey of the departments utilizing ancillary personnel seemed to be a practical approach. The committee also thought it appropriate to consider programs that we do not now have. This additional work may involve a different organization of Dr. Kottke's group.

It was agreed that it would be helpful if the Ancillary group could develop criteria which could be used to determine which programs can only be carried out in a University setting, which programs need a University setting to function most effectively, and which programs are important from the view of the role and objectives of our service and educational programs.

b. Basic Sciences

The committee recommended that Genetics and Behavioral Sciences be subjects for study by the Basic Sciences sub-committee. It would be helpful if the basic sciences group would explore the relationship with the new life sciences program.

c. Clinical Medicine Task Force

The clinical medicine group raised questions about policy decisions that were needed before a role and program study could be started. Dr. French has already written Dr. Howard about this matter and they will meet to answer the questions of the group.

There was no report from the Public Health sub-committee.

3. Dr. Learn thought the sub-committees had made a good start and asked if the time table we had set for ourselves still seemed appropriate after the first meetings. The committee thought it would be possible for the sub-committees to submit a report on the first phase of the study by early October, 1965.

Dr. Learn noted that the matter of meeting the deadline is quite important because of a new timetable in preparing University building requests. This may mean we will have to sacrifice some depth in our study to set a priority on our most urgent needs.

4. The committee decided to distribute all future minutes to members of the sub-committees. It was also recommended that all sub-committee minutes be distributed to all of the members of the sub-committees. This means that we will need at least 60 copies of future sub-committee minutes. Dr. Learn expressed his appreciation to the chairmen of the sub-committees who have taken the responsibility for reproducing their minutes.

5. Before the next meeting, Dr. Learn will distribute suggestions to the sub-committee chairmen about the scope of the study for the FAU report.

Respectfully submitted,
John H. Westerman
Executive Secretary

COMMITTEE FOR THE STUDY OF PHYSICAL FACILITIES
FOR THE HEALTH SCIENCES

Minutes of Meeting June 6, 1966 (#20)

Present: Elmer Learn, Chairman; Gaylord Anderson, Lyle French, Edna Fritz, Sterling Garrison, Gertrude Gilman, Eugene Grim, Mellor Holland, Robert Howard, Robert Isaacson, Ione Jackson, Hugh Peacock, James Stephan, William Thorp, John Westerman, McCollum Brasfield, Edmund Nelson, Kathryn Ritzen

Absent: Winston Close, N. L. Gault, Jr., James Jensen, Frederic Kottke, Richard Magraw, William Shepherd, Lawrence Weaver

NEXT MEETING: AT THE CALL OF THE CHAIRMAN

Sent Out Since Last Meeting

a.	Learn Committee Minutes	May 9, 1966 (#19)
b.	Basic Sciences Subcommittee Minutes	May, 19, 1966 (# 8)

1. Dr. Learn began the meeting by discussing the legislative building request, which includes substantial funds for land purchase and planning monies for the health sciences. The justification for this request is essentially the expansion plan which the space consultants outlined to the President and Vice Presidents on April 11. This will be presented as a separate part of the total legislative request.

On June 23 Dean Howard will be present at a session of the Fitzsimons Health Manpower Committee to answer questions about the expansion of the medical school and the training of family physicians. The activities of the Fitzsimons Committee and the publicity which immediately will be given to our building request as soon as it's presented to the Legislative Building Committee about the middle of June, will put additional pressure on our committee to complete its work by December of this year. Accordingly, Dr. Learn suggested that this committee send a letter to the health sciences faculty, before the Legislative Building Committee meeting, explaining the nature and status of the present expansion proposal. Mr. Westerman, as Executive Secretary, was asked to compose and distribute such a letter.

2. The proposal to use Powell Hall as an interim clinic facility was discussed next. Dr. Learn reported that the Administration might request some funds this legislative session for converting Powell Hall into a temporary outpatient clinic, providing that it could be done for minimum cost with a minimum

of remodeling. The Clinic Directors, Dr. Learn noted, have been very responsible in their preliminary consideration of this possibility, suggesting only minor necessary modifications. If the move were to take place, the School of Nursing could be expected to occupy some of the vacated clinic area, allowing Basic Sciences and Dentistry to expand into vacated nursing space. Remodeling of Powell Hall could not even begin before Spring quarter 1967; however, real feasibility and costs are still the determining factors in the proposal.

Since Nursing would move into vacated clinic space, Miss Fritz inquired whether funds for remodeling should be requested now under the Nurse Training Act. Dr. Learn asked Mr. Stephan and Mr. Westerman to discuss with Miss Fritz the type and cost of remodeling that would be necessary, and any funds that should be requested.

3. Dr. Learn announced that the Clinic Directors Building Subcommittee has been made a task force of the Clinical Medicine-Hospital Subcommittee.

4. The most important business of the meeting was the discussion of completing the basic assignment of long-range planning for the health sciences. The publicity following the legislative request will be such that we will be committed to presenting a complete, detailed expansion plan to the 1969 legislature. The needs in the health sciences are so great that we can expect general acceptance of our plan even now when we make our land and planning fund request. Our assignment has to be completed, however, in time to assign overall University priorities by eighteen months from now. Therefore, we need a final, definitive report before January 1967. The subcommittees should plan to hold meetings this summer to examine the preliminary report and begin transforming generalities into specifics.

In refining the subcommittee reports, planning should now be on the basis of 200 medical students and 150 dental students, with appropriate adjustments in other student categories. In addition to more definitive program statements and specific numbers of students, the subcommittees need to estimate the number and types of faculty, as well as the size of the civil service staff, the cost figures and operating budget required to carry out the program. The subcommittees should work with the space consultants to translate program activity relating to teaching, research and service into specific space terms (numbers of offices, classrooms, laboratories, etc.). Since each subcommittee will concentrate on its own area. Mr. Stephan, Nelson and Westerman were asked to be responsible for removing space conflicts or duplications cutting across subcommittee jurisdictions.

THE GOAL IS FOR EACH SUBCOMMITTEE TO HAVE A REVISED PROGRAM STATEMENT BY OCTOBER 1, 1966. Although this may not represent the final version, it should contain the questions to be answered in the final analysis. It is obvious how important it is that the University Health Sciences expansion program be so well supported by analysis that the legislature virtually has no choice but to accept it.

In composing the reports, the subcommittees should act as more than a funnel for everyone's requests, and should be prepared to make hard judgments about priorities. In response to a question about planning on the basis of space likely to be allotted, Dr. Learn advised that this should not be done at the outset, since space figures should be derived from the anticipated numbers of students, faculty, laboratories, etc. Although there are at present no good standards pertaining to unit sizes for health sciences space, Mr. Stephan suggested that a subcommittee be formed to help set such standards. Dr. Learn suggested that the committee include Mr. Stephan, Mr. Peacock, and Mr. Vernon Ausen.

Since the health sciences expansion plan realistically will not be completed before 7 to 10 years, the space consultants need projections from the departments on the timetable for increasing the number of students and staff, in order to have a comparable timetable for construction. IT IS PARTICULARLY IMPORTANT THAT THE ACADEMIC VICE PRESIDENT BE CONSULTED BEFORE FINAL DECISIONS ARE MADE ON THE NUMBER OF FACULTY TO BE HIRED. IT WOULD BE WELL FOR THE SUBCOMMITTEES, IN THE MINUTES OF THEIR MEETINGS, TO SPECIFICALLY REQUEST VICE PRESIDENT SHEPHERD, DEAN HOWARD AND DEAN SCHAFFER TO COMMENT ON THE NUMBERS OF FACULTY, BEFORE DEVELOPING DETAILED SPACE NEEDS. The programmatic statements will have to justify increases that go beyond strict ratios of increased faculty to increased students. Judgments will have to be made about the extent of research commitments since this will have a direct bearing on the physical facilities planned for.

5. Dr. Learn reported that Dean Weaver is very interested in the work of this committee and is concerned that we take account of the College of Pharmacy in our planning. He would like to talk to the committee about the relationship of Pharmacy to the rest of the health sciences, perhaps at our next meeting or in a special summer meeting.

Respectfully submitted,

John H. Westerman
Executive Secretary

Excerpts from PRINCIPLES OF HOSPITAL DESIGN
Gainsborough and Gainsborough

Prepared by James W. Stephan
June 1, 1965

Treatment Room

"That all non-isolated cases should receive their post-operative surgical dressing in a positive pressure ventilated treatment room, but the air from this room must not be blown into ward areas".

Sterilization by Gamma Rays

"On the supply side how much time and labour can be saved in the despatch of clean linen by avoiding stacking, re-stacking and repeated checking? Central linen supply and delivery is the administrator's task but the case of central sterile supplies is more complex as medical and nursing interest is essential for the maintenance of sterility, form and contents of the packs, usage and testing of disposal material, development of new and safer nursing techniques and methods of return of instruments and non-disposable material to avoid loss. There is a rapidly growing literature on the subject and it is unnecessary here to go into details. One must expect techniques to develop quickly with many changes and improvements in the coming years. Each medium size hospital needs its own central sterile supply department, particularly if the operating theatres are to be supplied with instruments as well as packs. The use of sterilization by gamma rays could lead to sterilization of materials for large groups of hospitals and the extension of such facilities may reduce the hospital department to a storage and delivery unit, but using its own sterilizing equipment over a more limited range."

Discussion of Yale Index

"It has been maintained that, by plotting nurse movements on a plan by the use of string, joining locations marked with pins, we can estimate efficiency, but it should be obvious that all that is determined in this way is the daily or shift walking distances of nursing staff. In other words such an index concerns nurses travel but does not necessarily give any clue to the comfort of the patients in bed or out, their walking distances and itineraries, the handling of visitors, the degree of control by sister and senior nurses, the safety from cross-infection, the facilities for treatment or examination and the capacity for meeting emergencies. Consequently the Yale Index (Pelletier and Thompson 1960) is misunderstood to such an extent that Professor Thompson (1963) has had to emphasise that the correct name is the Yale Traffic Index for it is no more and no less than a study of journeys by nurses. Professor Thompson (1963) is quite clear about the basic assumptions, and that the index cannot be used as a comparison criterion except within the range of hospitals, units and standards on which it was founded. It is very interesting to find that in his comparisons of thirty hospitals the first ten hospitals according to his rating are either circular (4), square (2), double corridor (2), semi-

circular (1), or 'semi-square' (1), and that all the single corridor designs are below these in order in his listing. Any careful analysis of a number of plans would suggest a similar order of efficiency and this is because the best plans were developed successfully with the object in view of keeping walking and working distances down to a minimum. In fact there is circular thinking here inasmuch as the highest rated plans were developed on the same principle as the index, and the same index is used again as a means of testing, hoping for a more quantitative expression of this one principle symbolising nurse travel.

"A traffic index must be limited in value by formulating it in such a simple linear dimension, because each nurse journey has different purposes and different qualities. Observability has been defined herein as a major principle of ward design, and the subjective aspect is the capacity of the nurse to see and look (for these are different) at what is going on. She is not just a pedometer though her legs ache from tiredness, for she may get more fatigued from standing than from walking. When she goes from, say, nursing station to the patients' area she deliberately becomes aware of what goes on round her amongst the patients but, however well trained as an observer, she is dependent on the built-in visibility within the wards and corridors. Fig. 29 demonstrates this in relation to single-bed rooms of different design but the pattern can also be easily demonstrated in whole ward design. The qualitative differences may occur in another way, for having accomplished the purpose of her journey to Mrs. A. she has become aware of tasks for other patients who may need a kind word or urgent physical attention.

"So we must not expect too much of a numerical index, however carefully loaded by the frequency or importance of specified journeys' it may suggest a plan is a poor one in one respect but not as regards all the dimensions of functional efficiency".

Intensive Care as Part of Ward Unit Beds

"It is fair to conclude that an intensive nursing unit should consist of suitably equipped single-bed rooms for the sake of isolation against infection, privacy for freedom from noise and disturbance and to allow appropriate visiting, as well as ample room for storage of necessary equipment both in and outside the room. If we also accept from our earlier arguments that intensive care is best available in each department under the immediate control of the physician, surgeon, orthopaedist, gynaecologist or others, we overcome also the difficulties of varying loads and regain flexibility both for immediate requirements or for future developments. It is probable that any group of 60 beds on one floor would efficiently support such a unit, but as the unit is only a moiety of the total single-bed rooms required the main and essential planning desideratum is a well placed nursing station with accommodation for the equipment; and then the actual beds required for the unit can be expanded, or contracted, within the efficient range of the nursing station. As there is ample description in the official American literature of the equipment required it is unnecessary to list it here. There will however be further discussion on the functional incorporation of the units in ward plans, especially in relation to surgical wards.

"The building and equipment costs of these units will be relatively high but entirely justified by the efficiency gained in the care of the most acutely ill patients and for

the future development of techniques which are in their earliest stages at present. In the report of the 13th International Hospital Congress the following is quoted, 'If the shortage of nurses continues, it will be interesting to see how many hospitals have to close their intensive care units'. This cannot apply to the units proposed here for if they are integrated part of the wards, shortage of staff only means that staff must be allocated or re-allocated within the total ward to meet the points of greatest need".

Criteria for Nursing Unit Design

"We have now arrived at a stage where analysis and theoretical discussion of present and future trends need go no further at the moment. The major principles have been defined and it becomes essential to visualise the incorporation of these into finite plans. We therefore briefed ourselves to plan wards in accordance with these hypotheses, without compromise on major principles and requirements. The first part of the brief contained the following elements:

(1) Each general ward should provide for an acute care section and for an intermediate care section.
(2) The acute nursing section to be provided within the group of single beds necessarily allocated for the control and prevention of cross-infection.
(3) The beds in the acute nursing section are for the use of all acutely ill patients needing continuous observation, and this is the simple criterion for admissions thereto.
(4) Maximum observability must be provided for the whole single-bed group.
(5) An accurately designed Nursing Station must be both the centre of nurses' activities and the main observation point. It is to incorporate the functions of clean utility, provision of medicines, clean linen trolley storage, and a kitchenette. The dirty utility area must be alongside.
(6) The hygienic provision should be of high standard, each room having its own w. c., w. h. b. in the closet and w. h. b. for the staff.
(7) Single-bed rooms in the acute section should be large enough to accommodate all the appartus likely to be required at any one time.

As the duration of stay should not be so limited as is often proposed, the room should be a pleasant one with the bed arranged parallel to the window.

(8) The size of single-bed rooms complete with toilet facilities should be of the order of 170 sq. ft.
(9) Ventilation for these rooms should render them safe in regard to cross-infection risk.
(10) The intermediate care section should consist of 4-bed rooms with a small group of single-bed rooms for general purposes where this is appropriate. It is to be assumed that long stay patients, whether because of slow improvement or of deterioration, would naturally be in rooms nearest the Nursing Station".

Pediatric Care In Hospital Criteria

"It is unnecessary here to repeat the arguments in favour of these newer approaches to the care of children in hospital as these are given in the two works cited above but certain general conclusions must be described as a background for planning.

Pediatric Care In Hospital Criteria (Continued)

(a) It is generally agreed that children should not be admitted to hospital at all if the home condition, mothers' capacity, medical facilities and nursing assistance together allow the child to be nursed at home.

(b) It follows that children in hospital should not remain there any longer than necessary, that is to the point where the total social conditions allow the mother to give adequate care to the child at home. But for this purpose there must be a much greater liaison between the ward sister, the hospital doctors, the social worker and the patient's home doctor.

(c) Infants up to 18 months of age must be cared for in hospital in single rooms because of the danger of cross infections. They may become infected in hospital or be a source of infection for other children. The risks include mortality as well as morbidity.

(d) Children recovering from actue illness or operation need company, and hence they are best nursed in rooms holding say 4 to 5 children. Such children are ambulant as a rule and need space within the room for play and for meals at table.

(e) Surgical cases need the same protection against cross infection in the wards as adults, and acutely ill post-operative cases may need the same sort of isolation. The apparent conflict between isolation in acute periods of illness and the need of company after such stages can be resolved firstly by the mother's presence and secondly by good ward management.

(f) When a mother stays with her child in hospital she becomes part of the team. She may need help and some instruction. Facilities must be available for her personal comfort, and she must be accepted by the sister as a welcome and almost indispensable aide. Of course mothers cannot always play the role correctly, nor can they be free from other family commitments.

(g) Children should not be admitted to general adults wards. In exceptional cases, requiring highly specialised treatment, admission should be into the single rooms in the acute care section of the specialised wards.

(h) A subdivided ward allows cases to be divided into suitable groupings e. g., according to age, type of treatment such as tonsillectomy, or to allow admission of adolescents who do not consider themselves as children and yet should preferably not be placed within the flux of adult suffering.

(i) Unrestricted visiting by parents must be allowed in order to maintain the family nexus, the psychological security of the children, and a home atmosphere.

(j) Provision should be made for schooling facilities, including the groups requiring longer stay but who are not ambulant. Such schooling merges with the sort of occupational therapy suitable for children and even with play. Playroom and school-room, both are required."

"Single-bed rooms". The accepted main use of these is, as stated earlier, for the admission of infants. But such rooms should be available for pre- and early post-operation cases for the prevention of cross infection, or for cases already infected say by the staphylococcus aureus. It must not be assumed that a majority of mothers will stay with their infants or older children throughout the early period of the illness and therefore the ward must be so planned as to allow optimum conditions of supervision and nurse attendance for this group. This is of particular importance because communication systems cannot be used in the same way as in

adult wards. Nevertheless the mixture of cases in the single rooms in a unique ward unit could be dangerous, whereas with the double unit of two 20-bed wards one set of single rooms could be used for medical purposes only and the other set for surgical cases.

It would be foolish to equip only some of the rooms as mother and child rooms. A divan bed is a relatively inexpensive piece of equipment and provides couch seating in the day time. The alternative of using folding beds requires an easily available store and unnecessary fetching and carrying though of course applicable to existing units. Each room should be provided with sockets for oxygen and suction.

"The single-bed room in the Nuffield sponsored design is 10' x 14' which is barely adequate. The suggestions for ventilation methods are a useful guide. The only detailed objective is as regards the combined basin and baby's bath with the spout and levers right over the bath."

"Experience has shown that the use of isolation rooms enormously diminishes the risk of hospitalisation for infants. A high level of nursing hygiene is essential, a separate sub-sluice room might well be allocated to each group of single-bed rooms. Further it would be wise to provide two of the eight single rooms to be of the type described earlier and shown in Fig. 18 so as to deal with infective cases with greater safety."

"Deep Planning. Deep planning such as in double corridor wards presents many advantages:

(a) The single-bed wards can be placed on one side of a nursing station and the multiple-bed wards on the opposite side. This would provide good observability and control, with minimum walking distances for the nursing staff.

Infants admitted without their mothers need constant attention, they must be picked up and fondled by nurses who understand these needs, which is something more than a mere allocation of a duty. This absolutely demands that the nurses should be as near as possible to their charges and to be conscious of their 'emotional' state. If a single corridor is used the working area of a nursing station, even if well positioned, can only be closely related to about half the number of single-bed rooms as compared to a double corridor design.

(b) This method of planning allows the close grouping of two, three of four 20-bed wards on one floor according to the area available, with an enormous gain in flexibility as regards the use of sets of rooms for medical, surgical, or special purposes.

(c) There is a gain in simplicity in the provision of school rooms, playroom, and mother's facilities. These latter must not be forgotten as the mothers need a sitting-room with a changing and full toilet facilities, and telephone.

(d) A circular ward would also present many of these advantages, and at the maximum charge of 20 beds or cots for one sister, the planning would be easier than designing a 28-bed ward for adults."

Excerpts (Continued)

Use of One-Way Glass Between Service Corridor in Labor Suite and Patient Rooms

"Let us now retrace our steps to the front hall where the husband is bringing his wife into the department. Instead of leaving here at the admission unit he accompanies her to the labour suite where his wife will be seen and examined; he will take her home if she is not in labour but otherwise accompany her to the door of her room. While preparation is carried out he can go for a walk or stay in a large lounge. This arrangement is shown in a new publication of the United States Public Health Service (1964) and also described in The Modern Hospital (1964). The principle is shown in Fig. 63 which could be modified to include the initial examination room. Note that the first stage labour rooms are sandwiched between the waiting lounge and the service corridor to the delivery suite, with access to each. In this lounge husband or mother can stay as long as they like. Women in early labour can sit or walk about, or watch television, and the relations do not have to ask any permission. When the wife wishes to lie down husband, mother or friend can accompany her in her room with freedom. The situation is not really homely but is essentially friendly, warm and human, and the midwife in the service corridor can easily observe and supervise. In fact, if there is ever any justification for one-way viewing windows, the service corridor wall of these single-rooms is the place for them. The woman in labour can have privacy and company, and easily available support from the midwife. It is the need for such conditions that is the burden of many complaints and, as we have seen, of Ministerial exhortation. It should now be clearly seen how a labour suite can be purposefully designed to permit and encourage the good human relationship so much desired."

Operating Suites

"This means that the theatre is neither sterile nor aseptic and that the quantitative introduction of organisms into the theatre must depend a great deal on the care and discipline of the personnel using it. It follows that the changing facilities must be really adequate, and at once the question arises of how many such rooms are necessary if our particular class or rank system. Professor Douglas at Ninewells proposes separate changing rooms in a transfer zone placed between the entry corridor and the clean corridor for five classes, male surgeons, female surgeons, male orderlies, nurses, and also for visitors and students without distinction of sex. Within the same area, but approachable from the clean corridor only, are rest rooms for nurses and surgeons. The whole of the floor above the theatre suite provides space for galleries for students' observation, monitoring laboratories and the ventilating plant; in addition there is extensive room for nurses changing in four different classes, sisters, staff nurses, student nurses, and assistant nurses, and there are two sitting-rooms."

"Scrub-Up and gowning room. We have already described the process of scrubbing-up with the scatter of soap, water and squames of skin that goes with it, and have suggested that in its present form this room should not have such direct contact with the theatre. Many surgeons like this close contact as they can watch through a window the preparation of the theatre while they are washing. It is difficult to say whether this is essential but, if the surgeon insists, it would be better to divide the room by a partition so that the scrub up-area can be separated by a

barrier from the gowning area which alone would have direct access to the theatre and to the set-up room as in Fig. 71. Independent extract ventilation could then be effectively placed in the scrub-up area, without affecting the theatre ventilation. Though this arrangement would be an improvement from the bacteriological viewpoint it must result in a slightly greater area for this accommodation in the theatre complex. An alternative method would be to place the scrub-up areas in the transfer zone on the clean corridor aspect, as in Fig. 72, opposite the gowning area of the theatre complex. The stalls could face the corridor with a screen glazed in the upper half. This arrangement would require the surgeon to cross the clean corridor after scrubbing up. Is this corridor clean enough? This must depend on activity and usage--it should not be open-ended and its traffic must be limited to transport of sterile supplies to the theatres and of patients who pass the transfer zone or return through it. If it is clean enough for the sterile supplies it should be clean enough for the scrubbed-up surgeon, who would otherwise have crossed this corridor before being scrubbed-up.

"The set-up room. As we have noted this is not always considered necessary. It does nowever present a valuable space in which sterile instruments, or pre-set trays and packs can be loaded on to theatre trolleys in which time all the theatre doors can be shut and the air input quietly allowed to reduce the air contamination raised by the final activities of the previous operation and the removel of the patient. There should be accommodation in this room for extra packs and perhaps an emergency set of instruments could be held there at the end of the day's routine work. Even this small room requires a minimum of two doors, one to the theatre, one for fresh supplies and if convenient there could be a third entry direct from the gowning room".

"Entrance and exit. If out of consideration of the patient's safety the anaesthetic room must be immediately adjacent and directly communicating with the operating theatre then this room should be the place where the blanket and gown provided by the ward would be removed and replaced by theatre coverings. If the patient is brought to the anaesthetic room on a bed trolley he could be anaesthetised on this without moving him. In order to limit transference of the patient from the bed-trolley (or bed) to the operating table and back again Vetter and Vouga designed the operating theatres at Lausanne with an anaesthetic room and an adjacent combined exit and transference room. By using two movable operating tables per theatre all the transferences of the patient were performed in each of these rooms in turn so avoiding taking the bed-trolley into the theatre at all and also the changing of gowns and covers in the theatre. When the operation is started the vacated bed-trolley is moved from the anaesthetic room to the adjacent transference and exit room and after the operation the patient could stay here if there was any doubt about his condition (Fig. 73). There can be little doubt that this scheme provides optimum conditions for the patient's safety and comfort and eliminates all the activities of transference in the theatre itself. There is another reason for attaching such an exit and transference room to the theatre complex. We have found it difficult to accept the suggestion that in some major surgery, mainly cardio-thoracic, the patient must remain in a recovery room somewhere in the theatre suite so that the surgeon and anaesthetist can keep him under their own observation. This we think is almost impossible if the team has started another

operation. There are two possible solutions, firstly that the surgical team should hold the patient in the theatre until the monitoring records show sufficient stability to allow the patient to be moved to the Intensive Care Unit, which we agree should be very near the theatre anyway; secondly that the patient be moved only to an adjacent room, remaining on the operating table, so that he remains actually within the theatre complex itself. Vetter and Vouga's design admirably suits the latter alternative. The exit and transference room would provide one further facility as it would allow space for a hydraulic lifting device for patient transfer as described earlier.

"It should be added that the use of a suitable bed trolley allows the patient to be nursed thereon for the whole of the acute post-operative stage until it is easy and safe to move him on to an ordinary bed".

"Radiological requirements. Technological advance is so rapid that it is difficult to forsee the type of portable X-Ray units that will be used in five or ten years time. But of course the advance will be in terms of greater lightness and portability of the apparatus. In various surgical procedures X-Ray films can be required during operation and the wet films are available in a few minutes. At present hand-processing is quicker than the automatic method. The requirements therefore are for available space for housing the portable X-Ray units and a dark room, and operating table with a cassette tunnel, and electric outlets of sufficient capacity. There latter may become unnecessary if battery operated sets are used.

"Pathological laboratory. This is now considered to be unnecessary. A surgeon who takes a biopsy specimen on a patient under anesthesia in an operating theatre may require a report on a quick frozen section before he decides on his next steps. Such specimens require authoritative report from an experienced pathologist and the simplest procedure is to transmit the specimen by tube or messenger provided the transport is a matter of a very few minutes only.

"Sterile Supplies To date the usual method of supplying sterile surgical instruments requires a sterilising room placed between each pair of theatres. Used instruments are received in a room on the 'dirty' side, cleaned and returned either through a hatch to the sterilising room 'clean' side and then sterilised, or alternatively they are put in the autoclave from the dirty side. Soft materials are supplied in packs from a C.S.S.D. The disadvantages of having multiple autoclaves with trained staff to look after them and the necessity of dissipating the heat from various points in a large unit are obvious."

"A detailed method has been recently described as the Edinburgh pre-set tray system (1963). In this scheme one central sterilising area is required in the theatre suite though it could be in the C.S.S.D. if near enough and with a good transport line to ensure a smooth supply rate. Special standard size trays are filled with the appropriate instruments and covered tightly with the soft goods required and then wrapped in a special way. The advantage is that the theatre nurses receive complete sets for each operation and can prepare their trolleys in less time than it takes to ventilate a theatre properly. The objection can be raised that surgeons, with a large waiting list in mind, might take advantage of this speed in

"Sterile Supplies (Continued)

'setting-up' at the cost of safety by not waiting for adequate ventilation of the theatre before operation.

"This degree of centralisation of sterilisation for the theatre is said to require a greater supply of instruments but capital expenditure on sterilising plant and maintenance expenditure on staff should be less and so off-set this. Dr. J. H. Bowie reports that once nurses and surgeons have got used to its advantages they find this method easily capable of adoption for many purposes".

"It is unnecessary to repeat our earlier arguments but we must maintain that the main theatre suite is a fundamental part of the surgical department and it should have the shortest and simplest private communication routes between theatres and wards, and of course its own reserved lifts. Fig. 60, G. 7, shows one way of achieving such a harmony and it is to be noted that the theatre plan is free in the sense that it is not determined by or forced to fit in with designs adopted for the wards and other purposes. Where a surgical department is very large the theatre-ward relationships present obvious difficulties. A 6-operating room suite is already a very large unit for easy supervision and the problem arises of distributing the surgical beds on the minimum number of floors necessary in order to reduce post-operation transport by lift as much as possible. This however lends itself to a fairly easy solution. An operating theatre requires a floor to ceiling height of about 12', or alternatively 10' if a dome is provided. This is of course higher than that required for the adjacent wards. However, if the theatres are stacked vertically as, say, two suites of four operating rooms or other similar arrangement, then such suites can be arranged at alternate ward floor levels so that the intervening floor in the theatre stack allows space for ventilation machinery, stores, cloak rooms and extra changing rooms. In this way two floors of surgical wards could serve one floor of operating rooms or three surgical floors could supply two sets of operating rooms, as shown in the diagram Fig. 76. Such an arrangement can enormously reduce the handling and transport of surgical patients. If we take as an example two adjacent surgical floors served by one theatre floor, then the use of the ward floor at theatre level would be confined to the more severe cases for whom post-operative travel would be horizontal and minimal in distance. The other surgical floor could accommodate the higher cases for clean elective surgery, such as herniae for whom it would be safe to add a one floor lift movement to the already minimal horizontal traverse required. In this way the number of ward levels required must then depend upon the number of cases accommodated at each level. There should be no difficulty in planning stacked theatre suites of only two or three theatres per floor, because though each floor of theatres would require male and female changing suites these can be supplemented by cloak and changing rooms in the sandwiched floors (somewhat as at Ninewells) between the theatres and these could be used for other theatre staff if necessary."

"There is still further room for flexibility in planning as it is not necessary to build the whole of the theatre floor at the 12' approximate height".

Out-Patient Department

"(a) Adaptability. As the out-patient department of a general hospital may provide twenty-five or more different types of clinics, some held every day, others much less frequently, the consulting and treatment rooms must be adaptable so that they can be used for many different clinics. This does not mean adaptability for use for any clinic, for some specialities demand highly specific requirements as in the ophthalmic department. Nevertheless such a special consulting suite can be made adaptable for use in other ways. Consultants are often fussy about detail arrangements and it should be noted that in a single consulting suite in between two different clinics nurses spend much time re-arranging the furniture because Drs. A. or Drs. B prefer it just so. This is acceptable if it makes the consultants happier and more efficient but there are limits in the degree of freedom which can be allowed."

"(b) Privacy. Doctors, being only human, vary so much--some will in conjunction with the attendant nurse organise the work to flow smoothly, others erratically leave patients in the examination room for unduly long times, some like to work as if in a railway station, insensitive to the requirements of privacy for the patient still perhaps regarded as an object of charity, some like a nurse always beside them to obey every behest from the master, others perfer their consultations to be absolutely undisturbed. If we are to get privacy for our patients then suitable design will help to impose it and such design in turn helps in persuading medical staff to accept consulting and treatment rooms of common design."

"Now privacy as a word involves many ideas, and patients' feelings in this respect are not always clearly expressed or understood. This can be illustrated by example. It is easy to provide examination cubicles where a patient can be seen in 'privacy'. But if there is no door but only a curtain the cubicle is not 'private' and a nurse might not hesitate to pull the curtain to see if the patient is undressed and ready; further if the examination cubicles are not reasonably sound-proof the feel of 'privacy' has gone. Patients tell us that they do not like undressing behind screens in consulting rooms with every movement giving rise to sounds which are interpretable. Women tell us how uncomfortable they feel in w. c. closets where the partitions and doors do not fill the gap between ceiling and floor. Sometimes a practice is acceptable by nurses because it is so often performed without complaint, yet the male patient sent down an out-patient corridor holding a urine bottle or a urine glass in which to provide a specimen and to return with it dislikes the procedure. A further abomination is the changing cubicle, invariable too small for comfortable undressing, the patient wondering if the dressing gown is clean or has been used, and in this cubicle he waits, fidgetting and anxious till he is called".

"The Nuffield Report just quoted, apart from its conclusions re waiting time which we need not consider herein, have made unacceptable suggestions about the design of consulting rooms. It maintains that clinic work is carried out more rapidly when each consulting room contains its own examination couch behind a screen or if one examination room only is used. The reasons stated are that if the physician deals with one case only at a time, even though he waits during undressing and dressing, the patients do not wait so long as if two or more examination rooms are used. The evidence for this (p. 46 loc. cit.) is really quite slender. What is

ignored is that the waiting time is transferred to the doctor and it is erroneous to think that he can fill his time during patients undressing by writing notes. He takes his notes while listening to the history, though afterwards during the patient's dressing he adds the notes from examination and fills in the investigation forms. Medical patients need a complete examination so that dressing procedures do take time and it is not really pleasant to be in the one small room, there is a sense of hurry and unease both sides of the curtain or screen, and many patients have told us how they dislike these conditions. The presence of the couch itself or the screened area is not reassuring to the patient even though he expects to be examined; a consulting room should be a nice room with a comfortable chair, just the place for a confidential discussion. Administrators however, quote these Nuffield conclusions as law, but arguments about time saving cannot supplant psychological, i.e., human needs. Our conclusion would be to supply each consulting room with a separate examination room, and two examination rooms would be better as in some follow-up clinics or where limited examinations are necessary (such as blood pressure readings) two examination rooms could be used without any waste of time as the examination time can be shorter than the dressing and undressing time. This makes the unit much more adaptable. Consulting rooms can be too small--one sees a figure of 120 square feet recommended. Often however, the physician or surgeon wishes to see a patient walking to note his gait or his degree of lameness, and 12 feet between walls even if clear of obstruction is too short a distance".

"The rectal surgeon in the out-patient department does not demand highly aseptic procedures and conditions for his work. He needs a consulting room and a series of fully private examination and treatment rooms wrapped around a Nurses' Station where his instruments, injection materials and sterile packs can be prepared. As a general rule general anaesthesia is not required, the investigations are uncomfortable, rarely painful, take relatively little time but patients do find them horrid and undignified. If the patient is too fearful and general anaesthesia is required then he should be admitted as an in-patient for the examination or use the general day facilities to be described later."

"Genito-urinary investigations are less tolerable, and further absolute asepsis is essential. If one reads the Report of a discussion at the Royal Society of Medicine (1963) and the different viewpoints of the surgeons it is clear that these would determine quite different approaches to planning. One group of surgeons maintain that local anaesthesia is adequate and suggests that patients are satisfied, and the advantages are emphasised of being able to carry out the examination on the first attendance, so saving much time. The other group prefer general anaesthesia for their patients even though they may have to attend again for the examination because of the necessary preparation for general anaesthesia. One cannot help thinking that the former group's view is special pleading for if one were to describe the procedure in sufficient detail to a man or woman, the posture adopted, and so on, the majority have no doubt that they would rather have a general anaesthetic. Accepting this patient's viewpoint as correct, and also the need for full asepsis, it follows that operating theatre conditions with the addition of pre-medication rooms and recovery rooms are required. Mr. Shuttleworth (1963) illustrates this with an example proposed for St. Thomas' Hospital. This is a suite of two operating rooms and two endoscopy rooms with all the usual ancillaries. It is intended for

Excerpts (Continued)

Out-Patient Department (Continued)

use for the departments of genito-urinary, chest, and rectal surgery and also for all minor operations flowing from the general surgical out-patient clinics. There is an obvious fault of parsimony, 8 cubicles are provided for pre-anaesthetic preparation and 8 cubicles for recovery. These are squeezed into a space of about 800 square feet, and though it is a compact plan for easy observation the cubicles are hopelessly small. The addition, however, of a recovery lounge is very sensible."

"In principle this arrangement for investigation and treatment under anaesthesia constitutes the out-patient Day facilities. It is essential that the recovery section should be comfortable and large enough to rest post-operatively for a sufficient time. These facilities will be discussed again in relation to the accident and emergency department".

PLANNING OF MEDICAL SCHOOLS
STUDY PLAN

by

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1. Theme

At the present time extensive plans are in preparation for the expansion of medical schools and medical academies* (research institutes independent of the university) in Germany. At the same time the further development of the higher education system (Hochschule) is under discussion. However the plans are not yet in their final state to be passed on to the architects. This discussion originated as an attempt to satisfy not only the demands of a rapidly and extensively developing research and its resultant subdivision into specialized subjects but also the substantial increase in number of students.

The kind and range of consequences of such a trend of building development are covered in this paper. It remains to be seen whether at this particular time it is possible to find a solution which will work in with developments in the future which cannot yet be visualized. There are numerous suggestions in various directions for the improvement of the German Hochschule system and in particular of the medical schools. Most of them support:

the unity of teaching and research,
the freedom of teaching and research and
the students' independence in respect to learning.

These principles constitutes the basis of the recommendations of the "Wissenschaftsrat"* (a council set up by the German government to handle and advise on educational problems). They also form the basis and the boundaries for this paper. These are the following suggestions whose realization would involve a completely different structural solution are excluded:

separation of research and teaching,
creation of specialized Hochschule, and
division of courses of study into vocational education and
scientific education or according to the capabilities of the students.

Those suggestions which remain within the boundaries of this theme will be treated only insofar as they affect planning and construction.

2. Super-regional Planning

The functional effectiveness of medical training institutions is dependent upon a reasonably incorporated super-regional plan and in particular upon an adjustment of training capacity and the coordination of research. The super-regional plans for the Hocheschule will be handled by the city administration together with the Wissenschaftsrat.

2.1 Training

The total educational capacity necessary can be calculated from the statistically determined demand for doctors in the Bundesrepublik. From this data the extension required for present training institutions and medical schools can be estimated.

The Wissenschaftsrat has recommended a medical school student capacity from 920-950, with an admittance of 100 students in the preclinical (theoretical) and 70 in the clinical (practical) semesters. From a number of three sick beds per student in the large clinics, a required number of 2200-2500 beds can be estimated per training institution.

This determination is significant for the super-regional plan as well as for the individual structural plans, particularly in respect to:

1. the available number of patients (territorial supply)
2. the degree of structural concentration possible (volume of building).

2.1.1 Territorial Supply of Patients

For educational purposes, the necessary number of various kinds of representative illnesses must be provided. With a capacity of 1000 students and 2500 beds, the total bed capacity amounts to 35000 stationary patients per year. The influx of patients is dependent on the location of the clinic; his location however is not important for the supply of scientifically interesting and rare cases. The extention of the present medical schools which now are located in unfavorable areas would make it difficult to achieve the range of cases necessary for educational purposes. These difficulties can be eliminated only if the requisites for both teaching and research are coordinated super-regionally with the supply of cases. The danger involved is that, in spite of a sufficient number of beds, the educational possibilities might be limited.

The possibilities for treatment of patients at the German medical academies is far better. Their location can be chosen near large hospitals which are already present or are being planned and which, in terms of the super-regional plans, are found in areas of optimal patient supply.

2.1.2 Volume of Building

As will be seen in the following sections, numerous requirements of the modern medical schools, for economic as well as for technical reasons, demand the centralization of commonly utilized facilities and therefore to a certain degree also a concentration of the buildings. If a certain building volume is exceeded, these requirements cannot be functionally or structurally satisfied. This structural capacity seems to correspond to that recommended by the Wissenschaftsrat.

For the sake of comparison, the size of the recommendations of the U.S. Department of Health, Education and Welfare for the extension of medical schools is mentioned, in spite of limitations which arise from the differences in the two educational systems. With a four-year college educational period, the recommended number of students is as follows:

96 students in the first and second year
90 students in the third and fourth year (clinical training years)
55 graduate students in the theoretical-medical Departments ("Departments": German "Institute" corresponding to Departments in American colleges and universities, e.g., Microbiology Department, History Department, English Literature Department)
40 graduate students in the practical-clinical Departments.

This is a total of 372 students and 95 graduate students in a recommended clinic size of 700 beds in all departments. Medical schools which follow this plan show that, within this size range, all demands for a close connection between specialization and centralization of jointly used facilities are easily satisfied within an economically optimal range.

These problems which arise from the increase in number of beds, involving procuring enough patients and creating a localization of buildings make it desirable to increase the number of training locations and to limit their capacity.

2.2.1 Centers

The continuous branching out of science has created a situation in which research at a fully expanded university cannot be carried on in all specialized fields with the necessary expensive equipment. This development has already led to the creation of research centers whose coordinated expansion has been suggested in the recommendations of the Wissenschaftsrat in order to insure continual research in all possible scientific fields in all the scientific Hochschule.

The concentration of highly specialized equipment in certain centers allows for:

a) the adjustment of the building of special equipment to the place of development at a reasonable expense,
b) a limited standarization of less specialized Departments and thus a rationalization of building methods.

Costs which originate from the conversion of a Department during a change in its research program can be significantly decreased, since specialized buildings retain their original function (for example, building projects for nuclear medical research).

Moreover, modern scientific research methods require equipment which operates reasonably only on a super-regional level (Super-regional Equipment", for example medical statistics and documentation).

2.2.2 Technical Means of Communication

The increasing importance of research centers and of super-regional facilities will demand a completion of technical communications media in order to provide permanent contact across greater distances (television, radio, teletype and telephone connections).

In the USA, the development in this direction has progressed to a point where interuniversal radio and teletype connections are already partially completed. The possibility of using a television network for scientific communication involving all the important training and research institutions is being investigated by the U. S. government.

This development, also forseeable in Europe, would have a noticeable effect on planning, on programming as well as on detailed construction.
Literature: Design for Educational Television, Educational Facilities Laboratories, N. Y., 1960.

2.3 Construction Planning

The planning of new medical schools and academies requires extensive basic investigations which are not tied in with a definite project:

programming involving super-regional planning
investigation of nursing care units
nursing and care systems
investigations of the possibilities for economical construction.

Thus we are concerned with a continuously developing job since building requirements continuously change with the scientific fields.

3. Regional Planning

3.1 Coordination with the Community

Discussion of basic relationships between university and city is necessary for incorporation of the medical school into the general community on the one hand and into the university on the other. The picture (Picture 1)* of the university which has developed through the centuries is characterized by a distribution of the university Departments throughout the entire city. This situation was caused by:

extension into new fields,
increase in space requirements for the progressing research of already established Departments,
increase in training capacity.

The initial expansion was basically caused by the creation of new Departments. At first these fields were so self-contained within themselves that a close intercommunication among them was not necessary; even very isolated locations were possible. The expansion into new Departments was accompanied by an ever increasing space requirement for research and teaching. Moreover scientific development strongly necessitates the possibility for far-reaching communication. Therefore the future development of a university has to occur in an area which allows for the erection of buildings within a reasonably constructable system and which also offers generous room for Departmental expansion of research institutions. The principle of unity between research and teaching requires a close connection with the community. The space requirement in a city of limited build-

Picture 1: Development of the university through the centuries with the university facilities dispersed throughout the city.

ing area creates a special problem. Thus a basic constructural arrangement between university and city is required for the expansion of a university which has been growing over many centuries.

This problem could not be solved by retaining at least part of the university in a restricted city area as a "contact school" for the demonstration of the "university city" while leaving the rest of the university separate and removed.

Economically speaking, the maintainance of a university involves consumption rather than production. It requires only that consumption which is practically possible at any location by means of modern traffic, transport and communication. From this standpoint the university is not necessarily bound to the community. Universities which were founded in "isolated" areas, as they were for example in the USA until recent times, show however that in a democratic society the founding and development of a university necessarily affect the subsequent development of a community (e. g., Princeton, N. J.). Where an economically self-sufficient university campus exists in the neighborhood of a city, as for example Stanford University in Palo Alto, Calif., the tendency for the university and community to grow together can be clearly seen. This tendency is termed the development from a "Campus University" to a "Community University". When the location for a new university is to be selected in the USA, the decision, in respect to land and city planning, is basically influenced by the idea of a close connection between university and community. These plans are very typical in terms of a university, in the sense that training and conveyance of knowledge clearly dominate while the unity of research and teaching may exist but is not required. Such a plan for the benefit of a tighter connection with the community starts from the assumption that the expansion of research institutions no longer requires direct connection with the "actual" university. In respect to the choice of location and coordination with the community, the conditions in the USA differ from those in the Bundesrepublik. Only the methods of planning, not their results, are comparable.

Picture 2 shows, in a modification of a scheme developed by L. Warnecks of San Francisco, the requirements derived from current relationships between university and community in the Bundesrepublik:

the interweaving between economy and culture,
the living accommodations set up within walking distance of the university,
distance of the university,
the possibility of peripheral expansion predominantly for scientific research.

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*Picture 2: Scheme of the Relations between University and City

Legend:
A Humanities (with possibility of internal expansion)
B Practical-clinical medicine (clinics) (with possbility of internal expansion)
C Sciences including theoretical medicine (with possibility of external expansion)

1. Predestrian area 2. Extension 3. Living area set up by the university including student dormitories 4. Business center 5. city 6. quiet traffic

The relationship of the medical school with the community is closest with respect to treatment of ambulance patients, more important for practical training than for research. Thus the medical school requires a good relationship with public traffic. It has not yet been determined whether the number of patients which use public means of transportation is high enough to support a regular and frequent service. On the other hand, the clinic[1] should be so situated that this service is already guaranteed by regular traffic lines. Also in this respect, conditions in the Bundesrepublik differ from those in the USA since in the USA the public means are not important for the transportation of ambulance patients.

The difficulty of providing a possibility for expansion of medical school research institutions and of maintaining good public transportation conditions for ambulance patients has led to a tendency to exclude the department for ambulance treatment from the total clinical arrangement and to leave it in the city area. Such a separation however would not correspond to the structure of a modern medical training institute.

1. The German "Klinik" is made up of:
   1. "walk-in clinic" where one has appointments to see a doctor or to have an examination (clinics" in the USA)"
   2. "bed wards for hospitalization of more serious cases and those requiring operation."

In general, in Germany, each clinic (Eye, Pediatrics, Orthopedics) has its own separate building.

The decision for the location of the medical school does not involve these problems to the same extent since it is independent of the location of the university.

3.2 Coordination with the University

As part of the university, medical schools throughout history have always aspired toward an "universitas". The student finds the medical requirements built within a framework of a general humanistic structure. Training preparation for the scientific "pre-exam" (exam required before specialized medical training) (i.e., Physics, Chemistry, Botany, Zoology) is obtained predominantly in the "Mathematisch-Naturwissenschaft" Fakultät (i.e., all natural and physical sciences and mathematics). This tie is also very close in the area of research, since the basis and methods for work in medical Departments are scientific. A scheme of these relationships is presented in Picture 3*. The schools can be

*Picture 3: Structure of the medical school research
examination, treatment, nursing care
1. Clinical Physiology
2. Pathology
3. Microbiology
4. Pharmacology, Toxicology
5. Medical Radiology
6. Physiology
7. Physical Chemistry
8. Hygiene, Human Genetics
9. Anatomy, Histology

subdivided into the predominantly clinical-theoretical area with direct relationship to clinical research and into the predominantly pre-clinical-theoretical area with a stronger relationship with the Mathematisch-Naturwissenschaft Fakultät. Through the interweaving of many departments, centers for certain Departmental groups might be attained, but not an exact separation between practical-clinical work, clinical, theoretical-clinical and preclinical research. The functional relationships are covered individually in the following sections.

The medical academy is, in contrast to the medical school, "introverted" in its assigned role as "Special Hochschule". Its particular value lies in the possible integration of all departments by the introduction of new forms of organization (Picture 4). *

4. Functional and Organizational Basis of Structural Coordination

4.1 "Fakultät" Structure ("Fakultät": School or College as in "School of Agriculture" or "Law School" within a college or university)

Suggestions for the extension or reorganization of the present medical school buildings aim primarily for the reunification of areas of specialization into a Departmental whole and for the unburdening of the Department heads. Possibilities in this direction can be seen in the expansion of the school by the creation of additional teaching positions through introduction of so-called "Mittelbau"("Middle building") (lifetime positions for government officials, i.e., "Beamter") into the faculty as well as through intensifying the collaboration between the various disciplines. Institutional branching, which has been suggested by the Wissenschaftsrat, creates the corresponding structional requirements:

1. the establishment of "parallel Departments" (predominantly in the region of theoretical medicine)
2. the reorganization of theoretical fields (predominantly in the practical-clinical region).

4.4.4 "Parallel Departments"

In order to avoid expansion of present Departments by extending their research projects, either Parallel Departments in the same field or Parallel Departments with different special subdepartments could be created. In the second case the result would be the reduction of teaching activity with a necessarily subsequent specialization of the research fields and would occur particularly with the foundation of new specialized research branches. In both cases, smooth functioning re-

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*Picture 4: Structure of the medical "Akademie"
Clinical Research with Clinical Physiology
Theoretical Research - Examination, Treatment, nursing care
1. Pathology
2. Microbiology
3. Pharmacology, Toxicology
4. Hygiene
5. Physiology
6. Physiological Chemistry
7. Histology, Anatomy

quires for both research and teaching the joint use of equipment which cannot be doubled for both economic and scientific reasons. Space requirements must be fulfilled through constructural grouping. This expansion, which is to be expected on a large scale, must be possible in a way which guarantees the structural connection of scientific fields as well as the common utilization of the equipment even after expansion. The required area must lie directly next to the present Departments. These aspects are already taken care of in the grouping of the medical school.

4.1.2 Rearrangement of Duties

Suggestions for the reorganization of duties are fundamentally directed toward the introduction of the "Kollegialsystem" (introduction of Mittelbau) to improve the "Directorial system" (Picture 5)*. In the case of theoretical Departments the Wissenschaftsrat has suggested a Kollegial administration for such oversized Departments which, for scientific reasons, cannot be subdivided into Parallel Departments (Picture 6)*. But in general, the possibilities for reorganization are primarily concerned with the arrangement of clinical fundamental research in the practical-clinical region. The Directorial system would maintain the "preservation of unity in necessity" but would be supplemented by a Kollegial system in questions of research (Director as "Primus inter pares"). Thus certain duties, until now coordinated with every clinic, could be reorganized according to function and distributed among an expanded faculty. Details are treated under "Research".

The structural concentration of all involved clinics, Departments and subdepartments is required for the Kollegial system to be effective as a supplement for the Directorial system. For consiliary as well as for economic reasons, such a concentration is desired but not necessary in such a pure Directorial system. For the grouping of the buildings of the medical school it should be considered that structurally concentrated plans are adapted for the Directorial-Kollegial systems but decentralized groups for the Directorial system.

4.2 Research

Characteristic of the position of research in the medical school are the connections between:

1. practical-clinical medicine and the related "clinical research" and
2. the "fundamental research" of the theoretical-medical Departments.

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*Picture 5: Directorial System
Director
Order
Subdivision 1 etc.

*Picture 6: Kollegial System
Kollegial Board
Communication
Subdiv. Head etc.
Subdivision 1. etc.

Among the basic suggestions of the Wissenschaftsrat is the effort to reunite these connections which have been frequently broken by progressing specialization.

4.2.1. Clinical Research

The combining of fundamental medical research with that of Biology into a "clinical research center", which is of interest for the entire clinic, has also been suggested by the Wissenschaftsrat. In this functional position, the research center becomes the link between clinics and theoretical Departments. The research center which is directed by the Kollegial system branches into subdivisions which are headed by independent administrators. There also remain the "clinical special divisions" which are controlled by the clinical director for his own research (Directorial system). Thus more possibilities arise for the distribution of various functions:

a) As an accessory for the clinics, the research center is available for routine investigation in special fields. It carries out clinical fundamental research but does not fulfill the permanent duties of therapy.

b) Fundamental research and parts of therapy and diagnostics can be integrated. The subdivisions of the research center take over or supervise the investigations in the clinics in the corresponding special field. Thereby part of the clinical duties would be transferred to new independent divisions.

Such special fields are considered for the research center which either are:

a) Basically methodical in their function (Anaesthesiology, Endoscopy, etc.)
b) Special fields like Biochemistry, and Serology, or
c) Clinically specialized fields like Haematology, Cardiography and others.

The functional position of the research center, regardless of form of organization, demands the centralization:

1. of all practical-clinical divisions and of
2. the theoretical-clinical Departments.

If the research center were to take over the permanent work of diagnosis, new basic conditions would develop for the clinical routine laboratories differing from those in general hospitals. The solution for this relationship would have to allow for a large degree of flexibility; such a cooporation has not yet been tested.

4.2.2. Fundamental Research

Problems in fundamental research are not basically different from those of the other university Departments. The suggestions for institutional branching including the constructural consequences are treated in 3.1. Typical is the large need for expansion.

4.3 Teaching and Study

The principle goals of the suggestions presented for improvement are that:

1. A comprehensive general view of medical problems should be offered to the student in spite of increasing specialization.
2. The possibility for the development of the personality and quality of scientific

training should be preserved in spite of the growing number of students.

Among other recommendations are the introduction of graduated studies, a systematic training of medical students after the German state exam, and a comprehensive training in basic science. The constructural planning of the medical school is influenced as long as training in these basic sciences (Chemistry, Physics, Zoology and Botany) is followed up by the Mathematisch-Naturwissenschaft Fakultät. If these courses were given however specially for medical students, it would be necessary to incorporate the required facilities into the areas of the theoretical medical Departments.

In contrast, the recommendations lead to the following constructural consequences:

4.3.1. Teaching of Practical Experience

Development tends toward studies and teaching methods which, more than ever, lean in a practical direction (for example the Block system, i.e., "The simultaneous coordination of theory and practice of a field"). The "big lecture" is retained, but supplemented by the formation of small groups through seminars and laboratories. Thus particularly the practical sick bed training and that in the Departments of diagnosis and therapeutics can be intensified (Pictures 7 and 8)*.

The large lecture halls and laboratories, whose number can be reduced in certain cases, must be reorganized into a large number of smaller classrooms for special fields and especially in nursing care (student research laboratories, students study halls, rooms for seminar and laboratory courses). Special consequences result in the case of nursing care which are different from those in general hospitals.

4.3.2. Promotion of Individual Studies

Individual and group work benches in the medical school offer the students the possibility of intensifying their studies by better use of their time and by joint group work (discussion). Central concentration of these work facilities would put them in close contact with the library ("academic center") (Pictures 9 and 10)*.

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*Picture 7: Student work bench in nursing care unit (station) University of Washington, Seattle

*Picture 8: Student laboratory in a nursing care unit (station) University of Washington, Seattle

*Picture 9: Central library with neighboring seminar and work rooms. The rooms are separated from one another and from the reading room by sound proof glass walls. The stacks can be reached directly from the reading room. University of Washington, Seattle

*Picture 10: Student work areas connected to the central area with coat locker, book shelf and desk (student cubicles). The student keeps "his own" area throughout his years of study. University of Kentucky, Lexington

The number of central work areas to be provided depends on how many students retain in other positions "permanent" places for one or more semesters (for example in the laboratories for theoretical training). Through joint utilization of the same work areas by many Departments it would be possible for every student to have "his own" work area for a number of semesters. The student would keep the same work bench as the projects changed. In this case, the student would have to be provided with two benches of different heights, one for sitting (writing, microscope work) and one for standing (Physiology, Chemistry) in the same laboratory area. This arrangement would not effect a significant economizing of space, in spite of the "all-purpose use" of the room. As the author found from observing several finished examples of this kind in the USA, difficulties in overlapping, particularly in preparation of experiments, are unavoidable.

4.4 Program

Programming will always be influenced by local factors which however do not change the representative and basic facts. In the Bundesrepublik as well as in other European countries and in the USA, program recommendations for the basis of a medical training and research institution are presented (Empfehlungen des Wissenschaftsrates zum Ausbau wissenschaftlicher Einrichtungen 1, pg. 111). The percentage of units of space devoted to:

a) hospitals and
b) teaching and research

is compared with two examples from each the Bundesrepublik and the USA (Picture 11)*. The comparison shows the higher amount of space devoted to research and teaching in the USA, made possible by, among other things, the significantly lower number of students.

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*Picture 11: Distribution of space for the duties of "Examination, treatment and nursing care" and "teaching and research"

A Maintainance
B Hospital functions
Examination
C Treatment
Nursing Care
C Research and Teaching in theoretical and clinical region
D Students
E Beds

1. Medical school of the University of Bochum. Program based on the recommendations of the Wissenschaftsrat
2. Medical School of the University of Gottingen. Program based on the recommendations of the Wissenschaftsrat
3. Medical School of the University of Washington, Seattle. Program based on the recommendations of the U.S. Department of Health, Education and Welfare
4. Analysis of the recommendations of the U.S. Dept. of Health, Education and Welfare

The same relationship involving a number of 1100 students and consequently 2500 beds would result in an unmanageable concentration. From this view point the lower number of students seems advantageous. In judging the value of this data, one must consider that the unity of teaching and research in the USA does not always exist.

4.5 Central Areas

The functional relations of the university Departments and the clinics can be distinguished from one another by:

a) relations which result from the very existence of the structure itself and which therefore are unalterable,
b) relations which are created through the desired joint utilization of equipment, i.e., which are created through programming, and therefore can be adjusted to the situation.

These relations in a), result from consiliary team work (cooporation), methods of research, course of study, basic conditions of diagnosis and therapy. The relations between the Departments and clinics within the following areas are somewhat of the same order:

1. Theoretical Departments for training in the preclinical semesters
2. Theoretical Departments for training in the clinical semesters
3. Those which are included in the theoretical Departments for clinical training semesters and for which clinical observation is required
4. Clinics
5. Among the clinics, those of Medicine, Surgery, Psychiatry, Neurology, Ear-nose-throat and Radiology (central clinics) (Picture 12)*.

In order to achieve a basis for coordination of plans, the number of ways is determined which the students walk during their preclinical and clinical studies in a week to and between the medical school and to the Mathematisch-Naturwissenachaftlich Fakultät. The results are presented in Pictures 13 and 16*. The high-

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*Picture 12: Branching of the medical school into "central areas"
Departments of the Preclinical Semesters
Departments of the clinical Semesters
Departments of the clinical Semesters with clinical observation

Clinics

Central Clinics

*Picture 13: Number of ways traveled per week by all students to the training institutions of the preclinical semesters (below)

*Picture 14: Number of ways traveled per week by all students between the training institutions of the preclinical semesters to the Mathematisch-Naturwissenschaft (above)

*Picture 15: Number of ways traveled per week by all students to the training institutions of the clinical semesters.

*Picture 16: Number of ways traveled by all students per week between the training institutions of the clinical semesters.

est number of walk ways exists in the region of the preclinical Departments, particularly between Anatomy, Physiological Chemistry and Physiology.

The number of pathways between the clinical training institutions is presented only insofar as its order of magnitude is important for planning. The most traveled ways here exist between the Medical and Surgery clinics. The remaining ways are less predominant and, for planning purposes, can be regarded as equal. The basis for this determination was taken from the number of courses registered and the plan of study of the medical school at the University of Göttingen.

Although the number of traveled pathways here can be calculated, such a method for consideration of other conditions is not applicable. Pictures 17* and 18* are based on empirical evidence. The significance of the relationships presented lies in the consiliary contacts in research, diagnosis and treatment. The significance of consiliary team work in the practical clinical areas coincides approximately with the relations which exist in the clinics between treatment, examination and nursing care from the viewpoint of the patient.

In order to retain a unity between teaching and research in major fields, a unity between the clinics should also be maintained as much as possible: "new specialized clinics" should only be built "where an independent scientific field has already developed". Plans should be made so that in case of the development of new specialized subdepartments, beds can be made available from the general subdepartments. In this connection, the Recovery clinic has an important part in the suggestions of the Wissenschaftsrat. With an increase in special fields, it takes over, to a progressively larger degree (expansion), the long term therapy of the general subdepartments and thus compensates for the undesirable increase in the number of beds in the subdepartments of intensive treatment. The inclusion of the Recovery clinic in the total clinical structure should moreover take care of the "growing importance of Geriatrics research and Prophylactic therapy as well as for the scientific and didactic interests in evaluation of long term methods of treatment."

An economically and scientifically feasible institution can only be expected with a direct connection to joint research, examination and treatment facilities in the main clinics.

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* Picture 17: Meaning of consiliary relations between the theoretical Departments and between the theoretical and practical-clinic regions.

* Picture 18: Meaning of consiliary relations in the practical-clinical region

Legend:
Psychiatry
Neurology
Eye
Ear-nose and throat (ENT)
Recovery
Orthopedics
Pediatrics
Gynacology
Dermatology

4.6 Central Facilities

Central facilities of a medical school can be evaluated from two view points:

1. Advancement of collaboration between various subject disciplines in research and teaching, as well as increase of the standard of efficiency by employing specialists.
2. Rationalization by optimal utilization of expensive equipment.

Each viewpoint contradicts the other. But research and training institutions should have priority just like the principal of research and teaching.

Through the centralization of facilities, new functional relations are created. Consequently the necessary concentration of buildings varies in degree. It depends on "transport materials" and the technical means which can be used for "transport".

4.6.1 The centralization of the following facilities does not require the complete constructural unity of the Departments which use them, for example, because possibilities for transport or communications are available:

a) the library
b) the research area for medical statistics and documentation
c) the experimental animal station with facilities for operations (optional)
d) work shops
e) student work areas (Pharmacy, Bloodbank, personal supply (food, laundry, electricity).

The central library should provide absolutely all medical literature and should be located where it can be reached by all the faculty members, i.e., in the middle of the clinical and theoretical area as in the case of "the clinical research center". The libraries of the Departments and clinics are not affected.

Advantages of a central animal station lie in the possibility of animal diagnosis by vetinarians, of economical management, of the employment of a trained animal keeper, and in the elimination of disturbances from cages which are not centralized (noise, smell). In terms of organization, at least the keeping of animals can be centralized and, at most, the entire area of animal experimentation. Since animal experimentation remains functionally bound within each Department the centralization of animal experiments requires the constructural concentration of these Departments.

4.6.2 The centralization of diagnostic and therapeutic facilities, on the other hand, demands a constructural concentration of Departments which use:

a) laboratories
b) radiology
c) walk-in clinics
d) Physical Therapy
e) Anaesthesiology

The centralization of laboratories could result in the rationalization of daily work as well as in the improvement of clinical research conditions. Extreme

economy could be attained by a combination of all chemical and physical (routine) laboratories and through automatic equipment. Research and (laboratory) diagnosis are terms which however often are not easily separable. With such a form of organization, a part of clinical research would be excluded from the clinical area. A centralization exclusively for rationalization of daily work would thus not satisfy the requirements of clinical research. Also for these reasons, suggestions have been brought up for the reorganization of functional regions by combination of the clinical and scientific laboratory space, leading simultaneously to an intensive exchange between practical-clinical and scientific work (clinical research center, 4.2.1).

The centralization of equipment for Radiology, particularly of Radiological Therapy, becomes more pressing with the growing importance and increasing cost of this method of treatment. The reasons are many-fold:

1. Precaution against radiation damage by clearly defined radiation protection areas (control areas) at possible only one location in the clinic.
2. Close collaboration because of high specilization of this method.
3. High costs for the building of protection areas.
4. Adjustment of the equipment to the stage of development.

The concentration of equipment for the Departments of Medicine, Surgery, Gynacology and Recovery is feasible, provided that these clinics are equally closely dependent on the general radiation area.

The walk-in clinics offer a good general view of medical problems for teaching especially for future general practicioners. Therefore all the different walk-in clinics should be closely located to one another and the structural conditions should be maintained for close cooperation. But since the walk-in clinics, on the other hand, should not be separated from the clinics, for organizational, economic and consiliary reasons, their structural concentration would require the concentration of all the clinics.

4.6.3 Limits of Centralization

Definite limits for centralization are set by specialization of fields, by limitations of medical responsibilities and by the maximum possible walking distance. Each concentration of facilities means an essential reorganization of the Departments which use them (clinics) into a complex framework and bears for the "special" Departments the danger of an inexcuseable regression. The possibilities for centralization of a medical school thus cannot be evaluated with the standards of the general hospital. Also, economic factors can only be considered insofar as they do not oppose the immediate requirements of teaching and research.

5. Constructural Consequences

An attempt is being made to arrange the different plans schematically in order to obtain a general picture of the functional value of the constructural grouping systems.

Aspects of arrangement and valuation:

1. The coordination of the preclinical, theoretic-clinical and practical-clinical areas with each other.
2. The coordination of research and teaching with the practical-clinical area.
3. The coordination of central facilities for research and teaching (library, animal stations, etc.)
4. The flexibility of the utilization in respect to a:

   a) Possible studies reform
   b) Possible rearrangement of Departments
   c) Central area for research projects

5. The possibility for expansion of the general regions and of the individual regions under consideration of the changes in functional connections which may result from this extension.

Functions of the hospital which are not specifically related to teaching and research are not presented.

5.1 Distribution

In large expandable areas, the individually built clinics and Departments which are self-contained and independent of one another can be expanded, although such possibilities for extensive use of the area are relatively low. The facilities for research and teaching within the individual Departments are widely spread out. Constructural propositions for a reasonable integration of research, teaching and hospital functions are not given (Pictures 19, 19A)*.

The examples for this scheme root predominantly from the early stages of development of sciences. A reasonable construction of central areas may satisfy the almost universal demands for structural regeneration.
Example based on Stockholm, Karolinska-Institut.

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* Picture 19: Distribution
Legend for the grouping scheme (Pictures 19-26)

Practical-Clinical Medicine (Clinics)	Animal stations
Clinical Research	Central Library
Theoretical Medicine (theoretic-medical Research)	Work Areas
Possibility for Expansion	University Traffic (students)
Lecture Halls, Class rooms, Seminars	Clinical Traffic (patients)

* Picture 19A: Example of distribution-plans of the Karolinske-Institut, Stockholm

5.2 Linear Arrangement of Buildings

Clinical and theoretical regions are broken up into a row of individual buildings which can be reached by an "outside ring". Between both areas is a laboratory zone for clinical research (Picture 20)*.

This external approach has the following advantages:

a) A large part of student traffic can be separated from "hospital traffic" by means of an internal "university path" (in all preclinical semesters). Within the theoretical-medical Department special fields can be arranged inside the university area corresponding to requirements for teaching.
b) The laboratory zone located between the theoretical-clinical Departments and the clinics can be developed in such a way that theoretical basic research and clinical research are brought together in immediate constructural combination, since the laboratories can be connected on both sides. Because of the flexible boundaries between these areas of research, a variable use of the general laboratory zone would be plausible (possibility for exchange through redistribution of projects).

The utilization of single buildings would result in relatively long walking distances, making the use of general facilities for research and teaching (animal station, lecture halls, library) difficult or impossible. As a result of the ring of traffic, narrow possibilities for expansion of the individual Departments exist (for example for the addition of Parallel Departments). The expansion possibilities of the laboratory zone are also small.

5.3 Partial Concentration with Inside Approach

The Departments of practical-clinical medicine (the clinics) are additively strung together as a "band" which, more or less centralized, contains the facilities for clinical teaching and research. The arrangement of this "clinical band" can be achieved in various ways:

1. Treatment wings as flat-roofed buildings with bed wings placed length-wise on top (single hall or double hall arrangement)
2. Treatment wings as flat-roofed buildings with bed towers (circular or cross form)
3. Treatment buildings with bed wings in front.

The Departments of theoretical medicine are run and maintained also as a "band", parallel to the practical-clinical areas and contain, more or less centralized, the facilities for research and teaching. This system allows to a certain degree the complete constructural concentration of joint Departmental facilities, for example, animal stations with animal laboratories, lecture halls and work benches (example University Nijmegen). The centralization of animal laboratories (to a lesser degree of animal maintainance) requires short walking distances since the laboratories remain as a functional component of the present Department. The same is true for lecture halls. Thus the possibility for this linear concentration is limited to a large degree (Pictures 21, 21A)*.

*Picture 20: Linear Arrangement, University City, Administration, Central Maintainance
*Picture 21: Partical C oncentration with internal approach
*Picture 21A: Example of Partial Concentration. Plans of the medical school of the University of Nijmegen (in use, completion, planning, preparation I, II, expansion)

The individual Departments and clinics are approached from "inside", i.e., from the zone between the areas of theoretical and practical-clinical medicine. Thus a closer constructural contact between clinical and theoretical research in the sense of a general research center is difficult or impossible.

A frontal approach to the "clinical band" which would eliminate this disadvantage, in the case of larger institutions, leads to long internal traffic ways, complicated by traffic within the clinics.

The expansion of the clinical area by linear continuation is ruled out since it results in a line of buildings which is too long, so that U-forms (or "satellites") with circular entrances are considered.

This system of parallel connection of theoretical Departments and the clinical area, with the entrance in between, constitutes a great part of the present plans (for example, Munich, Vienna, London).

Example based on University Nijmegen

5.4 Partial Concentration with Outside Approach

The following institutions are concentrated at the center of the plans:

1. All preclinical and theoretical-clinical Departments
2. All laboratories and facilities of clinical research
3. The library

The lecture halls and classrooms of the theoretical fields are, together with the library, constructurally concentrated in the middle so that the laboratory areas for research remain in the surrounding buildings of the Department. Thus the clinics are divided up into individual areas and arranged concentrically around the research laboratories (Picture 22).

Hospital traffic approaches the clinics from an external ring of traffic. Student traffic on foot is directed out from the center.

The central location of the theoretical Departments and clinical research laboratories provides good constructural conditions for close cooperation in research and teaching as well as for a flexible use of the laboratories in case of a change of projects. On the other hand, the peripheral location of the clinics causes to the same degree, a splitting off of the practical-clinical institutions and renders the arrangement of general clinical facilities (for example Radiation Therapy) completely impossible.

Although slight possibilities exist for expansion of the clinics, regardless of their distance from the ring of traffic, these possibilities in the region of the greatest need (theoretical and clinical research) are least available and almost

* Picture 22: Partial Concentration with external approach

only in the verticle direction. The expansion of individual areas (for example the addition of Parallel Departments) is also impossible. The scheme remains of interest, however, as an example for the building of centers through the reorganization of widely distributed institutions. In this sense, it has been repeatedly employed in various forms. Example based on Wayne University, Detroit.

5.5 Concentration in Parallel Order

Clinics and Departments are constructurally closely combined with one another in parallel zones. Both areas are bound to one another by clinical and scientific laboratories. Clinical and theoretical areas are approached separately by university and hospital traffic. There are immediate foot path connections between the preclinical Departments and the scientific region of the university (Picture 23)*.

An arrangement of the theoretical Departments in various floors allows for a vertical combination of animal stalls and animal laboratories whereby on each floor the Department concerned has its own area for animal experiments in its own Departmental area. In the same way, the large lecture rooms are connected at the end of the building over the central library.

This scheme provides very short walking distances, good flexibility of the laboratory zones between theoretical and clinical medicine and thus the constructural possibility for integration of different scientific fields.

The possibility for the expansion of individual Departments however does not exist since with an addition of further Departmental wings the original arrangement changes. Example based on University of California, Los Angeles.

5.6 Linear Concentration

The following Departments are linerly arranged in correct functional order:

practical-clinical divisions (clinics)
clinical research laboratories
theoretical-clinical Departments and preclinical Departments.

The central medical library with a large lecture hall is located between the clinical and theoretical areas, and class and lecture rooms are distributed among the individual Departments. The animal station with animal laboratories is located on the roof tying the Departments together and extending over the entire length. Thus each Department can have its own animal stall and an area for animal experiments within this horizontally concentrated animal floor (opposing example to 4.5). Immedited connections between the theoretical Departments and the university scientific area are possible. Within the Departments a reasonable functional arrangement is possible between the Department directly related to the clinic and the pure preclinical Department as a passageway to the scientific Departments. The Departments can undergo expansion individually without changing the functional concentration (no reorganization of the Departments necessary).

* Picture 23: Parallel Concentration

However the laboratories for clinical research are not expandable to the same degree. Such a concept requires a strong concentration of nursing care and treatment areas of the clinic at the point of connection to the laboratories and is thus only possible on a moderately sized scale (Pictures 24, 24A)*.

The approach is again separated into hospital and university traffic (passageways for students). Example based on University of Washington, Seattle.

5.7 Formation of Centers around Traffic Areas

Surrounding the centrally located traffic area (without traffic) are circularly arranged:

1. The clinics, which are constructurally connected in a complex with the laboratories for clinical research,
2. The preclinical and theoretical-clinical Departments, which are branched into two areas,
3. Lecture halls, course laboratories and animal stations with animal laboratories, which are constructurally combined for both areas,
4. The library with work rooms for students and with a large lecture hall for the preclinical semesters.

The clinical and theoretical areas are approached separately by hospital traffic from opposite directions. Within the theoretical area as well as between the theoretical and clinical regions there are short walkways which facilitate the concentration of joint facilities (lecture halls, animal stations with animal laboratories, class rooms, library).

The circular arrangement offers excellent possibilities for peripheral expansion of both complete and individual Departments (addition of Parallel Departments).

Strong constructural concentration of the clinics can be reasonably carried out only on a limited scale (in this example 800 beds). The close connection between the theoretical-clinical Departments and the clinical laboratories provides constructural conditions for variable usage and close team work. The position of the library would be functionally better in the center of the Department (picture 25)*. Example based on Duke University, North Carolina.

5.8 Concentration around Central Facilities

The theoretical Departments and clinics are closely grouped around the common central areas in the following ways:

1. the clinics around centralized facilities of the clinical area (for example, x-ray therapy)
2. the clinics and theoretical-clinical Departments around the joint laboratories for clinical basic research (research center).
3. the research laboratories of the theoretical-clinical Departments around the animal stations, work shops and special laboratories (for example, isotopes),
4. all areas around the library which is connected with the research center.

The preclinical Departments are directly connected to the area of the university science Departments. The location of the "research center" between the clinical

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* Picture 24: Linear Concentration

* Picture 24A: Example of concentration. Plans of the University of Washington, Seattle

* Picture 25: Centers built around traffic area

and theoretical-clinical Departments in similarly close connection with both areas facilitates variable utilization corresponding to the elastic boundaries between clinical and theoretical research or also corresponding to the rearrangement of scientific projects. Possibilities exist for peripheral expansion of every region from the center outward so that the Departments can still be individually expanded (e.g., by the addition of Parallel Departments) without changing the functional combination in spite of the close relationship to the central facilities (no "translocation" of Departments).

In the clinical areas expansion can be attained to a limited degree in the same way through the attachment of "satellites" to the central facilities. The main possibility for expansion however, lies in the region of research facilities. Even after extension, the connection to the central zone (animal station, research center, library, lecture halls) would be retained.

This plan is feasible provided the facilities for teaching do not require any significant expansion; the number of students must remain constant (Picture 26)*. Example based on University of Göttingen

5.9 Summary

The examples chosen for this scheme were studied by the author at the various locations during use or in planning. For this reason, this outline can obviously not be regarded as complete or as a "prescription". The local situation always offers various solutions. This comparison is useful however in presenting the standards which must be followed for the planning of a medical research and teaching institution as compared with that of a general hospital. This is not only true for the very rare occasions where medical schools are newly built, but also for the reorganization of old facilities. Thus long term and purposeful plans are required which allow stepwise adjustment to the modern requirements of scientific research, of teaching methods, and of sick care.

The transformation of the "concentration around central facilities" (Picture 26)* into direct planning is summarized in the following sections. It concerns the planning of the medical school of the University of Göttingen.

6. Example

As examples, parts from the plans of the medical school and of the planning of the central clinical group have been selected by the Neubauamt II of the University of Göttingen, Board Manager Dr. Fesel. Typical for an institution of medical research and teaching, they represent practical examples for theoretical planning. This example is representative in its main aspects of present conditions and of possibilities for development in the Bundesrepublik:

in the historical situation,
in programming,
in limits and possibilities of development,
in the ties to a small city of medieval character.

* Picture 26: Centers built around central facilities

6.1 Conditions

The local conditions which are a result of historical development present a picture of university facilities widely distributed throughout the entire city (Picture 27)*. In the middle of this medieval city, the symbolic center of the university with the office of the chancellor and the representative auditorium as well as the library are retained as the cell nucleus of the old university surrounded by the humanities Departments. The scientific Departments including medicine are split up and scattered in the outskirts of the city. There is no possibility for a pausible functional concentration of the university facilities within the city limits. The buildings of the medical school which are already outdated are situated in a completely overbuilt area without possibility for expansion. After the war, three clinics had to be errected outside the main nucleus of the city's building area (Pediatrics, Dermatology, and Psychiatry-Neurology). The new plans, which were based on the recommendations of the Wissenschaftsrat, were faced with this situation. The disciplines recommended already exist within the school. These disciplines have to be extended to a total of ca. 2300 beds in all practical-clinical Departments and 50,000m^2 of useable space in the theoretical Departments. The incorporation of the three clinics built after the war is also part of the proposed plan.

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* Picture 27: University of Göttingen. University facilities in the city area, 1960. Scale 1:50,000
Built-up areas
Woods
Water
Railroads
Vacant and Grassed areas
Public buildings already present
University buildings already present
1. Railroad station 2. Railroad station post office and main post office 3. City administration and City Hall 4. County administration 5. Medical research institution MP 6. County Crafts school under construction 7. Optical Plant, ISCO 8. Evalgelical Hospital Weende 9. Old buildings of the School of Economics-New buildings of the School of Economics 10. New Neurology Clinic 11. New Dermatology 1958/60 12. Pediatrics, old and new 13. Old clinics 14. Old ENT and Dental Clinics and Pharmacology and legal medicine 15. Old Dermatology 16. Old ruins 17. New Anatomy 1962 18. University gymnasium-old building 19. Wilhelmplatz and Kuratorium, Aula, Deans' Offices, Student Administration 20. Old Chemistry and Metallurgy 21., 22. Twenty nine Old Bio-chemistry, Mathematics, 1., 2., 3., Physics, Phys. Chemistry, Mineralogy 23. Old Observatory 24. Botanical Department 1954/55 - Present Botanical Garden of the University 25. Dept. of Psychology-old 26. Dept. of Geology (physical)--old 27. Dept. of Zoology and Geology -- old 28. Dept. of Geology -- old 30. 1. Organic Chemistry -- new 1961/63 31. University State library--old 32. University Riding School 33.Auditorium, old 34. New Law School 1959/61 35. Old humanities buildings: Heyne House--with respect to scientific Seminar, Anthropoligy, Theology seminar. Academy of Sciences, Pedagogish

6.2 Location

Local conditions allow for the extension of the university of a predominantly undeveloped and continuous tract of land attached to the center of the city. A close connection of the university to the city is possible as well as a large scale peripheral expansion of scientific facilities. Once the clinics have been newly constructed it will be possible to extend the humanities into the areas of the present clinics. The areas are individually identified in Picture 28*. The medical school occupies ca. 150 acres, excluding the adjacent property for "clinical living areas". With the total plan in mind, the location of the medical school was chosen according to the following considerations:

1. Coordination of landscape and city building
2. Coordination with the city
3. Coordination with the university
4. Functions within the school
5. Size of the area available
6. Ground conditions
7. Expense (existing buildings)
8. Time necessary for completion.

The location chosen accordingly fulfills the following provisions:

1. Close connections to the city and to public means of transportation.
2. Possibility for close connection of the Departments of the medical school to the scientific Departments.
3. Possibility for development of the school as a functional and constructable unit in close location to adjacent living areas of students, doctors, nurses, medical technical assistants and personnel.
4. Incorporation of the three outlying clinics.
5. Opportunity for expansion.

A significant increase in the number of students was not considered, since the training capacity corresponds to long term requirement, and the number of patients available in the area is limited. In the nursing care area, thus only a 10% increase is expected in the number of beds as a result of further specialization of clinical fields (recovery clinics). However the possibility for development of the Departments of theoretical medicine still exist, even if extraordinary expansion of individual research branches should occur. The opportunities for "internal" expansion amount to ca. 20%, the long term opportunities altogether to ca. 100%. Of equal importance to the need for expansion is the "possibility for regeneration". This possibility must be considered since the value of buildings whose facilities are devoted to a particular function decreases rather rapidly. Enough space must be available to replace outdated buildings without disturbing important connections.

6.3 Plan

The plan must allow for completion in building details in such a way that in every step, in the dissolved old clinics as well as in the new clinics, functionable

* Picture 28: University of Gottingen. Demonstration of location of the medical school in the framework of the total plan. 1963, Scale 1:50,000.

units exist so that the current clinical functions are not disturbed (Picture 29, 30)*.

6.3.1 Clinical Area

Analysis of the functional relationships in the clinical area leads to the creation of two central areas and one zone of peripheral expansion.

1. Central Clinical Area

The discipline of Internal Medicine (first and second Medical clinics), Surgery (first and second Surgery clinics), Ear-Nose and Throat and Eye clinics are closely interrelated at the center without violating the organizational independence of the clinics. All important medical relations can be created particularly in the centrally located X-ray diagnostic clinic, in the area of Surgery (Emergency Surgery, Neurosurgery) and in the central clinical-scientific laboratories.

The following buildings are joined together in a starlike construction:

1. Gynacology
2. Orthopedics
3. Recovery

The walking distances resulting from this "star system" are shorter than those possible with a linear arrangement of subdivisions in reasonable sections. These short walking distances allow for these three clinics to jointly use the central equipment in the central area (X-ray Diagnosis, Physical Therapy, laboratories). They are planned with the capacity necessary.

2. Central Area of Radiation Therapy

The clinics surround the concentrated facilities of Radiation Therapy in the shape of a semi-circle. Directly attached to this central radiation protection area the Medical clinic, the Surgery clinic, the Gynacology clinic, and the Recovery clinic as those clinics which use this equipment most frequently.

The application-stations for the Radiology clinic lies above the therapy floor and are used jointly by all clinics.

3. The Expansion Zone for Recovery

The Recovery clinic is connected with the main clinical group from which it receives cases requiring long term hospitalization and whose treatment facilities it utilizes. The patients remain under the responsibility of the doctors of the corresponding main clinic or special subdivision (Responsibility system).

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* Picture 29: Medical School of the University of Göttingen, Centers, central facilities, maintainance pathways

* Picture 30: Medical School of the University of Göttingen. Plan, Scale 1 :6000. The long term expansion possibilities are presented schematically.

This combination makes it possible to decrease the average length of treatment in the special subdepartments. Thus the main clinics acquire the character of acute clinics; the bed wings are preferentially planned to take care of short term cases. In contrast, the bed wings of the Recovery clinic are planned to take care of long term cases and are placed in direct connection to the garden.

The possibility for the expansion of the Recovery clinic (up to 100%, equalling 10% of the total bed number) extends up to the Orthopedic clinic and allows for the development of a rehabiliatation zone between Orthopedics and Recovery.

4. Possibility for Development of Special Clinical Subdepartments

Further specialization of clinical areas should be possible without disrupting the constructural and functional connections of the main disciplines, i.e., without producing an increase in the number of beds. The nursing care area (Picture 32) is thus branched in order to provide wide possibilities for the reorganization of special subdepartments within the main discipline (nursing care units of 18 beds). These subdepartments are all structurally connected to the centrally located facilities of diagnosis and therapy, whose capacity need not be expanded since the number of beds in the main clinics remains constant. This concept can only be realized if the Recovery clinic serves as a "resevoir" for long term therapy cases, i.e., if the Recovery clinic is closely connected to the general subdepartments.

6.3.2 Clinical Research

The plan presents the arrangement of all clinics and scientific laboratories on the same floor level and thus allows for their coordination with the following forms of organization: (Picture 31)*.

A) Special subdepartments for clinical research (Picture 31A)*

From the space available for scientific laboratories, every clinic receives its own scientific work area for clinical research. The "next-door" location of the laboratories fulfills all possible constructural requirements for collaborative team work. The laboratories are directly connected to the traffic centers of the bed wings. Although directly adjacent, the central clinical routine laboratories have no direct functional connection with the scientific region except for consultative relations.

B) Integration of Clinical Research with Diagnosis and Therapy (Picture 31B)*.

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* Picture 31: Medical School of the University of Gottingen, Incorporation of research and teaching

* Picture 31A: Special area for clinical research (screened areas-rooms for teaching)

* Picture 31B: Clinical research center with permanent diagnosis duties

The laboratories are divided up according to the importance of the scientific fields. The number, space and kind of laboratories does not change. Only the variable arrangement in the room changes with the change of different organizational structure. This flexibility corresponds to the function of the "clinical research center" as proposed by the Wissenschaftsrat. The location of all subdepartments on the same floor level allows for an exchange of laboratories in case of a shifting of research projects.

C) Clinical Special Subdivisions and General Clinical Fundamental Research (Picture 31C)*.

Fundamental research is carried on by all the clinics together in a research center which is not concerned with the permanent duties of clinical diagnosis and therapy. These duties remain in the central routine laboratories for special clinical research problems. This solution tries to avoid "the danger that as a result of the concentration of areas of clinical research outside of the individual clinic, a separation of clinic and research could occur". As a link between the clinics and the theoretical-medical Departments, the research center is organized as a "joint" between theoretical research and the practical-clinical area in direct connection with the Department for clinical Physiology and the central library. The connection to the clinics allows transportation of patients through short closed passageways. This solution does not exclude reorganization as described in B.

All the divisions of the medical school within a circumference of ca. 300 m can be reached through corridors from this central research and library center.

6.3.3 Theoretical Medicine

The research laboratories of the theoretical Departments are graduated, corresponding to the scientific relations mentioned earlier, in between the research center and the scientific Departments. The areas for research are constructurally separated from those for teaching for two reasons:

1) The scientific laboratories should retain possibilities for expansion in every Departmental area. These possibilities are now presented schematically in the plans. In contrast, the number of student work benches remains relatively constant so that the teaching area can be centrally attached.

2) Various constructive dimensions and systems are useful for scientific laboratories on one hand and for lecture halls and laboratory courses on the other.

Consequences for the methods of construction are treated in section 6.4.

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* Picture 31C: Clinical special subdivisions and clinical research center for joint fundamental research

6.3.4 Teaching

Student work benches and class rooms are planned in the nursing care area, treatment area, and central area. In the nursing care area, work benches and laboratories for students are attached directly next to the medical rooms on every floor. A larger conference room (seminar, course, conference) can be reached on every floor without disturbing the internal nursing care area. The number and coordination of these work areas depend on the special field of the clinic. The areas are indispensible in relation to a development in the direction of an intensification of "bed side teaching" (Picture 32)*.

In the clinical area, the lecture halls and class rooms of the clinics on level 1 (Picture 33)* are directly connected to the "traffic junctions" of the bed wing and to the treatment facilities in such a way that constructural conditions for a variable general use are possible. They are accessible for students through a "bridge" from the north (Picture 31, Entrance for Students) so that intersections of walk ways are avoided.

In this position in the central area, they are located on the same floor with the lecture rooms of the clinic and with the theoretical Departments.

The central location of "teaching space" within the theoretical area, allows, within certain limits, for an economical general use of lecture halls by several Departments. Problems arising from a joint utilization of laboratories by several Departments are treated in 4.3.2.

6.4 Building Methods

Construction and building methods result predominantly from requirements for:

1. Flexible utilization of floor levels,
2. Possibility for expansion,
3. Building time.

They lead to a standardization of:

1. Basic measurements for construction and completion,
2. Construction systems and production methods as well as to a separation, maintained throughout the entire plan, between all the exchangeable parts and the unalterable, constructural frame.

The adjustability of laboratories to various needs requires not only a variability in space arrangements, but also a variability in installations of plumbing and electricity.

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* Picture 32: Medical School of the University of Göttingen. Plans for bed wings of the medical clinic with rooms for teaching. Scale 1:800

* Picture 33: Medical School of the University of Göttingen. Plans for central clinics. Scale 1:3000 (Medicine, Surgery, ENT, Eye, Radiology), level 0

* Picture 34: as above, Level 1, Scale 1:3000

This requirement for adjustable and extendable installations can only be fulfilled if the total technical completion is included in the basic plan from the very beginning. (DBZ 7/62, Fesel, Tachnischer Ausbau als Entwurfselement). In the theoretical-medical Departments almost all laboratory "types" can be found, requiring various equipment, however:

physiological laboratories
chemical laboratories
physical laboratories
special laboratories, which demand completely separated installation systems, particularly for work with isotopes.

In addition are the work, writing and other small rooms which must be arranged in connection with the laboratories.

Questions of constructural standards have been investigated within the last twenty-five years and have been repeatedly published up until recently: therefore the fundamental questions in this connection do not have to be presented. Development of plans led to a "neutral floor", shown in Picture 35*, comprised of a construction unit of 7.5 m long and a working width of 1.25 m. The ceiling construction allows for the installation of pipes from the center outward into each field as well as for supplementary additions or changes. As a result of a pre-stressed system, the construction of the frame also carries all horizontal loads so that these fields of 7.5 x 7.5 m can be regarded as free-standing "tables" (Statik Dipl.-Ing. Christmann). These elements which are independent of all locally produced wind reinforcement offer great possibilities for later expansion. For the completion of this plan it is required that not only the buildings themselves but also the distances between them amount to several times the structure measurements. Thus there is practically no limitation on the possibility for coordinating the different buildings.

Picture 36* shows the basic constructive element and the relationship of this to the whole system. The building becomes a component of an orderly system (Picture 38)*.

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* Picture 35: Medical School of the University of Göttingen. Plans for laboratory buildings (research space of the Department). Horizontal cross section through the ceiling construction and example of equipment.

* Picture 36: Departments buildings. Model of Construction

* Picture 37: Smallest unit of construction, 7.50 x 7.50 m units covering removed for clarity.

* Picture 38: Medical School of the University of Gottingen. Total model, including long term possibilities for expansion.

A DESCRIPTIVE STUDY OF THE STRONG MEMORIAL HOSPITAL EMERGENCY DEPARTMENT[1,2]

by

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I. INTRODUCTION

During the past decade, Strong Memorial Hospital (SMH) has experienced a remarkable increase in the number of Emergency Department (ED) visits as well as significant changes in the type of case material presented. Numerous factors have been responsible for these phenomena. For example, the migration of large numbers of unskilled, poorly educated residents of rural communities, particularly in the south, to the industrial centers of the north has increased substantially the medically indigent populations in these areas. The trend toward specialization among younger physicians, and subtle changes in the patterns of urban medical practice have created special problems for patients faced with medical problems (emergency and non-emergency) after regular office hours and on weekends and holidays. Also, the awareness on the part of the general public that hospital ED facilities, providing a full-range of diagnostic services, are available at all times, coupled with its demand for more and better care have resulted in the increased utilization of ED's by all segments of the community. Finally, financial considerations, such as insurance programs covering emergency visits, Blue Cross accident coverage, etc. often encourage patients to seek emergency treatment when other forms of medical care (i.e. house call of office visit) would be more appropriate.

The impact of future government health programs, social changes, and economic pressures on the total emergency medical resources in the Rochester metropolitan area cannot be predicted with confidence. Undoubtedly, the present concept of emergency care will be modified to balance the public's growing demand for such services, on the one hand, against the available facilities and problems (i.e. steadily increasing operating costs, inadequate third party reimbursement, shortages of qualified medical and nursing personnel etc.), on the other.

This subject is currently of vital importance to SMH, not only because it provides emergency care for the majority of the residents of Monroe County (at present, more than one-third), but also because significant changes, related to this department's activities, are planned during the next few years. Chief among these, of course, is the design, construction, and staffing of a new hospital, including an ED. In addition, the recommendations of the Curriculum Committee for strengthening the clinical clerkship in the ED will be implemented.

It is the purpose of this paper to provide the hospital administration and the medical school faculty with data concerning one aspect of the total ED program, namely, a sociological profile of the SMH emergency patient. The primary goal of the study was to describe the emergency population in terms of demographic and medical variables. As a secondary objective, selected factors related to the operation of the ED were also examined.

II. HISTORICAL BACKGROUND

Table 1 summarizes SMH ED statistics for the decade, 1954-1964. About 18,000 emergency patients were treated in 1954-1955 (approximately 50 per day), compared with more than 47,000 ten years later (about 130 daily). The largest annual increases were observed in the mid-1950's (the average rate of growth was 18 percent per year between 1955 and 1958); during the next six years, the mean annual percentage increase was eight percent (range: three to 12 percent).

From these data, it can be seen that the total number of ED patients increased about 160 percent from 1954 to 1964. This represents an average gain of 16

Table 1. Distribution of Strong Memorial Hospital Emergency Department Visits, 1954-1964.

Fiscal Year	No. of ED Visits	Annual Percentage Change	Cumulative Percentage Change (from 1954-1955
1954-1955	18,401	--	--
1955-1956	21,297	+ 16%	+ 16%
1956-1957	26,922	+ 26	+ 46
1957-1958	30,527	+ 13	+ 66
1958-1959	32,455	+ 6	+ 76
1959-1960	34,546	+ 6	+ 88
1960-1961	37,207	+ 8	+ 102
1961-1962	41,353	+ 11	+ 125
1962-1963	42,404	+ 3	+ 130
1963-1964	47,576	+ 12	+ 159
Average (per year)	33,269		15.9%

percent annually, or more than 2,900 patients each year.[5] During this same period, it is estimated that the population of Rochester decreased about six percent while that of the county (including Rochester) grew approximately 18 percent. Thus, it is apparent that the substantial increase in ED utilization thought indirectly associated with population growth in the community at large, cannot be explained solely on this basis.

III. SURVEY METHOD

The existing procedure for collecting information from emergency patients was considered inadequate for research purposes. In 1963, additional clerical space was created by separating the nursing station from the ED desk area. In order to improve the quality of the information obtained, ED clerks were trained in data collection techniques. The goals of the study were discussed with department chairmen and their ED representatives. Suggestions concerning specific data to be collected were solicited from the faculty, and, when feasible, incorporated into the study design. Also, all ED personnel participated in the preparation of the study protocol, and rotating house staff physicians were briefed regarding its objectives. Finally, the ED form, which had been used for a number of years, was revised so that a carbon copy for the Data Processing Center (DPC) was made available.

Data were collected on a routine basis for all emergency patients, starting January 13, 1964 and continuing for six months (182 days) until July 12, 1964. A preliminary report summarizing the major study findings during the first two months of data collection was distributed to the faculty in May 1964.

IV. POPULATION CHARACTERISTICS

A. General Description of Emergency Population

The total number of emergency visits during the six-months studies was 24,514, an average of 135 patients per day. Fewer patients were seen during the late winter and early spring months than in the summer period. From January to April, for example, an average of 128 patients received emergency care daily, compared with 143 patients during the May-July period. That accident rates increase during the summer months, particularly automobile accidents and injuries to children on summer vacation, might explain this phenomenon.

B. Sex and Color

From Table 2, it can be seen that a slightly higher percentage of females were treated in the SMH ED than males, 51 percent compared with 49 percent. This increase is consistent with the sex distribution of both the city and county populations.[6]

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[5] From 1954 to 1964, patient visits to the majority of SMH outpatient clinics (excluding psychiatry, rehabilitation, and private ambulatory) rose from about 50,000 to 90,000, or approximately 80 percent--one-half the ED rate. As expected, there was little fluctuation in the number of inpatient days, the total ranging between 209,000 and 216,000. Thus, the ED, with a ten-year overall increase of 160 percent, represents the fastest growing patient care facility in the hospital.

[6] Population data were obtained from a Special Census of Monroe County taken on April 1, 1964, the approximate midpoint of the period during which information for this study was obtained.

Table 2. Distribution of Strong Memorial Hospital Emergency Patients (January 13-July 12, 1964) and Populations of the City of Rochester and Monroe County (April 1, 1964) by Sex and Color.

Sex and Color	ED Population		City of Rochester 1964 Census*		County of Monroe (Including City of Rochester) 1964 Census*	
	No.	Percent	No.	Percent	No.	Percent
Male	11,943	49	146,037	48	302,930	48
White	8,209	33	130,113	43	286,357	45
Nonwhite	3,602	15	15,924	5	16,573	3
Color N.A.**	132	1	--		--	
Female	12,571	51	159,702	52	322,088	52
White	7,770	32	143,286	47	305,169	49
Nonwhite	4,670	19	16,416	5	16,919	3
Color N.A.	131	1	--		--	
Total						
White	15,979	65	273,399	90	591,526	95
Nonwhite	8,272	34	32,340	10	33,492	5
Color N.A.	263	1	--		--	
TOTAL	24,514	100%	305,739	100%	625,018	100%

* A special census of Monroe County was taken on April 1, 1964.

** N.A. = Not ascertained.

An analysis of ED patients according to color (Table 2) indicates that there was a disproportionate utilization of the ED by the nonwhite population of the Rochester community. Although nonwhites constituted a relatively small percentage of the total city and county populations--ten and five percent, respectively--they accounted for more than one-third of the total ED patients. More Negro females received emergency treatment than Negro males. Furthermore, the largest discrepancy between ED usage and relative population size was also noted for this group. Whereas nonwhite women comprised only five percent of the total city population, they were responsible for 19 percent of the emergency visits to SMH, almost a fourfold increase.

Table 3 shows that the ED population was somewhat younger than the city and county populations, the average age being 28.2 years, compared with 34.8 years for the city and 42.0 for the population of Monroe County. Over 60 percent of the ED patients were less than 30 years of age, the largest proportion represented by children under ten years (24 percent), and young adults in the 20-29 range (22 percent). Compared with the city and county age distributions, the percentage of emergency patients in the latter age group was excessive. It is hypothesized that this group was composed primarily of nonwhites. University of Rochester students and non-professional employees, young adults who had recently moved into the area, automobile accident victims, and obstetrical patients.

C. Place or Residence

The distribution of emergency patients according to place of residence is presented in Table 4. It can be seen that SMH provides emergency services primarily to residents of the City of Rochester. The overall ED utilization rates for the city and county populations (excluding Rochester) were 61 and 14 emergency-service visits per 1,000 population, respectively. Three-quarters of all SMH emergency patients (100 per day) lived within the city, while 18 percent resided outside the city limits in the county. Residents of rural communities in the Rochester metropolitan area also used the ED to a limited extent; over 1,300 patients (about eight daily), principally from the counties to the south of Rochester, were treated during the six months studied.

D. Residence by Census Tract

To analyze the geographic distribution of SMH patients in detail, the residence of each patient living in Monroe County was coded according to census tract.[7] Listed in Table 5 are the census tracts in the City of Rochester with rates in excess of 100 emergency visits per 1,000 population; the same data are shown graphically in Chart 1.

From this table, it can be seen that the highest rates of ED utilization (1200 patients/1,000 population) were found in two distinct areas of the city:

[7] Demographers recognizing the need for data from homogeneous subdivisions of cities as a basis for studying neighborhoods smaller than boroughs or wards, developed the concept of census tract in the early years of this century. At present, Monroe County (N.Y.) is one of more than 180 areas in the United States which have been divided into tracted divisions by the Bureau of Census. The primary advantage of using census tract statistics is that clearly delineated areas of urban communities can be analyzed in terms of a variety of population characteristics over long periods of time.

Table 3. Distribution of Strong Memorial Hospital Emergency Patients (January 13-July 12, 1964) and the Populations of the City of Rochester and Monroe County (April 1, 1964) by Age (Years).

Age of Patient (Years)	ED Population		City of Rochester 1964 Censes*		County of Monroe (Including City of Rochester) 1964 Census*	
	No.	Percent	No.	Percent	No.	Percent
<1	1,209	5	6,647	2	13,140	2
1-9	4,670	19	50,335	16	118,075	19
10-19	3,673	15	47,323	16	106,948	17
20-29	5,351	22	42,902	14	74,466	12
30-39	3,352	14	32,796	11	78,284	12
40-49	2,135	9	36,697	12	82,318	13
50-59	1,598	7	33,278	11	63,990	10
60-69	1,203	5	29,500	10	48,514	8
70-79	774	3	19,369	6	29,045	5
≥ 80	404	1	6,892	2	10,238	2
N.A.**	145	<1	--		--	
Average Age	28.2		34.8		42.0	
TOTAL	24,514	100%	305,739	100%	625,018	100%

* A special census of Monroe County (N.Y.) was taken on April 1, 1964

** N.A. = Not ascertained.

Table 4. Distribution of Strong Memorial Hospital Emergency Patients by Place of Residence (January 13-July 12, 1964)

Place of Residence	Number	Percent	Average/Day
City of Rochester	18,326	75	100
Suburbs	4,417	18	24
Total Monroe County	22,743	93	124
New York State	1,351	5	8
Other State	140	1	1
Foreign Country	12	<1	<1
N.A.*	268	1	1
TOTAL	24,514	100%	135

* N.A. = Not ascertained.

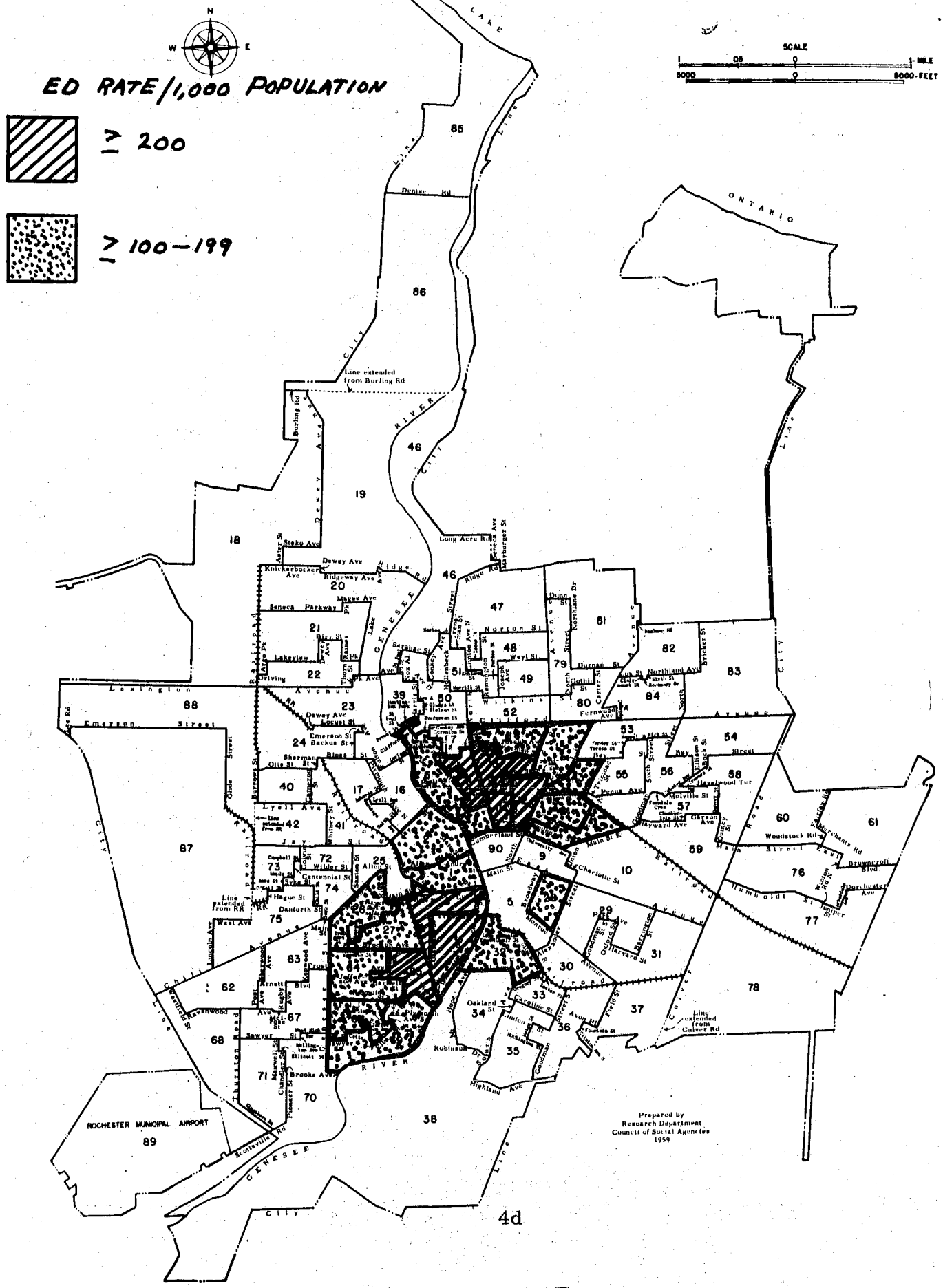
Table 5. Distribution of Strong Memorial Hospital Emergency Patients (January 13-July 12, 1942) by City of Rochester Census Tracts with Rates of More Than 100 Emergency Visits Per 1,000 Population.

Rank	Census Tract	ED Population	Census Population	Rate/1,000 Population	
1	4	1,394	4,787	291	
2	12	324	1,250	260	
3	3	435	1,885	231	
4	65	688	3,128	220	
5	13	921	4,303	214	≥200
6	11	142	688	213	↑
7	8	634	3,103	204	
8	43	374	1,928	194	↓
9	64	922	5,180	177	100-199
10	27	733	4,257	172	
11	6	224	1,440	156	
12	26	492	3,175	155	
13	1	144	933	154	
14	14	538	3,594	150	
15	66	446	3,087	144	
16	69	377	2,765	136	
17	44	476	3,679	129	
18	2	64	531	121	
19	45	148	1,270	117	
20	32	248	2,243	111	
21	28	258	2,351	110	
22	15	383	3,587	107	
TOTAL		10,365	59,164	175	

* A special census of Monroe County (N.Y. was taken on April 1, 1964.)

CHART 1

ROCHESTER CENSUS TRACTS



1. Three census tracts (Numbers 3, 4, and 65) on the west side of the Genesee River about one mile from the hospital, bordered by Plymouth Avenue, Broad Street, the Pennsylvania Railroad, Bronson Avenue, Bartlett Street, and Violette Street, and

2. A district in the central core of the city (Census Tracts 8, 11, 12, and 13) surrounded by Herman, Rauber, Martin, and Ward Streets; Clinton Avenue, Cumberland Street, and North Street.

These seven census tracts had a combined 1964 population of 19,124 people, or about six percent of the total city population. However, almost 20 percent of the ED patients treated at SMH were residents of these tracts, an increase of more than three times the number expected on the basis of population statistics.

When census tracts with rates of more than 100 ED visits per 1,000 population are included, it can be seen from Chart 1 that a definite clustering pattern emerges around these two high-rate areas. Although these 22 census tracts had a total 1964 population of about 60,000 people (slightly less than one-fifth of the city total), they constituted approximately 42 percent of the total emergency population seen at SMH.

Since there is no ED at the Westside Division of the Rochester General Hospital, it could be expected that residents of the surrounding neighborhood would request emergency services at either Strong Memorial or St. Mary's Hospitals. On the other hand, the large number of SMH emergency patients from the center of the city is somewhat unexpected since a full-range of emergency facilities are available at The Genesee Hospital, which is located closer to this section of the city[8]. It is possible that many of the people living in this area are SMH outpatients who return to SMH, their primary source of medical care, when faced with emergency medical problems after clinic hours. That motor vehicle transportation is available today to practically everyone eliminates to a large extent factors associated with travelling time in the selection of an emergency medical care facility.

The distribution of SMH emergency patients by census tracts in Monroe County was not remarkable. As expected, the county tracts with high ED rates were located in the suburban towns of Brighton, Pittsford, Henrietta, and Chili, all in the general area to the south, southeast, and southwest of SMH. Rates for these tracts ranged between 22 and 46 visits per 1,000 population, compared with less than 15 for the remaining tracts in the northern sections of the county. This would suggest that for suburban residents proximity to a hospital is an important factor in choosing an ED facility.

Distributions of the number of emergency patients and rates of utilization according to census tracts in Rochester and suburban Monroe County are included in Appendices A and B. respectively.

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[8] Of interest is an analysis of the geographic distribution of Strong Memorial and Genesee Hospital emergency patients. Comparable statistics were collected for approximately 2,400 Genesee Hospital emergency patients in January 1964 (Kluge, D.N., Wegryn, R.L., and Lemly, B.R., The Expanding Emergency Department, JAMA: 191, 801-805, 1965) An examination of these data by census tract indicates that residents of Census Tracts 5, 28, 9, 44 and 30 had the highest rates of emergency usage. From Table 5, it can be seen that only two of these tracts, Numbers 44 and 28, were included in the SMH listing. Thus, it appears that The Genesee Hospital draws its highest concentration of emergency cases from the surrounding neighborhood in contrast to SMH in which the majority of ED patients are residents of two distinct geographic regions of the city, neither of which is contiguous to the hospital.

E. Socio-Economic Status

From Chart 1, it can be seen that there is a definite pattern of socio-economic clustering for SMH emergency patients living in Rochester. To examine this in detail, the census tracts in the city were divided into four socio-economic classifications, designated I (low) to IV (high), according to property and rental values in 1960.[9]

Data in Table 6 indicate that, with minor differences in ED rates in the two highest socio-economic groups, there is an indirect relationship between ED utilization and socio-economic status. For example, residents of the census tracts in Category I experienced an overall rate of 133 emergency visits per 1,000 population (one for every eight persons), compared with rates of 89, 24, and 31 for Categories II-IV, respectively. While the population of the 15 census tracts in Category I (located in an around the central business district of the city) represented only 12 percent of the total city population in 1964, these areas contributed over one-quarter of the SMH emergency patients during the period studied.

In terms of total emergency visits, the majority of patients (i.e. 49 percent) lived in the 36 census tracts listed in Category II (including those located in the south-central area of the city (i.e. third ward) previously discussed). However, the rate of ED usage for this group was approximately 50 percent less than that observed in Category I. A comparison between rates for Categories II and III shows a further decrease of 73 percent.

F. Referral Source

For approximately 2 ½ months at the beginning of the study (January 13-March 31, 1964), data were collected regarding the source of referral of SMH emergency patients. As can be seen in Table 7, three-fifths of the patients were self-referrals. Seventeen percent were sent to the ED by private physicians, the majority of whom were members of the SMH staff. Private health facilities, primarily company medical departments, referred 13 percent of the cases to the ED, and municipal agencies, such as the board of education, welfare agency, and police department were the referral source for an additional five percent. Emergency paitents were requested to return to the ED for further examination and/or treatment in six percent of the cases.

G. Responsible Party

Table 8 shows that almost 70 percent of the more than 18,000 emergency patients treated in the SMH ED from January 13 to May 31, 1964 were responsible for their own ED charges, either on a cash basis or through private insurance coverage (i.e. Blue Cross or commercial insurance)[10] One-fifth were eligible

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[9] This index of socio-economic status was developed by Dr. Elmer Gardner and his associates in the Department of Psychistry.

[10] Unfortunately, no information is available from this study concerning the number of such patients who pay for their ED services. It has been estimated that the SMH ED incurs an annual deficit of more than $150,000. Accurate financial data are currently being accumulated in this department as a by-product of the SPARK computer billing program started on July 1, 1965

Table 6. Distribution of Strong Memorial Hospital Emergency Patients Residing in the City of Rochester.According to Socio-Economic Classification (January 13-July 12, 1964)

Socio-Economic Category	Number of Census Tracts	ED Population No.	ED Population Percent	Census Population* No.	Census Population* Percent	Rate/1,000 Population
I (Low)	15	4,772	26	35,909	12	133
II	36	9,036	49	101,028	33	89
III	26	2,568	14	106,605	35	24
IV (High)	12	1,950	11	62,197	20	31
TOTAL	89**	18,326	100%	305,739	100%	60

* A special census of Monroe County (N.Y.) was taken on April 1, 1964.

** There are 90 census tracts in the City of Rochester. Tract No. 89 was excluded since no population was reported in 1964.

Table 7. Distribution of Strong Memorial Hospital Emergency Patients by Referral Source (January 13-March 31, 1964)

Referral Source	Number	Percent	Average/Day
Self Referral	5,862	60	74
Municipal Agency	454	5	6
Welfare Department	44	<1	
Board of Education	155	2	
Police	242	2	
Other	13	<1	
Private Physician	1,627	17	21
SMH staff	831	9	
Non-SMH staff in Monroe County	322	3	
Non-SMH staff outside Monroe County	108	1	
Type of physician N.A.*	366	4	
Medical Facility	1,246	13	16
SMH OPD	149	2	
Baden Street Clinic	23	<1	
County Dept. of Health	32	<1	
Hospital in Monroe County	85	1	
Hospital outside Monroe County	9	<1	
Private company	904	9	
Other	44	<1	
ED Return	591	6	7
N.A.*	9	<1	<1
TOTAL	9,789	100%	124

* N.A. = Not ascertained.

Table 8. Distribution of Strong Memorial Hospital Emergengy Patients by Responsible Party (January 13-May 31, 1964)

Responsible Party	Number	Percent	Average/Day
Self pay or private insurance	12,631	68	90
Monroe County Department of Welfare	3,693	20	26
Board of Education	260	1	2
University of Rochester	1,195	7	9
Employee	866	5	6
Student	329	2	3
Workmen's Compensation	645	3	5
Other (Armed Forces, courtesy, etc.)	61	<1	<1
N.A.*	31	<1	<1
TOTAL	18,516	100%	132

* N.A. = Not ascertained.

for medical assistance under the sponsorship of the Monroe County Department of Welfare. In addition, the University of Rochester paid a portion of the emergency bills for about 1,200 patients (six percent) treated in the ED during the 4½ months studied. Almost three-quarters of these patients were university employees, many of whom were examined (i.e. "duty check") before reporting back to work. Compensation carriers, covering occupational injuries, were responsible for the emergency medical costs of the remaining four percent of the ED cases.

H. Bona Fide Emergency Visit

As mentioned in the introductory remarks, during the past two decades ED's throughout the country have experienced a disproportionate increase in the number of patients seeking medical attention for non-emergency medical problems. To estimate the extent to which the SMH ED was being inappropriately used, the question, "Was this a bona fide emergency visit requiring ED facilities?" was asked on the emergency form during the period, January 13-March 31, 1964. A revised version was printed in April to emphasize non-medical considerations; the wording was changed as follows: "Considering both medical and non-medical factors, did this patient require ED facilities?".

Obviously, answers to questions of this type represent value judgments on the part of the physician(s) providing emergency medical care. Since such responses are subject to the personal biases and interpretations of a number of different doctors, they can only be used as a crude measurement to describe the utilization of this facility.

The physicians' replies were summarized in Table 9. From the data collected it was estimated that between 13 and 17 percent of the patients requesting care at the SMH ED could have been treated more appropriately at some other medical facility (i.e. private physician's office, clinic, infirmary, etc.). In comparison, more than one-half of the ED visits (about 56 percent) were judged to be bona fide emergency visits, as defined above.

These data must be interpreted with caution, not only because of the nature of the questions asked, but also because of the large number of "not ascertained" responses obtained, particularly during April and May (26 percent). If the assumption is made that these replies were distributed in the same proportion as the affirmative and negative responses, it is estimated that roughly one-fifth of the visits to the SMH ED were not bona fide emergencies.[11]

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[11] As noted previously, similar data were collected in January 1964 for patients seen in The Genesee Hospital ED. In this investigation, physicians were requested to assign patients to one of three categories, as follows:

"Was this a bona fide emergency visit requiring ED facilities?"

Reply	Percent
1. No	30
2. Yes, Office (i.e. hospital facilities not required immediately)	35
3. Yes, Emergency Department	35

It should be pointed out, however, that these statistics cannot be compared with the SMH data since different criteria were used to answer the question.

Table 9. Distribution of Physicians' Responses by Whether Bona Fide Emergency Visit (January 13-May 31, 1964)

Physicians' Responses	Question 1: "Was this a Bona Fide Emergency Visit Requiring ED Facilities?" (January 13-March 31, 1964)		Question 2: "Considering Both Medical and Non-medical Factors, Did This Patient Require ED Facilities?" (April 1-May 31, 1964)	
	Number	Percent	Number	Percent
Yes*	5,957	61	4,531	52
No	1,671	17	1,171	13
N.A.**	1,385	14	2,262	26
Not applicable***	776	8	763	9
TOTAL	9,789	100%	8,727	100%

* Emergency visits for the following patients were defined as being appropriate psychiatric patients, DOA's, and patients admitted to the hospital.

** N.A. = Not ascertained.

*** Patients for whom these questions were not applicable included those referred to the ED for scheduled therapy, "duty check", "labor check" and Monroe County Infirmary screening.

I. Diagnostic Impression

The primary diagnostic impression is perhaps the most valid index which can be used to describe the emergency population. Although it does not represent a final diagnosis in many cases, the impression does summarize, in general terms, the nature of the medical problems treated in the ED.

In table 10, the emergency patients are distributed according to major diagnostic categories.[12] As expected, the largest proportion of ED visits (30 percent) were associated with trauma--fractures, sprains, head injuries, contusions, burns, etc. The most common diagnosis made in the ED was, "laceration and open wound"; over 2,300 patients (about 13 per day) were treated for this condition. Other common diagnoses were: upper respiratory infections (1,088), contusions (1,009), sprains and strains of joints and muscles (948), and fractures (829). Because of data collection problems, a substantial number of emergency patients (1,157) were classified according to presenting complaint (rather than diagnostic impression) under the broad heading, "symptoms referrable to systems or organs."

The second largest diagnostic category (15 percent) included a number of miscellaneous ED services, namely, scheduled operative and diagnostic procedures, follow-up examinations, obstetric screening, etc. The remaining patients were distributed rather evenly among the various diagnostic categories with the exceptions of mental disorders (ten percent), and diseases of the respiratory and digestive systems (eight percent each).

A detailed listing of diagnostic impressions is included in Appendix C.

V. OPERATION OF THE STRONG MEMORIAL HOSPITAL EMERGENCY DEPARTMENT

A. Day of the Week

The distribution of emergency patients by day of the week of visit is presented in Table 11. The daily range did not vary appreciably (131-143) although more patients were seen on Monday than any other day. The patient load decreased slightly on Tuesday and Wednesday, increased on Thursday (the day private physicians usually do not work in this community), and remained steady throughout the weekend.[13] The relationship between the number of ED visits and the day of the emergency visit was statistically significant ($X^2 = 18.9$, $p. = <.01$).

B. Time of Day

As shown in Table 12, there was little variability in the number of emergency patients seen between 8:00 a.m. and midnight each day. However, approximately 8 patients (1 every 7 minutes) were registered at the ED desk during this 15-hour period. The hypothesis shared by many physicians and ad-

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[12] The International coding nomenclature (ICDA) was used to code ED diagnoses.

[13] These data are generally consistent with those collected at The Genesse Hospital. There, more emergency patients were seen on Thursday (85/day) than during the rest of the week, although Monday's rate was also high (81/day). In contrast to the SMH results, a low was reached on Sunday (64/day).

Table 10. Distribution of Strong Memorial Hospital Emergency Patients by Primary Diagnostic Category* (January 13-July 12, 1964)

Diagnostic Category	Number	Percent	Average/Day
Infective and parasitic diseases	1,052	4	6
Neoplasms	177	<1	1
Allergic, endocrine system, metabolic and nutritional diseases	410	2	2
Diseases of blood and blood-forming organs	73	<1	<1
Mental, psychoneurotic and personality disorders	2,342	10	13
Diseases of the nervous system and sense organs	1,062	4	6
Diseases of the circulatory system	734	3	4
Diseases of the respiratory system	2,042	8	11
Diseases of the digestive system	1,839	8	10
Diseases of the genitourinary system	843	3	5
Deliveries and complications of pregnancy, childbirth, and puerperium	385	2	2
Diseases of the skin and cellular tissue	748	3	4
Diseases of the bones and organs of movement	380	2	2
Congenital malformations	32	<1	<1
Certain diseases of early infancy	22	<1	<1
Symptoms, senility, and ill-defined conditions	1,379	6	8
Injuries and adverse effects of chemical and other external causes	7,371	30	40
Miscellaneous diagnoses	3,623	15	20
TOTAL	24,514	100%	135

* Diagnostic categories were taken from the International Classification of Diseases, Adapted for Indexing Hospital Records by Diseases and Operations ("The International List").

Table 11. Distribution of Strong Memorial Hospital Emergency Patients by Day of Week of Visit (January 13-July 12, 1964)

Day of Week	Number	Percent	Average/Day
Sunday	3,498	14	134
Monday	3,708	15	143
Tuesday	3,415	14	131
Wednesday	3,431	14	132
Thursday	3,570	15	137
Friday	3,457	14	133
Saturday	3,435	14	132
TOTAL	24,514	100%	135

Table 12. Distribution of Strong Memorial Hospital Emergency Patients by Hour of Visit (January 13-July 12, 1964)

Hour of Visit	Number	Percent	Average/Day
Day Shift	11,534	47	64
8:00-10:00 a.m.	2,247	9	13
10:00-Noon	3,245	13	18
Noon-2:00 p.m.	3,127	13	17
2:00-4:00 p.m.	2,915	12	16
Evening Shift	10,073	41	55
4:00-6:00 p.m.	2,702	11	15
6:00-8:00 p.m.	2,967	12	16
8:00-10:00 p.m.	2,627	11	14
10:00-Midnight	1,777	7	10
Night Shift	2,907	12	16
Midnight-2:00 a.m.	1,021	4	6
2:00-4:00 a.m.	720	3	4
4:00-6:00 a.m.	422	2	2
6:00-8:00 a.m.	744	3	4
TOTAL	24,514	100%	135

ministrative employees that there is a marked increase in the amount of ED traffic after 5:00 p.m. when the normal working day ends is unsubstantiated by these data. As anticipated, the average hourly rate of ED visits throughout the night was greatly reduced, (i.e. one-quarter of the daily statistics).

C. Primary Service

Thirty-nine percent of the emergency patients were treated by the surgical service, compared with 23 percent, medicine; 18 percent, pediatrics; and about 8 percent each for psychiatry and obstetrics-gynecology (Table 13). The largest proportion of surgical patients were examined by general surgery (31 percent), compared with four percent each for the orthopaedic and dental services. The remaining surgical specialities usually provided emergency services on a consultative basis. Information regarding this aspect of ED care are unavailable from this investigation, due to data collection problems in the ED.

D. Type of Physician(s) Providing Emergency Care

Though the data presented in Table 14 are undoubtedly underestimates, they do indicate, in general terms, the extent to which the responsibility for providing ED services is shared by students, house staff, and private doctors.[14] As expected, the majority of emergency patients (about two-thirds) were treated by one physician only, usually an intern (40 percent) or resident (16 percent). In comparison, about 20 percent of the patients were seen by both an intern and a resident. Private physicians, on the other hand, treated a small proportion of the total emergency population, less than three percent.

E. Disposition of Emergency Patients

The disposition of emergency patients for a 4½ month period (January 13-May 31, 1964) is summarized in Table 15. The majority were referred to the outpatient clinic for follow-up care (31 percent); more than one-quarter were allowed to return to their normal daily activities. On the other hand, over 3,000 patients (about 22 per day) were admitted directly to the hospital from the ED; this represents approximately one-third of the total number of daily admissions. No data are available concerning the distribution of these cases by service.[15]

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[14] The type of physician(s) who treated emergency patients was determined from the doctor's signature(s) on the front of the medical record. The statistics shown in Table 14 are in error since, in many instances, physicians signed their names on the back of the ED sheet and on history paper, and therefore, were not counted. Also, these figures may be incorrect because of the procedure commonly practiced in which a resident countersigns an intern's medical report when, in fact, the patient was never examined by him. That over 1,000 emergency patients were reported as having been examined by externs only illustrates the magnitude of response error involved in collecting this information.

[15] In The Genessee Hospital study, 16 percent of the emergency patients were admitted, the same percentage as that observed at SMH. The largest percentage was seen by the medical service (38 percent), followed by obstetrics-gynecology (34 percent), surgery (nine percent), and pediatrics (eight percent).

Table 13. Distribution of Strong Memorial Hospital Emergency Patients by Primary Service* (January 13-July 12, 1964)

Primary Service	Number	Percent	Average/Day
Surgery	9,560	39	53
Medicine	5,651	23	31
Pediatrics	4,403	18	24
Obstetrics-Gynecology	1,962	8	11
Psychiatry	1,709	7	10
Medication Only	470	2	2
Not seen in ED (Referred to Clinic)	521	2	3
N.A.**	238	1	1
TOTAL	24,514	100%	135

* The primary service was defined as the first department seen by the patient; ED consultations were excluded.

** N.A. = Not ascertained.

Table 14. Distribution of Strong Memorial Hospital Emergency Patients by Type of Physician(s) Providing Emergency Care (January 13-July 12, 1964)

Type of Physician(s)	Number	Percent	Average/Day
One Physician	15,522	63	85
Extern*	1,128	5	6
Intern	9,840	40	54
Resident	4,056	16	22
Private attending	498	2	3
Two Physicians	6,782	27	37
Extern* + intern	1,111	4	6
Extern* + resident	1,043	4	6
Intern + resident	4,357	18	24
Intern + private attending	271	1	1
Other Combinations	435	2	2
Medication (Given by Nurse)	375	2	2
Patient Not Seen in ED (Referred to Clinic)	503	2	3
N.A.**	897	4	6
TOTAL	24,514	100%	135

* Externs were assigned to the ED from January 13-May 31, 1964

** N.A. = Not ascertained

Table 15. Distribution of Strong Memorial Hospital Emergency Patients by Disposition (January 13-May 31, 1965)

Disposition	Number	Percent	Average/Day
Home (Normal Activity)	4,736	26	34
Admitted	3,129	17	22
Outpatient Department	5,696	31	41
Private Physician	2,983	16	21
ED Return	599	3	4
Other (Scheduled cases left without being seen, etc.)	1,055	6	8
Deceased	93	<1	<1
N.A.*	255	1	2
TOTAL	18,516	100%	132

* N.A. = Not ascertained.

F. Multiple Emergency Department Visits

The hypothesis that a major segment of the total SMH emergency population is comprised of multiple users is not supported by the data in Table 16. Over 80 percent of the 19,164 ED patients were treated only once during the 182 days surveyed. Of the 18 percent who were multiple users, the majority, 2,238 (12 percent) were seen twice. Only seven patients had ten or more ED visits; one of these was an infant (seen 21 times) who had a series of lumbar punctures.

VI. CONCLUSIONS

Although the hospital administration has been aware of the changes which have taken place in the ED in recent years, to our knowledge there has been no attempt to document activities in the department on a systematic basis. As noted earlier, the principal goal of this investigation was to describe the population treated in the SMH ED. To accomplish this objective relatively easily and at minimal cost, the statistical information recorded as a part of the routine record-keeping in the ED formed the basis for this analysis.

Because of limitations associated with this type of data collection procedure, however, it was not possible to study a number of significant factors related to the ED's operation. For example, we have not discussed the financial aspects involved in caring for emergency patients (e.g. accounts receivable, third party reimbursement policies, the costs of staffing and supplying this facility, etc.). Furthermore, questions relating to the public's motivation for using the ED were only briefly alluded to in our discussion of the appropriateness of emergency-service visits. In addition, no data are available regarding the quality of medical care being provided in the ED. Finally, we have not attempted to evaluate the ED's educational program for training medical students and house staff physicians. Obviously, areas such as these can be investigated only by specially designed analytical studies, not through the routine collection of basic statistical information.

It is possible, however, to describe the ED population in general terms by analyzing such data. For the most part, it is a young, urban population, comprised of people with low incomes living predominantly in the older, poorer sections of the city. One-third of the patients requesting medical attention at SMH are nonwhite, although Negroes constitute only ten percent of the total city population. Since few have private physicians, the outpatient and emergency departments at SMH are the only sources of medical care for many. For this reason, a substantial portion of the medical problems seen, particularly those involving infectious diseases among infants and young children, may be classified as non-emergencies.

During the past decade, the number of patients seen in the ED has more than doubled, making it the fastest growing hospital facility. Assuming that this rate of increase remains constant throughout the next ten years, it is estimated that more than 120,000 patients (over 300 per day) will receive treatment in the SMH ED each year by 1975.[16]

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[16] During the past year, the ED population grew by seven percent to 50,951 patients.

Table 16. Distribution of Strong Memorial Hospital Emergency Patients by Number of Visits (January 13-July 12, 1964).

No. of Visits	ED Patients No.	ED Patients Percent	No. of Patient-Visits
1	15,782	82	15,782
2	2,238	12	4,476
3	708	4	2,124
4	245	1	980
5	98	<1	490
6	49	<1	294
7	20	<1	140
8	13	<1	104
9	4	<1	36
<10	7	<1	88
TOTAL	19,164	100%	24,514

The impact of such spectacular growth upon the medical school teaching program, the hospital budget, ED space and staffing problems, hospital service areas, etc. cannot be predicted. In the years ahead, the role of the ED must be re-examined carefully if this facility is to continue to provide the majority of emergency medical services for the Rochester community. It is hoped that this study will contribute, in small measure, to this reappraisal, and that it will be used, along with other analyses, to plan the future of this important hospital department.

Appendix A. Distribution of ED Patients by Census Tract, City of Rochester, (January 13-July 12, 1964)

Census Tract	No. of ED Visits	Population	Rate/1000 Population
01	144	933	154
02	64	531	121
03	435	1,885	231
04	1,394	4,787	291
05	180	2,236	81
06	224	1,440	156
07	107	1,499	71
08	634	3,103	204
09	98	1,091	90
10	230	4,565	50
11	142	668	213
12	324	1,250	259
13	921	4,303	214
14	538	3,594	150
15	383	3,587	107
16	119	1,793	66
17	191	2,959	65
18	113	5,927	19
19	57	4,472	13
20	101	6,426	16
21	59	4,800	12
22	69	3,615	19
23	291	5,836	50
24	123	4,257	29
25	179	2,198	81
26	492	3,175	155
27	733	4,257	172
28	258	2,351	110
29	132	4,801	27
30	114	3,120	37
31	168	5,907	28
32	248	2,243	111
33	82	1,580	52
34	248	3,316	75
35	94	2,423	39
36	148	4,247	35
37	116	4,275	27
38	800	12,195	66
39	53	1,697	31
40	50	1,959	26

Census Tract	No. of ED Visits	Population	Rate/1000 Population
41	164	2,982	55
42	93	2,658	35
43	374	1,928	194
44	476	3,679	129
45	148	1,270	117
46	39	3,661	11
47	28	2,830	10
48	55	2,947	19
49	68	2,695	25
50	77	3,747	21
51	69	2,148	32
52	129	3,371	38
53	85	3,124	27
54	101	4,925	21
55	210	3,467	61
56	116	3,614	32
57	106	2,985	36
58	82	4,993	16
59	202	3,035	67
60	55	4,606	12
61	37	3,373	11
62	119	3,609	33
63	126	4,388	29
64	922	5,180	178
65	688	3,128	220
66	446	3,087	144
67	146	3,835	38
68	145	3,696	39
69	377	2,765	136
70	231	3,894	59
71	167	4,108	41
72	86	1,647	52
73	78	1,676	47
74	161	2,374	68
75	119	3,710	32
76	41	4,464	9
77	76	3,725	20
78	112	5,039	22
79	40	2,430	16
80	54	3,342	16
81	56	5,016	11
82	36	3,804	9
83	51	5,723	9
84	51	3,384	15
85	69	3,936	18

Census Tract	No. of ED Visits	Population	Rate/1000 Population
86	45	5,178	9
87	198	6,101	32
88	61	2,638	23
89	--	--	--
90	35	523	67
Unknown	20	--	--
TOTAL	18,326*	305,739	61

* This total excludes 268 emergency patients for whom the place of residence was not ascertained.

Appendix B. Distribution of ED Patients by Census Tract, County of Monroe. Excluding City of Rochester (January 13-July 12, 1964)

Census Tract	No. of ED Visits	Population	Rate/1000 Population
01	52	4,657	11
02	20	4,691	4
03	31	4,743	7
04	37	5,895	6
05	27	5,332	5
06	34	7,278	5
07	36	4,843	7
08	17	4,316	4
09	58	7,361	8
10	21	5,322	4
11	39	6,266	6
12	48	10,467	5
13	23	3,913	6
14	33	4,904	7
15	64	8,279	8
16	106	9,058	12
17	74	5,583	13
18	67	5,748	12
19	49	5,770	8
20	45	3,315	14
21	58	5,032	12
22	89	6,836	13
23	176	7,094	25
24	95	4,177	23
25	77	5,782	13
26	110	5,148	21
27	91	4,982	18
28	119	4,547	26
29	84	3,492	24
30	226	5,947	38
31	463	10,096	46
32	303	7,725	39
33	64	2,840	23
34	35	3,855	9
35	50	6,847	7
36	49	9,600	5
37	67	7,886	8
38	54	7,103	8
39	53	8,617	6
40	54	8,086	7

Census Tract	No. of ED Visits	Population	Rate/1000 Population
41	59	7,065	8
42	106	5,848	18
43	88	5,546	16
44	80	5,011	16
45	208	9,505	22
46	111	3,563	31
47	120	4,014	30
48	98	8,350	12
49	120	9,399	13
50	70	3,209	22
51	19	3,152	6
52	28	2,807	10
53	57	6,058	9
54	18	2,319	8
Unknown	37	--	--
TOTAL	4,417	319,279	14

Appendix C. Distribution of ED Patients by Primary Diagnostic Impression (January 13 - July 12, 1964)

Diagnostic Impression	Number	Percent	Average/Day
A. Infective and Parasitic Diseases (002-138*)	1052	4.3%	6
Tuberculosis	24		
Syphillis	8		
Gonococcal infection and other venereal diseases	112		
Infectious diseases commonly arising in intestinal tract (food poisoning)	18		
Other bacterial diseases (scarlet fever, sore throat, whooping cough, etc.)	225		
Diseases attributable to viruses (smallpox, rubella, herpes zoster, infectious hepatitis, etc.)	592		
Other (dermatophytosis, etc.)	73		
B. Neoplasms (140-239)	117	.7%	1
Malignant neoplasms			
Buccal cavity and pharynx (lip, tongue, salivary gland, mouth, etc.)	3		
Digestive organs (esophagus, stomach, pancreas, rectum, etc.)	16		
Respiratory system (larynx, mediastinum,etc.)	7		
Breast and genitourinary organs (breast, cervix, uteri, corpus uteri, prostate, kidney, and ureter, etc.)	31		
Lymphatic tissue (Hodgkin's disease, leukemia, etc.)	24		
Other (skin,eye,brain,bone,lymph nodes,etc.)	13		
Benigh neoplasms	58		
Neoplasms of unspecified nature	25		
C. Allergic, Endocrine System, Metabolic, and Nutritional Diseases (240-289)	410	1.7%	2
Allergic disorders (hay fever, asthma, urticaria, etc.)	274		
Diseases of thyroid gland (goiter,myxedema, thyrotoxicosis, etc.)	9		
Diabetes mellitus	82		
Diseases of other endocrine glands (pituitary, adrenal, ovarian dysfunction, etc.)	19		
Avitaminoses and other metabolic diseases (nutritional deficiency, gout, obesity,etc.)	26		
D. Diseases of Blood and Blood-forming Organs (290-299)	73	.3%	<1

* The International Classification of Diseases, Adapted for Indexing Hospital Records by Diseases and Operations, P.H.S. Publication No. 719, U.S. Government Printing Office, 1962.

Diagnostic Impression	Number		Percent	Average/Day
E. Mental, Psychoneurotic, and Personality Disorders (300-329)	2342		9.6%	13
Acute brain disorders (acute brain syndome associated with intoxication, trauma, circulatory disturbance, etc.)		158		
Chronic brain disorder (chronic brain syndrome associated with trauma, convulsive disorder, etc.)		60		
Psychotic disorders (involutional psychotic reaction, schizophrenic reaction, paranoid reactions, etc.)		628		
Psychophysiologic, autonomic, and visceral disorders (skin reaction, gastrointestinal reaction, etc.)		90		
Psychoneurotic disorders (anxiety reaction, conversion reaction, depressive reaction, etc.)		656		
Personality disorders (sociopathic personality disturbance, drug addiction, sexual deviation, alcohol addiction, etc.)		740		
Mental deficiency (idiopathic, familial, etc.)		10		
F. Diseases of the Nervous System and Sense Organs (330-398)	1062		4.3%	6
Vascular lesions affecting central nervous system (CVA, cerebral hemorrhage, thrombosis etc.)		128		
Inflammatory diseases of central nervous system (meningitis, phlebitis, multiple sclerosis, etc.)		17		
Other diseases of central nervous system (cerebral palsy, epilepsy, migraine, etc.)		133		
Diseases of nerves and peripheral ganglia (facial paralysis, sciatica, etc.)		48		
Inflammatory diseases of eye (conjunctivitis, keratitis, inflammation of optic nerve, lacrimal glands, etc.)		220		
Other diseases and conditions of eye (cataract, glaucoma, detachment of retina, etc.)		75		
Diseases of ear and mastoid process (otitis media, mastoiditis, deafness, etc.)		441		
G. Diseases of the Circulatory System (400-468)	734		3.0%	4
Rheumatic fever		15		
Chronic rheumatic heart disease (myocarditis, endocarditis, diseases of aortic, tricuspid, mitral valves, etc.)		17		
Arteriosclerotic and degenerative heart disease (ASHD, angina pectoris, chronic endocarditis, etc.)		252		
Other diseases of heart (acute and subacute endocarditis, paroxysmal tachycardia, congestive heart failure, etc.)		150		
Hypertensive heart disease		6		

	Diagnostic Impression	Number	Percent	Average/Day
	Other hypertensive disease (essential benign hypertension, hypertensive vascular disease, etc.)	33		
	Diseases of arteries (general arteriosclerosis, peripheral vascular disease, arterial embolism arterial insufficiency, etc.)	41		
	Diseases of Veins and other diseases of circulatory system (hemorrhoids, phlebitis, pulmonary embolism, varicose veins, etc.)	220		
H.	Diseases of the Respiratory System (470-527)	2042	8.3%	11
	Acute upper respiratory infection	1088		
	Influenza	6		
	Pneumonia	692		
	Bronchitis	148		
	Other (chronic nasopharyngitis, chronic sinusitis, empyema, pleurisy, bronchiectasis, emphysema, etc.)	108		
I.	Diseases of the Digestive System (530-587)	1839	7.5%	10
	Diseases of buccal cavity and esophagus (dental caries, gingivitis, toothache, abscess of supporting structures of teeth, etc.)	740		
	Diseases of stomach and duodenum (ulcer, gastritis, etc.)	162		
	Appendicitis	96		
	Hernia of abdominal cavity (inguinal, femoral, ventral, etc.)	65		
	Other diseases of intestines and peritoneum (intertinal obstruction, chronic enteritis and ulcerative colitis, gastroenteritis, peritonitis, etc.)	658		
	Diseases of liver, gallbladder, and pancreas (cirrhosis of liver, suppurative hepatitis, cholelithiasis, pancreatitis, etc.)	118		
J.	Diseases of the Genitourinary System (590-637)	843	3.4%	5
	Nephritis and nephrosis	10		
	Other diseases of urinary system (calculi of kidney and ureter, cystitis, stricture of urethra, etc.)	369		
	Diseases of male genital organs (prostatitis, hyperplasia of prostate, etc.)	85		
	Diseases of breast, ovary, fallopian tube and parametrium (chronic cystic disease of breast, salpingitis and oophoritis, PID, etc.)	180		
	Diseases of uterus and other female genital organs (uterovaginal prolapse, disorders of menstruation, menopausal symptoms, etc.)	199		

	Diagnostic Impression	Number		Percent	Average/Day
K.	Deliveries and Complications of Pregnancy Childbirth and Puerperium (640-689)	385		1.6%	2
	Complications of pregnancy (toxemias of pregnancy, threatened abortion, false labor, premature rupture of membrane without delivery, etc.)		230		
	Abortion		101		
	Delivery		11		
	Complications of puerperium (puerperal urinary infection, sepsis of childbirth and puerperium, puerperal phlebitis, pyrexia, etc.)		43		
L.	Diseases of the Skin and Cellular Tissue (690-716)	748		3.1%	4
	Infection of skin and subcutaneous tissue (boil and carbuncle, cellulitis of finger and toe, other cellulitis, impetigo, lymphadenitis, etc.)		500		
	Other diseases of skin and subcutaneous tissue (eczema, dermatitis, erythematous conditions, psoriasis, scleroderma, acne, sebaceous cyst, decubitus ulcer,etc.)		248		
M.	Diseases of the Bones and Organs of Movement (720-749)	380		1.6%	2
	Arthritis and rheumatism (except rheumatic fever)		118		
	Osteomyelitis and other diseases of bone and joint (Paget's disease, osteochondrosis, displacement of intervertebral disc, ankylosis of joint, etc.)		145		
	Other diseases of musculoskeletal system (bunion, synovitis, bursitis, myasthenia gravis, curvature of spine, hallux valgus, clubfoot, etc.)		117		
N.	Congenital Malformations (750-759)	32		.1%	<1
O.	Certain Diseases of Early Infancy (760-776)	22		--	<1
	Birth injuries, asphyxia and infections of newborns (postnatal asphyxia, umbilical sepsis, diarrhea of new born, etc.)		5		
	Other diseases peculiar to early infancy (erythroblastosis, nutritional maladjustment, congestive heart failure under one year, immaturity, etc.)		17		
P.	Symptoms, Senility, and Ill-Defined Conditions (780-795)	1379		5.6%	8
	Symptoms referable to systems or organs (coma, convulsive state, vertigo, diplopia, shock, dyspnea, nausea and vomiting, etc.)		1157		

	Diagnostic Impression	Number		Percent	Average/Day
	Senility and ill-defined diseases (headache, uremia, senility, debility, etc.)		222		
Q.	Injuries and Adverse Effects of Chemical and Other External Causes (800-999)	7371		30.1%	40
	Fractures		829		
	Dislocation without fracture		83		
	Sprains and strains of joints and adjacent muscles		948		
	Head injury (contusion, concussion, open wound of scalp, etc.)		536		
	Internal injury of chest, abdomen, and pelvis		36		
	Laceration and open wound		2336		
	Superficial injury		420		
	Contusion and crushing with intact skin surface		1009		
	Foreign body entering through orifice		186		
	Burn		217		
	Injury to nerves and spinal cord		18		
	Adverse effects of chemical substances (adverse effect of antibiotics, analgesics, anti-pyretics, CNS stimulants, etc.)		607		
	Other adverse effects (frostbite, sunburn, heat cramps, starvation, traumatic shock, serum jaundice, etc.)		146		
R.	Miscellaneous Diagnoses	3623		14.8%	20
	Dead-on-arrival (DOA)		109		
	Scheduled procedure (operative, diagnostic, therapeutic, etc.)		400		
	Follow-up examination after disease of injury (duty check)		881		
	Obstetric screening ("labor check")		815		
	Medical procedure of treatment		631		
	Not seen in ED (Referred to clinic)		658		
	Other (alcoholic ward and infirmary screening etc.)		129		
	GRAND TOTAL		24,514	100%	135

THE PLAN AND CONCEPTS OF THE UNIVERSITY OF BRITISH COLUMBIA HEALTH SCIENCES CENTRE REFLECTING THE HEALTH TEAM APPROACH

by

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School of Public Health, University of Minnesota,
and Senior Staff Consultant, James A. Hamilton Associates,
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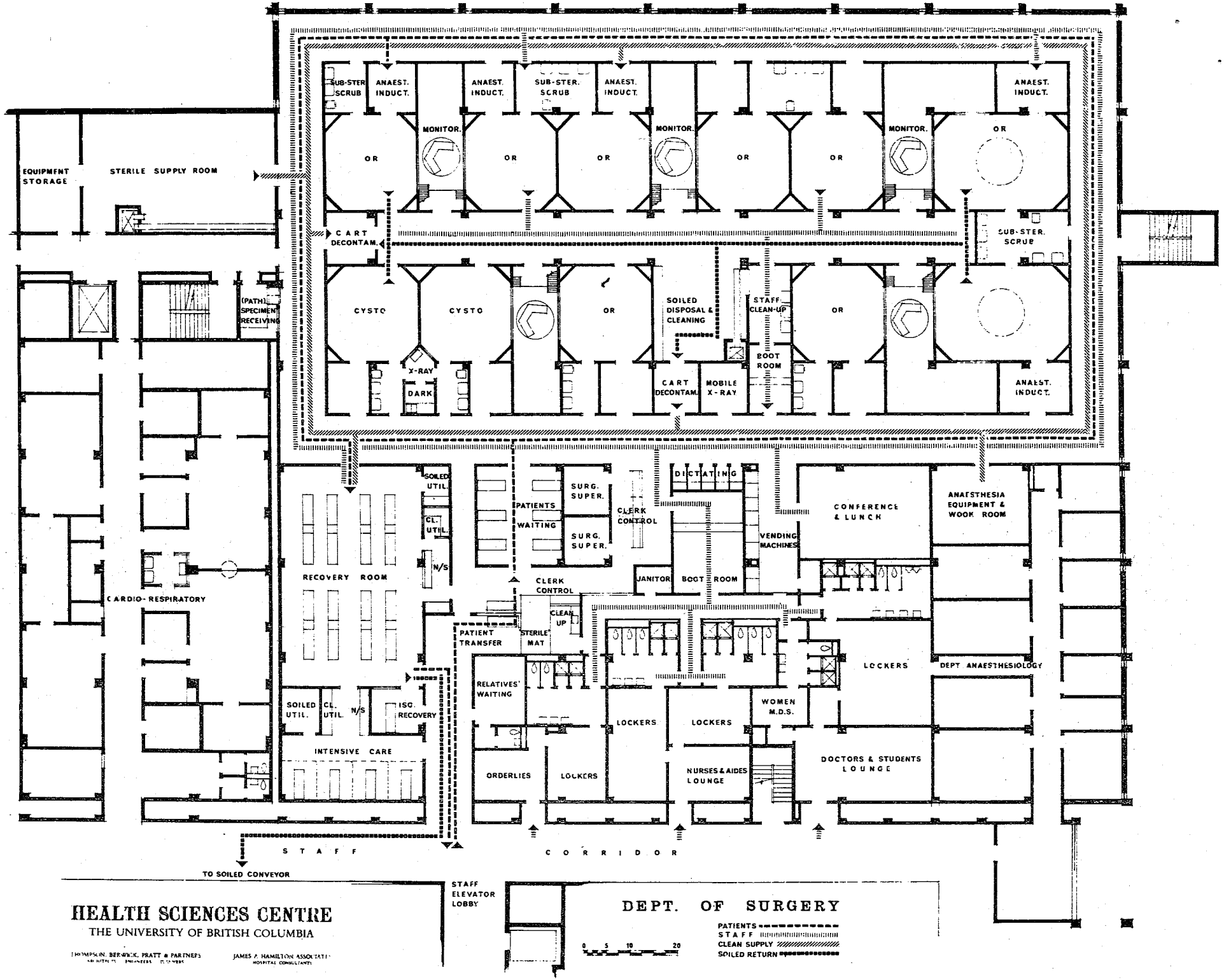
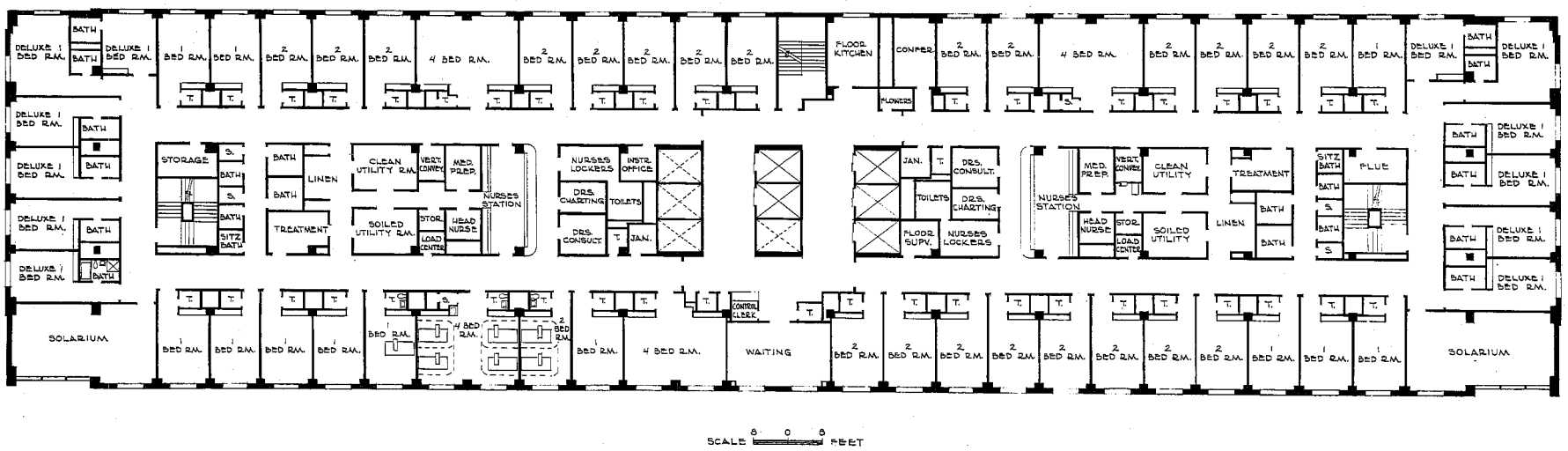
PART TWO - LAYOUT DESIGNS


EQUIPMENT STORAGE
STERILE SUPPLY ROOM
SUB-STER SCRUB
ANAEST. INDUCT.
ANAEST. INDUCT.
SUB-STER. SCRUB
ANAEST. INDUCT.
ANAEST. INDUCT.
MONITOR.
MONITOR.
MONITOR.
OR
OR
OR
OR
OR
OR
OR
CART DECONTAM.
SUB-STER. SCRUB
(PATH) SPECIMEN RECEIVING
CYSTO
CYSTO
OR
SOILED DISPOSAL & CLEANING
STAFF CLEAN-UP
OR
X-RAY DARK
CART DECONTAM.
MOBILE X-RAY
BOOT ROOM
ANAEST. INDUCT.
SOILED UTIL.
CL. UTIL.
N/S
RECOVERY ROOM
PATIENTS WAITING
SURG. SUPER.
SURG. SUPER.
CLERK CONTROL
DICTATING
VENDING MACHINES
CONFERENCE & LUNCH
ANAESTHESIA EQUIPMENT & WOOK ROOM
CARDIO-RESPIRATORY
CLERK CONTROL
JANITOR
BOOT ROOM
CLEAN UP
PATIENT TRANSFER
STERILE MAT
LOCKERS
DEPT ANAESTHESIOLOGY
RELATIVES' WAITING
SOILED UTIL.
CL. UTIL.
N/S
ISO. RECOVERY
LOCKERS
LOCKERS
WOMEN M.D.S.
INTENSIVE CARE
ORDERLIES
LOCKERS
NURSES & AIDES LOUNGE
DOCTORS & STUDENTS LOUNGE
STAFF
CORRIDOR
TO SOILED CONVEYOR
STAFF ELEVATOR LOBBY
HEALTH SCIENCES CENTRE
THE UNIVERSITY OF BRITISH COLUMBIA
THOMPSON, BERWICK, PRATT & PARTNERS
JAMES A. HAMILTON ASSOCIATES
DEPT. OF SURGERY
0 5 10 20
PATIENTS
STAFF
CLEAN SUPPLY
SOILED RETURN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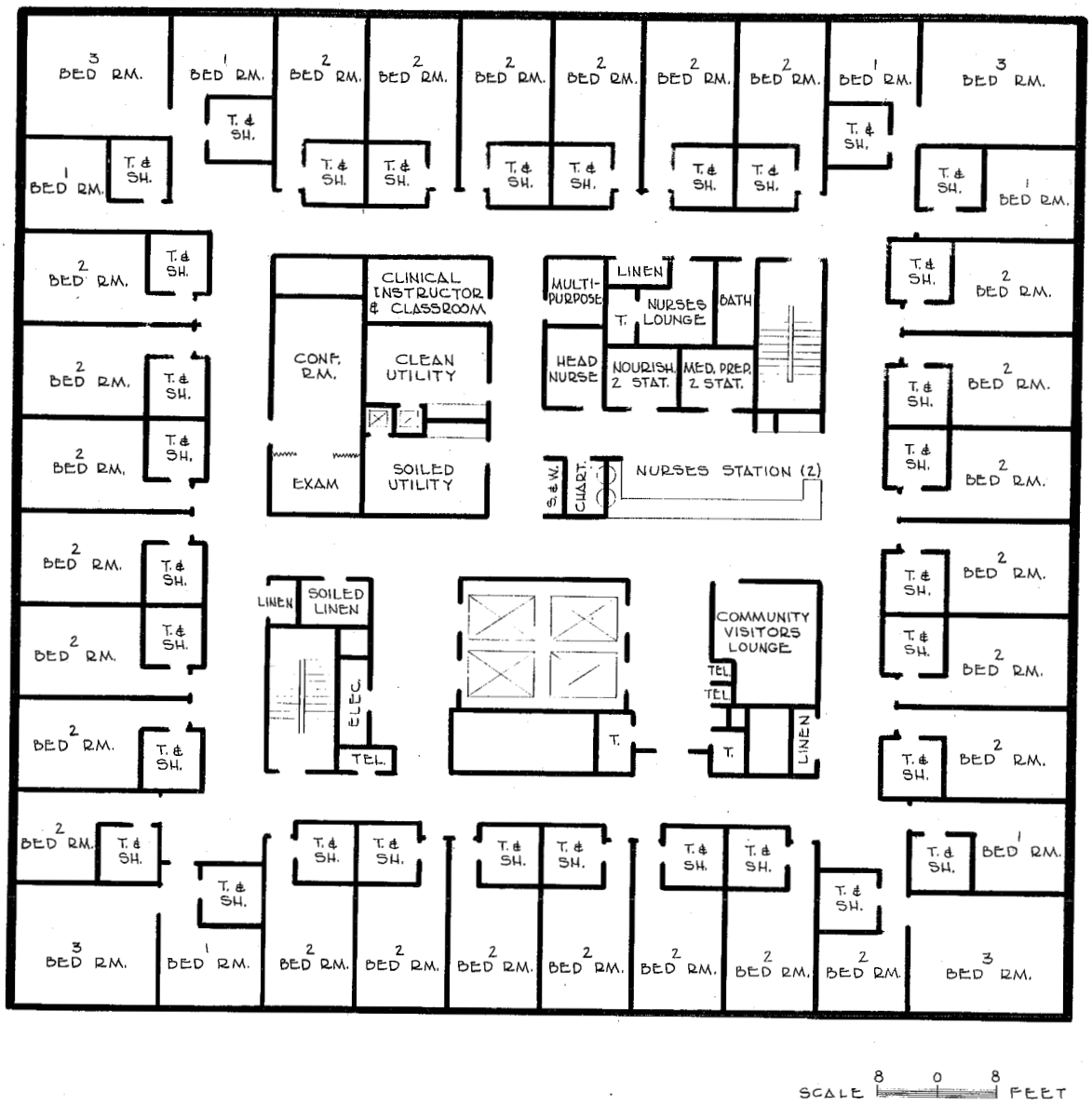
BATH
1 BED R.M.
2 BED R.M.
4 BED R.M.
FLOOR KITCHEN
CONFER.
FLOWERS
STORAGE
S.
LINEN
TREATMENT
CLEAN UTILITY R.M.
VERT. CONVEY.
MED. PREP.
SOILED UTILITY R.M.
STOR.
HEAD NURSE
LOAD CENTER
NURSES STATION
NURSES LOCKERS
INSTR. OFFICE
DRS. CHARTING
TOILETS
DRS. CONSULT.
JAN.
FLOOR SUPV.
CLEAN UTILITY
SOILED UTILITY
SITZ BATH
PLUG
SOLARIUM
CONTROL CLERK
WAITING
SCALE 8 0 8 FEET

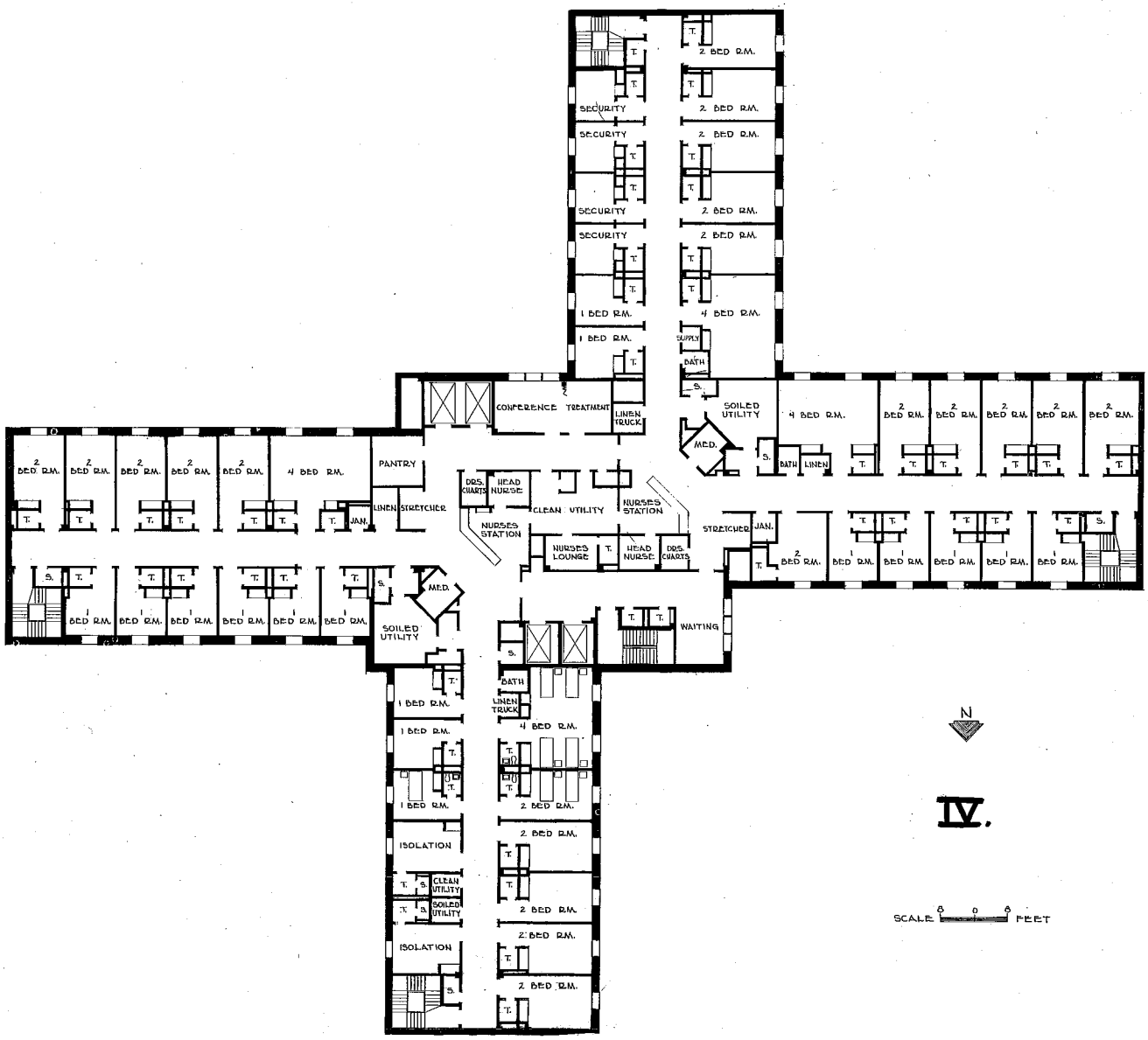
I.


3 BED RM.
1 BED RM.
2 BED RM.
T. & SH.
CLINICAL INSTRUCTOR & CLASSROOM
CONF. RM.
CLEAN UTILITY
SOILED UTILITY
EXAM
MULTI-PURPOSE
LINEN
NURSES LOUNGE
BATH
HEAD NURSE
NOURISH. & STAT.
MED. PREP. & STAT.
S. & W.
CHART
NURSES STATION (2)
SOILED LINEN
ELEV.
TEL.
COMMUNITY VISITORS LOUNGE
T.
SCALE 8 0 8 FEET

II.


3 BED RM.
3 BED RM.
3 BED RM.
3 BED RM.
3 BED RM.
T.
SITZ
BATH
PUB. T.
TREATMENT
CLEAN UTILITY
CONF.
2 BED RM.
T. & SH.
SOILED UTILITY
OFFICE
CHART-ING
STORAGE
NURSES STATION
T. & BATH
LINEN
DAY RM.
BATH
N
SCALE 8 0 8 FEET

III.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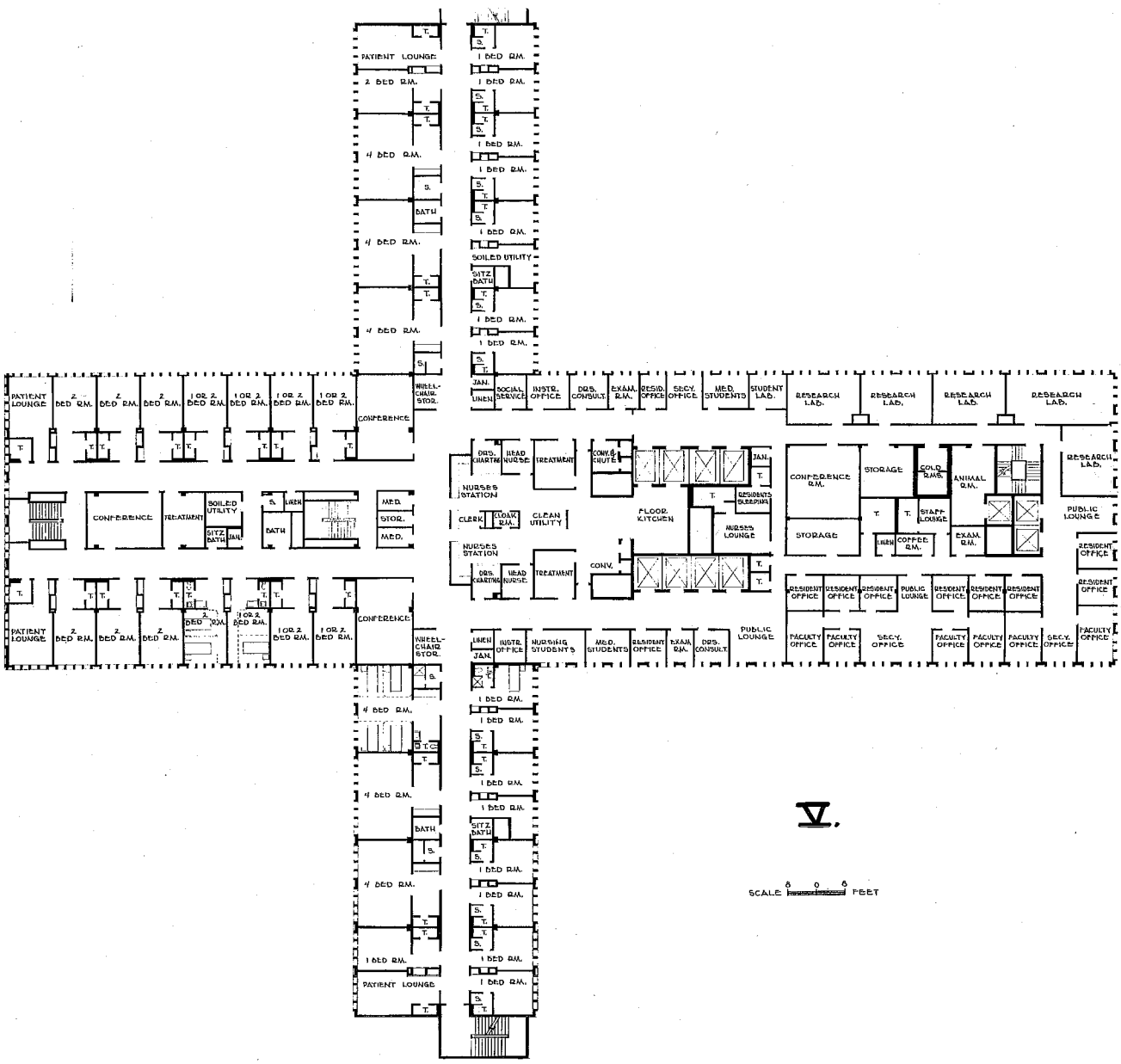
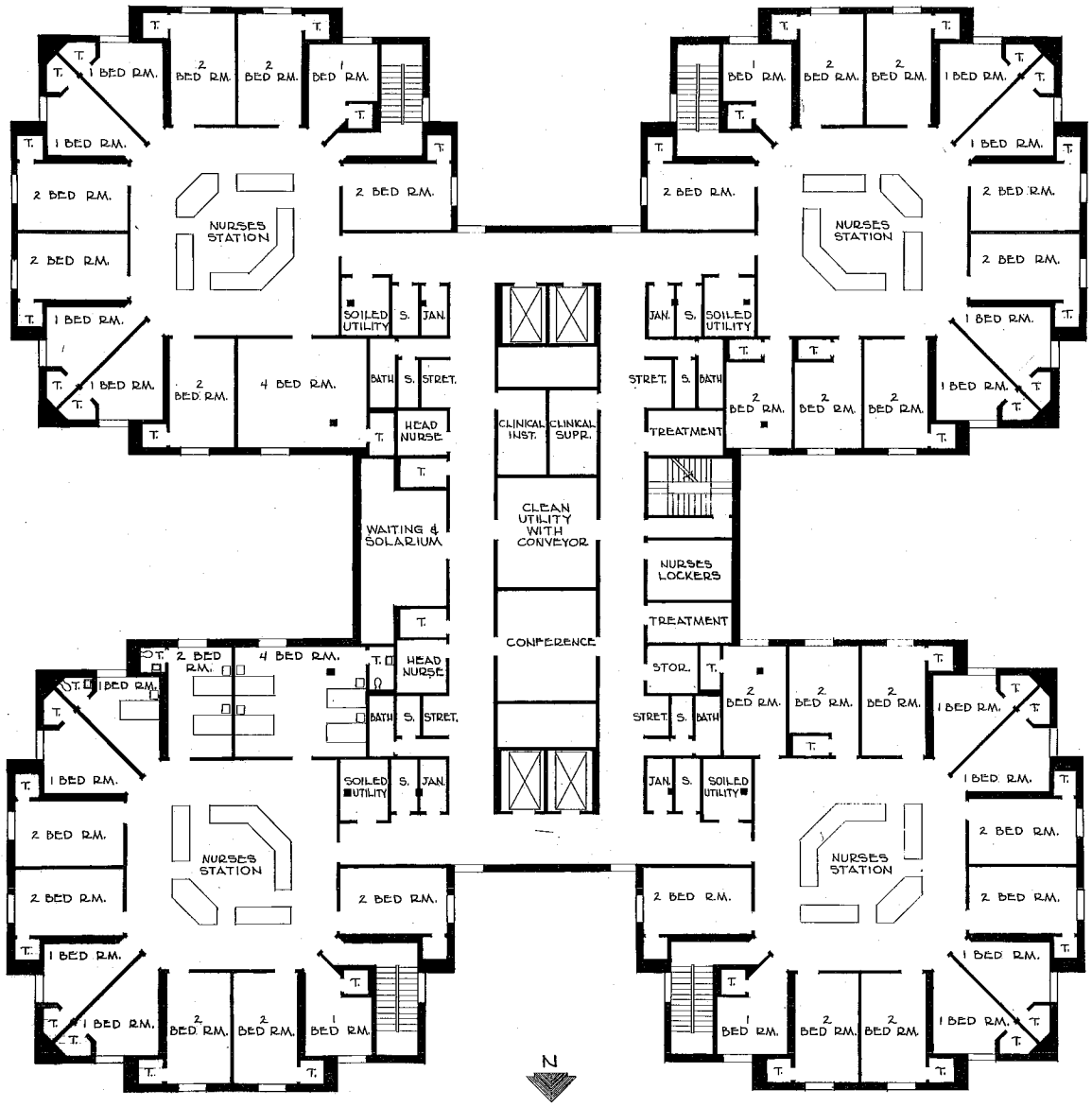
SECURITY
1 BED R.M.
4 BED R.M.
SUPPLY
BATH
CONFERENCE
TREATMENT
LINEN TRUCK
SOILED UTILITY
MED.
LINEN
PANTRY
LINEN
STRETCHER
JAN.
DRS. CHARTS
HEAD NURSE
NURSES STATION
CLEAN UTILITY
NURSES LOUNGE
WAITING
ISOLATION
CLEAN UTILITY
SOILED UTILITY
N
IV.
SCALE 5 0 5 FEET


PATIENT LOUNGE
2 BED RM.
4 BED RM.
1 BED RM.
BATH
SOILED UTILITY
SITZ BATH
JAN.
LINEN
WHEEL-CHAIR STOR.
CONFERENCE
SOCIAL SERVICE
INSTR. OFFICE
DRS. CONSULT.
EXAM. RM.
RESID. OFFICE
SECY. OFFICE
MED. STUDENTS
STUDENT LAB.
RESEARCH LAB.
TREATMENT
MED. STOR.
DRS. CHARTING
HEAD NURSE
NURSES STATION
CLERK
COAT RM.
CLEAN UTILITY
CONV. & CHUTE
FLOOR KITCHEN
RESIDENTS SLEEPING
NURSES LOUNGE
CONV.
NURSING STUDENTS
RESIDENT OFFICE
EXAM. RM.
PUBLIC LOUNGE
FACULTY OFFICE
STORAGE
COLD RMS.
ANIMAL RM.
STAFF LOUNGE
COFFEE RM.
SCALE 8 0 8 FEET

V.



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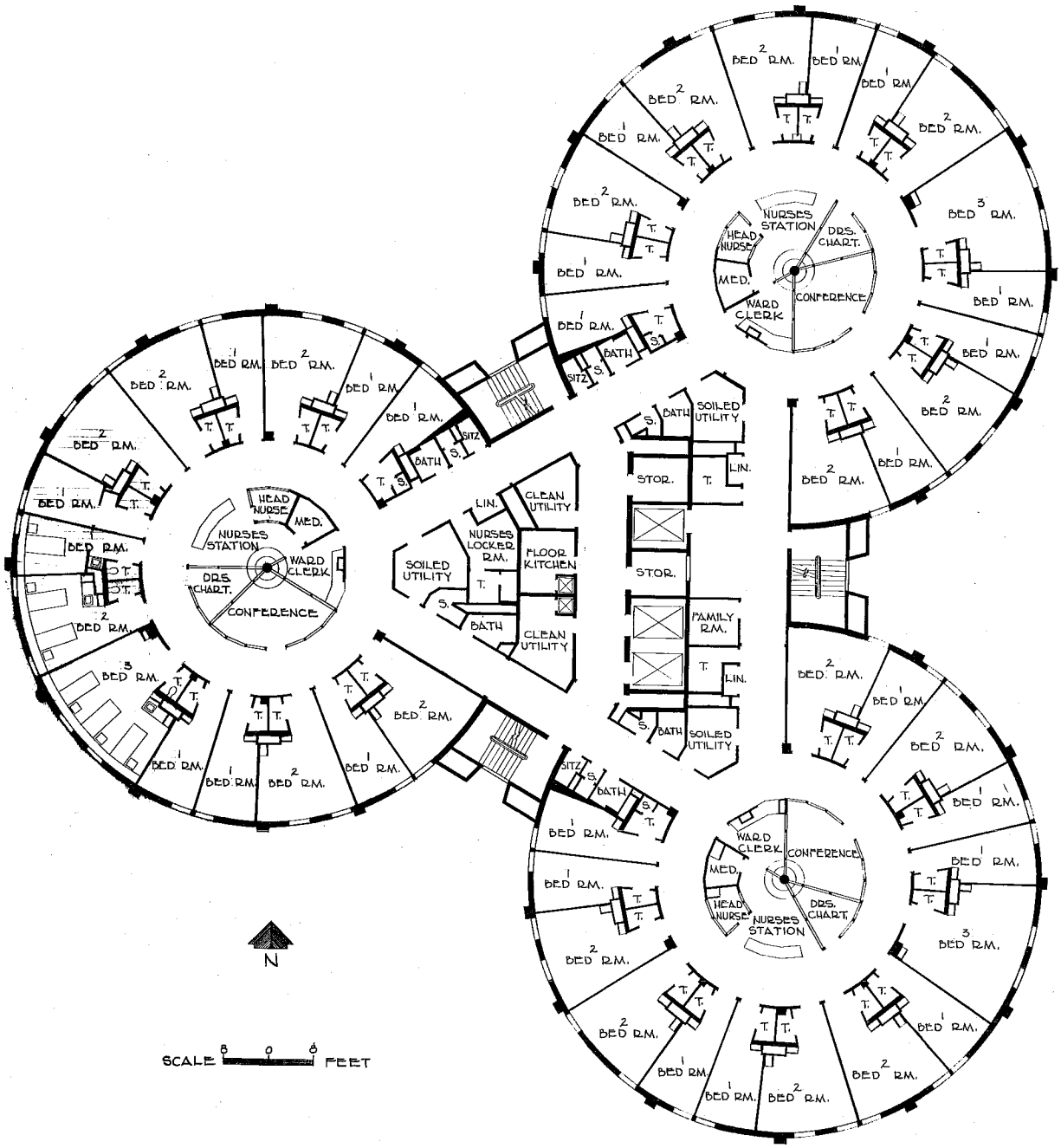
NURSES STATION
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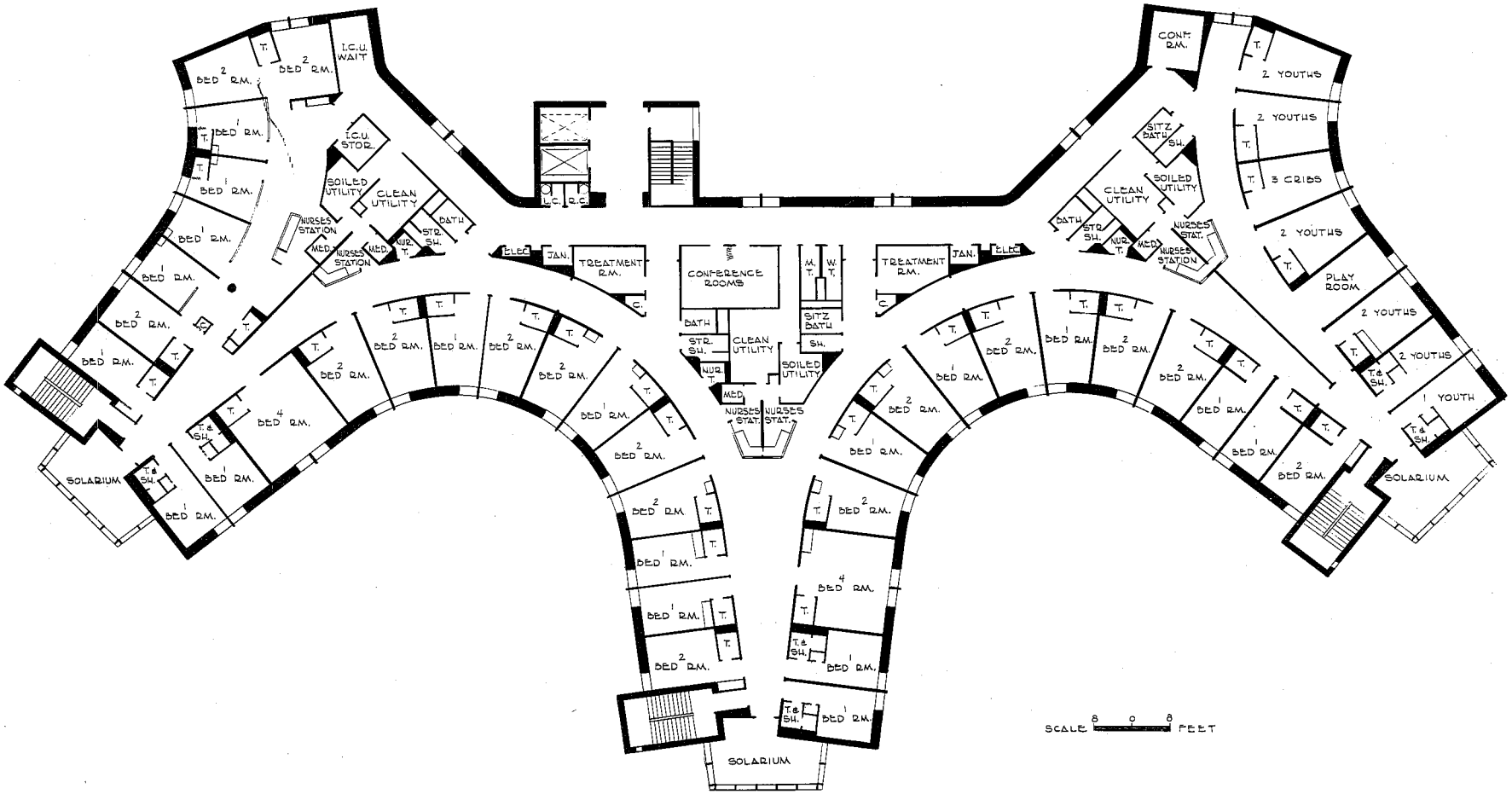
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TREATMENT R.M.
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W. T.
SITZ BATH
SH.
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SOLARIUM
T. & SH.
CONF. R.M.
2 YOUTHS
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VIII.

TABULATION SHEET

TOPIC_____

DATE OF TABULATION_____

TABULATED BY_____

TABLE I

	COURSE	TOTAL SPACE 1965	1970	1975	1980	1985	LABORATORY- T and R 1965	1970	1975	1980	1985	CLASSROOM 1965	1970	1975	1980	1985	OTHER 1965	1970	1975	1980	1985	STAFF ACADEMIC/NON-ACADEMIC 1965	1970	1975	1980	1985	STUDENTS UNDERGRADUATE/GRADUATE 1965	1970	1975	1980	1985
1	Medical Technology	1590	4000	8100	10000	12000	800	2400	5600	6000	7000	400	800	1200	2400	2500	390	800	1300	1600	2500	15-1/2 / 3	21 / 5	30 / 10	40 / 15	50 / 20					
2	Students																										A170	250	325	400	475
3	A- 1st and 2nd Year																										B105	150	200	250	300
4	B- 3rd, 4th, 5th Year																										C 6	10	20	25	30
5	C- Graduate																										D 60	60	60?	60?	60?
2 6	Occupational Therapy	5386	5386	5386	5386	5386	2764	2764	2764	2764	2764	1053	SHARED WITH P.T.			1053	1570	1820	1945	2070	2195	4 / 1/2	6 / 1	7 / 1	8 / 2	9 / 2	26 / 0	30 / 0	36 / 4	42 / 6	50 / 10
7		2243	Shared with P.T.														1190	Shared with P.T.													
3 8	Physical Therapy	4689	4689	4689	4689	4689	1890	1890	1890	1890	1890	1053	SHARED WITH O.T.			1053	1746	1990	1990	1790	1790	5 / 1/2	6 / 1	7 / 1	9 / 2	12 / 2	26-30 / 2	35 / 5	40 / 5	45 / 10	50 / 10
9		2243	Shared with O.T.														1190	Shared with O.T.													
4 10	Radiologic Technicians											1150	1350	1360	3000	3560	60+	Locker space				1 / 28	1 / 25	1 / 35	2 / 45	2 / 50-60	100 / 0	125 / 1?	175 / 1	250 / 2	300-400 /
5 11	Rehabilitation Counsellors	551	1131	1200	1265	1265	238	518	518	518	518	-	300	300	300	300	313	453	517	517	517	3 / 1	3 / 2	4 / 2	4 / 3	4 / 3	15	22	25	27	30
6 12	Biomedical Data Proc-																														
13	essing & Information																														
14	Retrieval																														
7 15	Innalation Therapy	--	1800	1800				1000	1000				400	400				400	400				2 / 1	2 / 3				5	10		
8 16	Medical Art and	3000	5000	5000	5000		--	1600	1600	1600		-	400	400	4000		3000	3000	3000	3000		1 / 14	3-4 / 16	5-6 / 20	6-8 / 25		0	/ 4	/ 4-6	/ 6-8
17	Photography																														
9 18	Medical Librarian																														
10 19	Social Service	1781	2881	3641	3761	6445						—	600	660	900	900		2281	2981	3861	5545	1 / 24	3 / 28	3 / 32	4 / 37	4 / 40	/ 3	/ 6	/ 8	/ 12	/ 15
20	Mortuary Science	1300	2894	3400	3800	3800	600	1325	1500	1700	2300	300	600	830	1030	1200	600	970	1070	1070	1100	4 / 2	5 / 2	6 / 3	7 / 4	8 / 4	126	140	165 / 5	190 / 15	215 / 2
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HEALTH SCIENCES CENTRE

UNIVERSITY OF BRITISH COLUMBIA

By John F. McCreary, Dean

June, 1965

HEALTH SCIENCES CENTRE
UNIVERSITY OF BRITISH COLUMBIA

By John F. McCreary, Dean
June, 1965

I am honoured to have the opportunity to present to this august audience certain aspects of the facilities which are being developed for medical education at the University of British Columbia, Canada's youngest medical school. It is presumptuous for me, the Dean of a fledgling, incomplete medical school located in a relatively recently developed area of a country which itself is, by every standard, young and untried, to speak of new developments to representatives of countries with centuries of experience in the provision of health services. My excuse, if excuse I have, is that because we were beginning from nothing we were forced to examine what was going on in many parts of the world, and we had no localtraditions which prevented us from accepting a new direction of development if that seemed wise. Also, my colleagues and I have had the good fortune to be part of a nationwide examination of health services and health education the like of which is likely to be available only very rarely in a country's history.

I would like to discuss the philosophy which went into the development of the facilities at U. B. C. before Mr. Stephan presents the physical characteristics of the buildings. Because the conditions which I shall discuss relate to Canada it is essential that a broad picture of Canada's health services be presented at the outset.

Canada is a very large country. It has an area of over 3,600,000 square miles, about 8% larger than the United States of America and about 10% smaller than the continent of Europe. Its population is 18,000,000 with an average density of less than 5 per square mile. Although a fairly rapid trend has developed towards urbanization during recent decades, there are still large, very sparsely populated areas. As a result, there has been a greater need for general practitioner physicians than in many more populated countries, and the trend towards specialization, although rapid, has not proceeded as far as in many other nations.

Canada's patterns of practice and indeed of medical education, were originally based on European traditions, particularly those from the United Kingdom. However, her very close relationship with the United States has produced a gradual change towards American patterns and standards of health care. Now in health care as in many other aspects of her life, Canada is remarkably close to American ways but, because of the traditional close ties with the United Kingdom and France, retains a greater flavour of European tradition than her southern neighbour.

Canada is a federation of ten provinces with its Federal Government located in Ottawa. The responsibilities of the Provincial Governments as opposed to the Federal Government were set up in the British North America Act of March 29, 1867. Education and health matters have traditionally belonged to the provinces and, although the clear-cut responsibilities of the two levels of government have become badly blurred over the years, the Federal Government has tended to fear resentment

if it intrudes into these fields. During the past decade, however, the Federal and Provincial Governments have united to provide for the costs of hospitalization across Canada, such that any patient requiring treatment in hospital has the costs of hospitalization provided by the two levels of Government. No similar support for personal health services is available. As a result, Canada stands beside the United States as one of the few remaining countries in the world where personal health services are based entirely upon private enterprise.

That the population generally is dissatisfied with this approach based upon personal financial liability at the time of illness is apparent from the explosive growth of voluntary insurance health plans, and also by insistent demands for governmental participation in the provision of medical care.

The education of physicians, dentists and others of the health sciences is a responsibility of the Departments of Education of each of the ten Provincial Governments with virtually no participation by the Federal Government. The rapid growth of educational needs has strained the resources of Provincial Governments to the degree that Canada's twelve medical schools have been relatively poorly nurtured. As a result, Canadian schools have not grown and new schools have not been developed as rapidly as they should have. Canada has not produced sufficient new physicians to keep pace with her population growth. This situation has worsened in recent years relative to her neighbour the United States, where large transfusions of federal funds have been given to her schools. There funds were primarily intended for support of research but they explosively increased the budgets of medical schools. No similar transfusion of funds has occurred in Canadian medical education.

Canada has one physician for approximately every 900 of its population. It is very difficult to evaluate what the proper ratio of physicians to population should be. It obviously varies with the patterns of medical care provided. However, Canada's ratio does not compare very satisfactorily with other nations in the world today. Twenty other countries have a more favourable ratio of physicians to population, including our closest neighbour the United States, which has one physician to approximately 750 persons. Because of increasing population, retirements and deaths of physicians, Canada must register approximately 1300 new physicians each year to maintain the ratio where it now is. However, its twelve medical schools only produce about 850 new doctors each year. Canada would have been in serious difficulty during the period of post-war population growth had it not been for the fact that large numbers of immigrant physicians, who had been educated in other parts of the world, elected to come to Canada to swell the physician group. This is not a situation on which we can count indefinitely. Many of the physicians who came to Canada were dissatisfied with either the administrative or the economic arrangements involving health care in their country of origin. Many of these difficulties are improving and the likelihood of a large number of immigrant physicians continuing to come to Canada is not great.

The Government of Canada was aware of the shortage of physicians and the inadequacies of its medical schools. It was aware of the increasing demand of Canadians for financial participation by governments in the provision of health services and of the very real possibility that the introduction of a general pre-paid plan could disastrously overload the meagre numbers of purveyors of health services.

It was well informed concerning the increased demand for health services which had occurred in other countries when the financial deterrent was removed. Also, the number of immigrant physicians could be expected to drop off just at the time when this supplementary supply was most sorely needed.

So, in 1961, the Government organized a Royal Commission on Health Services and charged it to "inquire into and report upon the existing facilities and the future needs for health services for the people of Canada, and to recommend such measures as will ensure that the best possible health care is available to all Canadians". The Commission was made up of seven individuals roughly equally divided between the health professions and other professional groups, including law, economics and business. They surrounded themselves with over 100 individuals who were to provide them with professional knowledge in a variety of areas - economics, sociology, population forecasts, education in nursing, dentistry and medicine. For a period of approximately three years this group examined with great care the situation concerning health services in Canada, and then published an 885 page first volume of its report. Some eight months later a second and final volume of the report was published.

It was the good fortune of some of us associated with the medical school at the University of British Columbia to have been active in the work of the Royal Commission, and to have had an opportunity of viewing health care on the national and international scene in a manner which had not previously been available to us.

To set the stage a little further, may I say a few words about the medical school at the University of British Columbia. It is the youngest of the twelve medical schools in Canada. It was initiated in 1950 and has now been in operation for 15 years. Although the consultants in medical education who were brought to the University of British Columbia prior to the development of the medical school, all advised that a university teaching and research hospital be built before the medical school was started, there were insufficient funds for this purpose at that time and the school was started with its pre-clinical teaching located on the campus of the university and its clinical teaching centered in a large, open-staffed, general hospital comprising some 1500 beds six miles away. Many advantages accrued to the medical school from its early years of operating in these surroundings. However, it rapidly became apparent that the carefully controlled environment for teaching and research was difficult, if not impossible to obtain, in a hospital which was used by approximately 1000 doctors. Therefore, in 1959 the university empowered the Faculty of Medicine to proceed with the planning of a university teaching and research hospital to be located in the midst of the 1000 acre university campus outside of the city of Vancouver. We were fortunate in obtaining generous grants from the Rockefeller and Markle Foundations such that we were able to visit every new teaching hospital that had been built on the American continent and in the United Kingdom during the past 25 years. It is on the basis of these two opportunities to study health care generally, and the process of health education specifically, that we present the concept of the Health Sciences Centre. It was as we looked into the history of hospitals and examined the way in which they were being used in our country, that we came to the conclusion that the hospital is now performing a function unthought of a few decades ago - a function which it is architecturally ill-housed to fulfil, and one which many patients, physicians and governments are slow to accept.

As you are aware, the first hospitals were designed for military purposes in Roman days. Soldiers who survived their wounds, were placed in hospital to recuperate. This was the early concept of hospitals. A place wherein one gradually returned to health if he had survived the injury or sudden illness which precipitated his problem. Hospital was a place of rest, a place to live and recuperate, or in some instances, a place to die. It is only in the past century that the concept of a hospital as a place wherein active treatment is undertaken has begun to appear. It is only in the last couple of decades that this philosophy of the purpose of the hospital has outgrown the former concept of a quiet, restful haven for recuperation.

Today our hospitals are loaded with facilities - highly complex biochemical, radiological and physiological techniques are applied by teams of skilled personnel; open heart surgery is routinely performed by highly integrated groups of professionals drawn from various disciplines using electronic devices undreamed of just a few years ago. In a few hospitals today, and in hundreds in a few years, organ transplants are becoming as routine as a complicated procedure costing from 100,000 to 150,000 dollars per operation can be considered to be routine. Surely the hospital has changed drastically from the convalescent home of a few years ago.

However, our attitudes towards hospitals have changed much more slowly. Largely because we have inadequate numbers of hospital beds to meet the vastly increased demands for hospitalization, we have been forced to reduce the length of stay in hospital. However, we still retain many practices stemming from the former leisurely philosophy of the use of hospitals. In many hospitals we still take away the patient's clothing when he is admitted; we carry his food to him when he is quite often able to go to the diningroom; we still admit to beds patients who need the diagnostic and/or the treatment services of the hospital but have no need to occupy a bed.

My country has been particularly naughty in this regard. Twenty years ago Canada was an under-hospitalized country. There were relatively few hospitals even at the large centres of population, and in the rural areas it was difficult indeed to find hospital beds for sick patients. However, in 1947 the Federal Government began providing construction grants to assist communities in building hospitals, and since that time the picture has changed drastically. For the past decade, the arrangement has been that the Federal and Provincial governments will combine to provide approximately 2/3rds of the construction costs of a hospital. Thereafter, they will provide the total operating budget of the hospital at no cost to the community in which it is located. Under the impact of this type of financing, hospitals have been built with great abandon across our land. In 1961 there was only one other country in the world that had as many beds per 1000 of population as we did. There were obvious reasons for this period of rapid expansion. From the point of view of the patient, the major cost of his illness, that of hospital care, was absorbed by the state if he were treated in hospital, whereas it was his own personal responsibility if he were treated outside. Inevitably he exerted every force to be treated in hospital. From the point of view of the physician he could be assured that his patients would be observed more carefully in hospital than if they remained in their homes. If he had a dozen

or more patients who were ill it was infinitely easier for him to examine them daily when they were collected together in one spot than if he had to visit homes scattered throughout the community. From the point of view of the community, it was good business to build the biggest and most expensive hospital to which it could possibly aspire. Not only did it offer better care for the citizens but they had only to pay for approximately 1/3 of the cost of construction to have a new and stable industry introduced into the community, the entire payroll for which was absorbed by the two senior governments.

As a result of this increased use of hospitals, the Royal Commission learned that the per capita cost of hospitalization annually in Canada was $7.00 in 1941, $21.00 in 1951 and over $50.00 in 1961. It had advanced by seven times in the period of twenty years. But the real increase in hospital costs is just beginning to occur as the highly complicated and costly procedures referred to previously are introduced.

The members of the Royal Commission on Health Services have recommended the introduction of forces to reduce the use of hospitals. They visualize the hospital of the future as being a series of complex diagnostic and treatment services surrounded by a relatively few beds. Patients will remain either at home or in low-cost nursing care units in close proximity to the hospital. They will spend their days in the hospital utilizing the services thereof and return to their lodgings at night. Hospital home-care programmes will be introduced. Diagnostic services outside the hospital will be supported financially quite as much as those inside.

This first thesis has greatly affected our planning for the Health Sciences Centre, and the Royal Commission report has provided us with encouragement to plan specifically to meet the changing function of the hospital. As a result the Centre will be a total integrated research and service unit capable of great flexibility of operation and maximal potential for adaptation to new concepts of medical and surgical treatment of disease. It contains 410 beds but its diagnostic services are designed to care for a very much larger number of patients so that beds will not be utilized for diagnostic evaluation alone.

The second thesis upon which the Health Sciences Centre is based is that the education of professionals to provide health service must be considerably modified if we are to meet the increased demands for health services emanating from increasingly knowledgeable populations. Medical education in our part of the world has not kept pace with the changing pattern of health care. The Royal Commission on Health Services has recommended the expansion of the twelve existing medical schools in Canada and the development of seven new medical schools within the next few years. Rapid expansion of medical school facilities is almost impossible in our country and, indeed, in most countries. The construction of the buildings is time-consuming enough but the development of teachers takes a still longer period. So the creation of a policy to produce more medical schools is not likely to solve the problem of producing many more physicians quickly. It seemed to the planning group of our Centre that changes within medical education were badly needed and that these changes could improve the effectiveness of the physicians we now have, and make the problem of producing an adequate number for the increased loads ahead, more possible.

If we look back over the last forty years of health care we find that the pattern of care has changed rather remarkably. Forty years ago, almost the sole purveyor of health care was the family physician. Dentists were few and much of the dental work was done by physicians. Pharmacists were relatively few and their contribution to the total health scene was relatively minimal. Nurses were active and played an important role in the management of the ill but their role was confined to the hospital. Physiotherapists, occupational therapists, dietitions, clinical psychologists and social workers, as we now know them, were virtually unknown. The physician was the centre of health care; little existed apart from his contributions. He was looked upon with great affection and admiration, not because he had a lot to contribute to the cure of the ill, but because he was, in the main, kindly and gentle. He would go to no end of trouble and take any amount of time to help a family through the crisis of serious illness, injury or death. Medicine itself was not particularly respected but the doctor assuredly was.

How things have changed in the past forty years. The over-worked doctor had no time to master new skills and techniques that became available. Perhaps he had inadequate interest in them. So new purveyors of health services were trained, not in conjunction with doctors, but separate from them. Medicine grew in efficiency. It became possible to successfully treat many, if not most, ailments. New surgical techniques and advances in anaesthesiology made possible almost unbelievable miracles of treatment and cure. And so medicine became more and more respected. The doctor became busier and more effective. However, for the first time, he truly possessed the power of life and death over his patients. His judgements concerning treatment methods decided the fate of the people he treated. No longer could he be considered as a kindly, selfless person, ineffective but helpful. Now he was someone to be feared as much as loved. And so the attitude of people toward the doctor changed. We all tend to be critical of anyone whose powers can threaten us, and the doctor has become the subject of much criticism in recent years. Now it is medicine and the good things that it can give which is respected and desired. The doctor, the powerful purveyor of these strong forces, is subject to careful scrutiny and is the object of much criticism.

Much of this is a natural phenomenon, but in part at least it is our own fault. We physicians have failed to interest ourselves in new techniques and in new abilities. We have seen a variety of new disciplines appear and strengthen and find a place for themselves. We have seen dentistry assume an important role in the provision of health services, nursing expand out of hospitals into all the fields in which health services are provided, pharmacy become an important profession in its own right. We have seen new groups -- physiotherapists, occupational therapists, social workers, clinical psychologists and others develop techniques which are helpful to patients, but we have seen them developed in isolation. Instead of welcoming them into the group and assisting them in their education and in the application of their knowledge, we physicians have stood aloof. They have formed their own professional societies, sought their own goals, fought for a meaningful place in the spectrum of the health professions. Some have been educated outside of universities, others inside universities, but in either case they have developed their own teachers, coined their own vocabulary and, in general, made their own way. The result is a series of disparate groups, not speaking a

common language, not really aware of what the other has to contribute: - a little suspicious that each new group represents a further threat to their own well-being, a little critical of each other.

When they hear the carping criticism between groups it is small wonder that our patients are not as impressed with any of the purveyors as they are with the content and potential of health care. Even they can see that it is inefficient and inadequate if the social worker and the physician do not understand each other, and if the dentist and dietitian are obviously not in agreement on the nutritional contribution to children's dental health.

The physician must be blamed for much of this. If he had been able to share his responsibilities with these new groups, the present situation would not have evolved. During one stage of my professional career, I was involved in a general practice of pediatrics. I had taken post-graduate training for a period of seven years to prepare myself for the task. However, during those practice years, over 50% of my work could have been done as effectively, if not more effectively, by a public health nurse with some special training in psychology, infant feeding and recognition and management of upper respiratory infections.

Because our university is young and we do not have large, well-developed faculties and institutes in the field of health, it is still possible for us to bring about a consolidation of all groups providing health services. The Health Sciences Centre will be a series of buildings, centred by a hospital, which is designed to provide the teaching facilities for some 1400 students, only 320 of whom will be in medicine. We hope that by using the same teachers, exposing students to the same philosophy, creating an atmosphere in which they will study together, eat together, see patients together, that we can early in the professional lives of these students, produce a respect for what each discipline has be contribute. It should indeed be possible to weld these widely separated groups into a team of people with common ideals, a common purpose, and a realization that others have more to contribute in certain areas than they themselves. One would hope that such an undergraduate experience would ensure that duties may be devolved from the shoulders of individuals, such as doctors and dentists, whose education is lengthy and costly, on to the shoulders of others whose education is shorter and less expensive.

So this is the second thesis on which the Health Sciences Centre was designed -- that it must serve as an educational facility for health personnel at all levels.

One final issue remains to be raised in discussing modifications to health education. I spoke earlier of the over-use and abuse of hospitals in the new role which they are designed to play. We, in medical education in our part of the world at least, have contributed directly to this over-use. We have done all of our undergraduate teaching within the four walls of hospitals. Our postgraduate teaching has been built around meeting the needs of hospitals to run their services, and so our interneships and residency programmes, although increasingly educational rather than pointed entirely towards the provision of service, nevertheless also take place strictly within the hospital environment.

It is small wonder that the young practitioner tends to over-use hospitals. He has had four years of undergraduate training and from one to five years of

post graduate training in which he has encountered only one view of medicine -- the medicine that takes place in the wards of a teaching hospital. Small wonder also that we find a rapidly increasing trend for graduates to enter specialty training and practice rather than providing comprehensive medical care. We have given him scant opportunity to observe general practice in operation, and we have given him no experience whatever in its strengths and its rewards.

There is another reason why confining all of the students educational experience to hospital is inadequate. Under present conditions in our country, at least, the student has little opportunity to see disease and its complications in a family and community setting. He does not see the manner in which community resources outside of hospital can be mobilized to assist the patient. He has little or no contact with the social aspects of medicine. Yet as the deadly illnesses come under control and populations demand care and advice on problems for which they did not turn to doctors in the past, medicine is rapidly achieving a social dimension which is changing the nature of the general practice of medicine.

If we can introduce the undergraduate and the graduate into a community practice he will see the social worker, public health nurse, pharmacist, rehabilitation therapist and others naturally integrate in their functions.

So a part of the outpatient's department of the Health Sciences Centre will be devoted to a community practice. Several hundred families located near the university will be provided with 24 hour a day, seven day a week care, by a team of physicians headed by able general practitioners and assisted by residents, internes and senior medical students. If we provide a quarter to one third of the clinical training in this setting rather than inside the hospital, we should do something to correct the distorted image gained by the medical student that all health care is hospital care.

These then are the three theses on which the Health Sciences Centre Planning has been based:

(1) The hospital is now performing a function unthought of a few decades ago - a function which it is architecturally ill-housed to fulfill, and one which many patients, physicians and governments are slow to accept.

(2) We will not meet the health needs of increasingly intelligent population groups simply by training more and more physicians. We must integrate our health workers into a more effective team and the place to begin such integration seems to be at the undergraduate level.

(3) Medicine is rapidly achieving a social dimension which is changing the nature of the general practice of medicine. Some training in community medicine must be included in undergraduate teaching of all of the health professions.

Ladies and gentlemen, I am grateful for the opportunity of putting these concepts before you for your comments and criticism. Let me hasten to stress that

they are in no way original. Many people have warned about excessive use of hospitals and of their changing role. A number of medical schools in the United States have initiated some part of the team approach to health education, and some schools have introduced community practice as a teaching facility. We have been fortunate in being involved in the planning phases of a teaching facility when the activities of the Royal Commission on Health Services gave us an opportunity to study trends in health care and to take steps towards what we believe will be the future pattern of health services in our part of the world.

UNIVERSITY OF MINNESOTA
Minneapolis 14

Office of the President

COMMITTEE FOR THE STUDY OF PHYSICAL FACILITIES FOR THE HEALTH SCIENCES

Minutes of meeting June 7, 1965

Present: Cyrus Barnum, Lyle French, Edna Fritz, Gertrude Gilman, Mellor Holland, Robert Howard, Robert Isaacson, Ione Jackson, James Jensen, James Stephan, John Westerman

Absent: Gaylord Anderson, Winston Close, Sterling Garrison, N. L. Gault, Jr., Eugene Grim, Elmer Learn, Richard Magraw, Erwin Schaffer

NEXT MEETING MONDAY, JULY 12, 1965, 3:30 P.M., ROOM 510 DIEHL HALL

1. Mr. Westerman, chairing the meeting in the absence of Dr. Learn, announced that funds had been appropriated by the State Legislature to purchase the land between Delaware and Washington on Union Street for use by the Health Sciences.

2. The following material was distributed prior to the meeting:

Minutes of the May 10th Learn committee meeting

Letter from Dr. Learn to the sub-committee chairmen

Paper by Dr. William Maloney entitled, "Comprehensive Education: A Prerequisite to Comprehensive Medicine"

Nursing sub-committee minutes of May 14

Dentistry sub-committee minutes of May 25

The following reports were distributed at the meeting:

Basic Sciences sub-committee minutes of May 20

Clinical Medicine Task Force minutes of May 24

Hospital Task Force minutes of May 24

Nursing sub-committee minutes of May 26

Trip report of a site visit to the University of Florida, Ochsner Clinic, Texas Medical Center, Southwestern Medical School by Dr. Duvall, Dr. Jensen and Mr. Westerman

Planning report from the University of British Columbia Health Science Center

3. The sub-committee chairmen gave reports.

4. In discussion following the reports Dr. Kottke referred to a speech given by Dr. Stafford Warren former Dean of the U. C. L. A. Medical School. Dr. Warren suggested the effective size of a medical school class could be 30 students. This would encourage areas not now able to support schools of 100 or more per class to accept the responsibility of a 30 student class, creating more schools to supply demand areas.

5. The Committee is requested to review the letter sent by Dr. Learn to the sub-committee chairmen for discussion at the next meeting. Mr. Westerman will contact the sub-committee chairmen and attempt to schedule a preliminary presentation and review from one of the sub-committees.

Respectfully submitted,

Judith Furber
Research Assistant

UNIVERSITY OF MINNESOTA

Clinic Directors Group

July 8, 1965

TO: MEMBERS OF THE COMMITTEE FOR THE STUDY OF PHYSICAL FACILITIES FOR THE HEALTH SCIENCES

Enclosed is a statement of the role, objectives and programs of the Outpatient Department. This paper has its origin in various actions and agreements among the clinic directors over the past five years. A preliminary draft of this statement was approved by the clinic directors on June 18, 1965.

JAMES B. CAREY JR., M.D.
CHAIRMAN, CLINIC DIRECTORS GROUP

Dr. Richard Anderson
Dr. Joseph Aust
Miss Annie Laurie Baker
Dr. Graham Beaumont
Dr. Charles Brandhaver
Dr. Shelley Chou
Dr. Donald Creevy
Dr. Edward Defoe
Dr. Arndt Duvall
Dr. Robert Fisch
Dr. Raymon Fusaro
Dr. Robert Goltz
Dr. Glenn Gullickson ✓
Dr. Charles Hewell
Dr. Reynold Jensen
Dr. William Kane
Dr. William Knoblach
Dr. Arnold Leonard
Dr. Richard Magraw
Dr. Edgar Makowski
Mr. Glenn Mitchell
Dr. James Moriarty
Mrs. Irmagene Starke
Dr. Paul Stranjord
Dr. George Tani
Dr. Robert tenBensel

Next meeting August 9, 1965

I. ROLE OF THE OUTPATIENT CLINIC

A. PRESENT

1. The primary purpose of the University Clinics is to serve the welfare of the people of Minnesota through EDUCATION OF THE HEALTH PROFESSIONS in an ambulatory setting. The educational role is concerned with concepts, skills, knowledge and attitudes required for patient care and health maintenance.

2. The clinics serve the state as a BASE CENTER FOR CONSULTATION SERVICE where patients with health problems can be cared for in cooperation with their referring physicians or referring health agency.

3. The clinic attempts to SERVE AS A MODEL FACILITY for patient care which incorporates the latest health care advances into an organized program that is within the scope of the medical center objectives.

4. The clinic provides AN ENVIRONMENT FOR CERTAIN KINDS OF RESEARCH that can best be done on an ambulatory basis. Society expects this kind of research and the University has the resource potential to carry out the investigations.

B. FUTURE

1. Given the roles of patient care and teaching, a future role of the clinics will be to BETTER INTEGRATE THE COMMUNITY RESOURCES needed for the health care of the individual patient of group of patients. This extension should be for the mutual advantage of the clinic and community. This role seems desirable in terms of what we want to accomplish and inevitable in view of the community pressures that are being generated.

2. A future fole in research will be to carry out EXPERIMENTATIONS IN PATTERNS OF HEALTH CARE and METHODS OF EDUCATION for the health professions. This research will involve a multi-disciplined approach within the university community and reflects the medical center's concern in this area.

II. GOALS AND OBJECTIVES OF THE CLINIC

A. TEACHING

1. The clinics serve as a unit where students in the health professions learn an integrated, team approach to the care of patients. The patient is the focus of the program, and the importance of the maintenance of health is recognized. Also recognized is the individual physician's responsibility for continuity of care.

2. Through the cooperative care relationship with physicians and other health professionals of the state, the clinic has the goal to work with these people in programs offering A LIFETIME OF LEARNING. The continuation education programs are designed with the objective of meeting the needs of the post-graduate health worker.

3. It is our objective to develop a BETTER MEANS OF MEASURING what we are teaching, how we are teaching, and why we are teaching in the clinics and relate our findings to certain internal and external needs. Our objective would be to tie the teaching efforts to concepts that will serve the student in a variety of health career pursuits.

B. SERVICE

1. The clinics intend to provide EXEMPLARY CARE to the patients, which will combine quality and convenience in a manner which will encourage utilization of our care.

2. The clinics intend to provide EXEMPLARY CONSULTATIVE SERVICES to referring physicians and other health workers.

3. A goal of the clinic will be to ELEVATE THE STANDARDS OF HEALTH PRACTICE in the medical center and the community.

4. An objective of the clinic will be to SHARE THE FINDINGS AND EXPERIENCES of the University Clinics with the community.

5. An objective of the clinics is to closely INTEGRATE ITS ACTIVITIES with other medical center services.

C. RESEARCH

1. An objective of the University Clinics is to ENCOURAGE AND FOSTER RESEARCH OF ALL TYPES by providing a facility which can be used conveniently, efficiently and to the best advantage of the patient and research worker.

2. Most research programs will be those of the individual investigator. A special objective, however, would be to AFFORD THE FACULTY MEMBERS MOST CONCERNED with broad, fundamental aspects of patient care an opportunity to pursue their investigational interests. These interests will include:

a. The definition and exploration of METHODS OF MEASURING THE QUALITY OF HEALTH CARE.

b. Research into PATTERNS OF PRODUCTION, DISTRIBUTION, DELIVERY and CONSUMPTION of health care services.

c. Research concerned with the means whereby health care provided at our medical center can be INTEGRATED MORE CLOSELY with health resources throughout the state.

III. PROGRAMS OF THE OUTPATIENT CLINIC

PRESENT PROGRAMS

A. TEACHING

1. The Comprehensive Clinic Program

This is primarily an undergraduate program centered around the provision of comprehensive care. Comprehensive care includes multi-disciplined diagnostic and therapeutic efforts directed to the patient as an individual with proper regard for his unique personal and social identity. Care is provided by a team of health professionals integrated through the medical student and his staff associate who together assume ultimate responsibility. The program is coordinated through the Comprehensive Clinic Office and the Clinic Directors Group.

This program has been in operation for five years. Each medical student is required to serve six months with the program and in so doing will assume meaningful continuous responsibility for approximately 65 patients. The tutorial relationship is augmented by weekly seminars dealing with case presentations and student-staff discussion of such topics as the doctor-patient relationship, quality control, and community services.

Concurrent with these activities, the student receives carefully planned instruction during three week courses in seven medical sub-specialties. The University teaching staff assumes a heavy responsibility of time and effort in maintaining the program. As will be mentioned, two programs have been added at the graduate and post-graduate level which have increased the faculty staff.

2. Graduate (Specialty) Teaching

In contrast to the undergraduate program, virtually all the graduate training in the clinic is carried out strictly within departmental framework. About 100 resident physicians work with patients in the clinic as part of their training every day. Most graduate programs are three years in length. In a few specialties this training occurs almost solely on the in-patient hospital service. In a greater number, a significant part of the resident's training occurs in the clinic, and in certain specialties, e.g. Dermatology, Ophthalmology, Otolaryngology, Psychiatry, at least one-half of the resident's training is done in the clinic.

In the clinic these 100 residents have responsibility for the care of patients with an appropriate degree of direct responsibility and staff supervision as part of their training responsibility. This is largely individual

tutorial instruction and centered around patients. This training is supplemented by clinical seminars and didactic presentations to groups.

One of the two programs that have recently been established is the Public Health-Pediatrics residency program designed for the pediatrician who wishes to gain a broad perspective in family public health as well as pediatrics.

3. Post-Graduate Training (Continuing Education for Physicians)

At present, with important exceptions in the undergraduate program and the very occasional incorporation of some clinic exercise in a continuation course, there is no formal program in post-graduate medical instruction in our clinic.

The important exception is the second program that has recently been added. This program offers sabbatical staff appointments for qualified practicing internists, pediatricians and generalists. These are one to three month appointments and involve the instruction of medical students in the outpatient clinics. The practicing physician shares his years of experience with the students and has in exchange an opportunity to refresh himself in an academic setting away from the demands of practice. It is a situation, however, where the practicing physician has to assume responsibility to the teaching program.

4. Teaching in Associated Health Professions

At present many of the students in the health fields in the College of Medical Sciences, such as physical therapists and clinical psychologists, receive an important part of their training in the clinic.

5. Health Education of the Community

Through the medium of the Community Service Conferences, the University medical care team of doctors, psychologists, social workers, speech therapists, etc. have been brought together with their counterparts in the patients own community. The purpose has been to solve the individual patient problems, and also to demonstrate the effectiveness of this approach to patient care to the university staff, the community health workers, and eventually the health professionals of the state through the publication of these conferences in the State Medical Journal.

B. SERVICE

1. The clinics offer a consultation and referral service for patients and referring physicians.

2. The clinics also offer a diagnostic and therapeutic service for 131,000 patient visits each year, primarily from the state of Minnesota. This service includes special treatments, community group programs, and

preventive medicine programs.

3. The clinics have service programs in 52 general and specialty clinics, which are located in the main outpatient department, and the following areas outside the outpatient department: the Heart Hospital, the Veterans of Foreign War building, the Rehabilitation Centers, Child Psychiatry, Cystoscopy, Radiation Therapy, Otolaryngology, Diagnostic Radiology, and the Cancer Detection Center.

4. There is an acute trauma program operated in the Emergency Room as part of the clinics.

5. The present programs should be competitive with other providers of health care in both quality of care and attractiveness and efficiency of facilities. At present the facilities are able to support the new emphasis given to the clinics only in a marginal manner.

6. The clinics provide a framework of non-physician health care professionals to support the medical center staff and outside physicians in providing organized health care.

C. RESEARCH

Almost all clinical departments in the medical school have one or more research programs in progress in the clinics. All such programs cannot be listed in this report, but a few examples can be mentioned.

1. Some current research is concerned with the improvement of patient care through chart review, an audit system and an assessment of the value of a University- Community interdisciplinary team approach in the diagnosis and management of patients with complex chronic disease problems.

2. There has been a research program to measure the cost of tutorial teaching by medical consultants per patient and per student.

3. There have been and are now in progress numerous drug efficacy studies.

FUTURE PROGRAMS

A. TEACHING

1. The projections of future graduate teaching programs are based on the assumption that there will be a relative increase in emphasis on instruction and the care of pre-symptomatic diseases and preventive maintenance in our population in virtually all the medical specialties. This will necessarily take place in the clinics.

2. Projections for the future program in post-graduate training are based on the expectation of a greatly increased role of the medical school with the medical needs of the community and closer involvement with the continuing professional effectiveness of the practitioners of the community.

3. Projections for future programs in teaching associated health professions are based on the knowledge that the professions associated with medicine are growing in numbers and importance and are further based on the expectation that these professions also will require more continuing post-graduate education programs. Again it is assumed that the University Medical Center of the future will be assigned this role in society and the clinic is the logical place to carry out much of this work.

4. Some examples of future programs may include:

a. The comprehensive clinic program would like to undertake new methods of instruction, including the use of electronic teaching aids. They would also like to develop more precise measurements about the effectiveness of their programs.

b. A logical extension of the Pediatric-Public Health program would include internal medicine and psychiatry and may lead to the development of a "family specialist."

c. The sabbatical staff appointments of practicing physicians will likely be expanded to accommodate more participants.

d. There is a great need for the public health nurse, general nurse, social worker, psychologist, vocational rehabilitationist, physiotherapist, hospital administrator and other health professionals to participate in and have an awareness of preventive and curative medicine programs. There is a need for interaction among these professionals in their formative training periods.

e. The community service program could be expanded to include other than the neuro-sensory group.

B. SERVICE

1. The overall trend of the programs in the next ten years will be to better organize and integrate the ambulatory care service. This is essential because of the present knowledge of improved methods of health care and of future advances. In the last ten years a trend which has seen the number of outpatient visits in this country increase by 2/3 and it is expected this trend will continue. In this region, the University will be expected to develop methods to provide for meeting this challenge and share the information with the community.

2. Outpatient programs of the future will need to be economically self sufficient.

3. Future programs will include the participation of a broader range of health professionals.

4. Future programs will be tied into more effective use of automation such as auto analizers and improved communications system such as closed circuit television.

5. The future programs will tend to concentrate more on the family as a unit, particularly in psychiatry, pediatrics and internal medicine.

6. There is a need for more participation of the outpatient health care staff in policies and programs for the community.

7. Future outpatient programs will be integrated more with the overall programs and mission of the medical center.

8. Future programs will provide for a more coordinated plan of care within the clinics.

9. Recognizing that the outpatient department has a complicated organization, more emphasis will be put on the better organization of ambulatory health care measures within the medical center.

10. The design of the new outpatient building will need to incorporate and support all of the programs described above and be an important architectual statement.

C. RESEARCH

In the future, all individual or small group research interests appropriately carried out within the clinic activity should be encouraged. However, the major trends or efforts will be directed toward development of better methods of diagnosing disease, implementing care and maintaining health of the patients. Research is a personal concept, and yet we can envision some of the following examples as being representative of future ambulatory research trends.

1. A research program with primary emphasis upon the study of the intellectual, emotional and economic needs of the professionals intimately involved in the maintenance of health and the care of the sick within the community.

2. Future research may involve the study of the evolution of disease which is influenced by enviromental factors.

3. Future research should help define or evaluate ways of measuring intellectual and emotional status as part of the history and physical exam-

ination.

4. Medicine should embark on applied research programs to measure better ways of incorporating advances of basic sciences into the practice of medicine.

5. Future research programs should help explore and define ways of removing the barriers to the implementation of the preventive medicine concept.

6. The objective of research into the production, distribution, delivery, and consumption of health care service may involve clinical epidemiology programs investigating the population, the patient, the health team workers and involve the disciplines of economics, political science, sociology, law, urban planning and anthropology for example.

Lane-file

COMMITTEE FOR THE STUDY OF PHYSICAL FACILITIES FOR THE HEALTH SCIENCES

A N N O U N C E M E N T

The next meeting of the Learn Committee will be held at 3:30 p.m. on Monday, July 12, 1965 in room 510 Diehl Hall.

At the last meeting, it was suggested that one of the sub-committees be asked to present a preliminary report or outline of roles, objectives, and programs in accord with Dr. Learn's letter to the sub-committee chairmen. None of the sub-committees were ready to make this report, but a group within the Clinical Medicine and Hospital sub-committee has already prepared such a statement. A representative from the out-patient clinic directors group will present a statement of clinic roles, objectives, and programs at the July 12th meeting.

June 23, 1965

John H. Westerman
Executive Secretary

JUN 23 1965 UNIVERSITY OF CALIFORNIA BERKELEY

UNIVERSITY OF MINNESOTA
Minneapolis 14

Office of the President

COMMITTEE FOR THE STUDY OF PHYSICAL FACILITIES FOR THE HEALTH SCIENCES

Minutes of Meeting July 12, 1965 (#9)

Present: Elmer Learn, Chairman, Gaylord Anderson, Cyrus Barnum, Winston Close Lyle French, Edna Fritz, Sterling Garrison, N. L. Gault, Jr., Gertrude Gilman, Eugene Grim, Mellor Holland, Robert Howard, Robert Isaacson, Frederic Kottke, Richard Magraw, Erwin Schaffer, James Stephan, John Westerman

Absent: Ione Jackson, James Jensen, William Shepherd

Guests: James Carey, Glenn Gullickson, Robert Douglass

NEXT MEETING MONDAY, AUGUST 9, 1965, 3:30 P.M., 510 DIEHL HALL, PRESENTATION OF OUTLINE BY DENTAL SUB-COMMITTEE

1. Chairman Learn welcomed Mr. Stephan as a member of the full committee. Professor Stephan is chairman of the hospital task force and was appointed to the full committee by President Wilson on June 30, 1965. Dr. Learn also welcomed Mr. Douglass as a guest, and Drs. Carey and Gullickson who would be making the presentation for the Clinic Directors group.

2. Chairman Learn, in commenting on the first item in the June 7th minutes, briefly outlined the University's policy as it would apply to the acquisition of two parcels of land on Union Street. In general, the University waits until the desired property is placed on the market, and avoids condemnation whenever possible. This committee need not be too concerned about this issue, for when the land is needed for a building program, the University is very effective at delivering the desired parcel.

3. Dr. Learn noted that the following material had been posted prior to the meeting:

   A. Learn Committee minutes of June 7
   B. Hospital Task Force minutes of June 7 (#3)
   C. Public Health May 26 (#1)
   D. Dentistry June 8 (#3)
   E. Nursing June 11 (#4)
   F. Clinical Medicine June 14 (#3)
   G. Public Health June 16 (#2)
   H. Dentistry June 23 (#4)
   I. Nursing June 24 (#5)
   J. Suggested Outline for Programming a School of Dentistry
   K. Abstract of the 1961 Survey of Dentistry

In addition, the following meetings were held for which minutes were not available on July 12th.

A. Hospital Task Force June 28 (#4)
B. Dentistry July 6 (#5)
C. Nursing July 9 (#6)
D. Clinical Medicine July 9 (#4)

4. Dr. Holland, on behalf of the dental sub-committee, wrote a letter to Dr. Learn in which three questions were asked:

   a. When will the Hill Commission report become available and what progress is being made?

   b. Would there be any value in keeping some key legislators apprised of our study?

   c. Because the sub-committee meetings have been such a worthwhile experience for the participants, would it be appropriate for our sub-committee to recommend that consideration be given to continuing a health sciences liason mechanism after the present study is completed?

Dr. Learn replied that no information is now available from the Hill Commission study. A second meeting of the commission is being held July 15th. A staff is busy gathering data. Perhaps the best we can look for at this time is a progress report by late fall.

Dr. Learn checked with Mr. Wenberg about the advisability of informing certain key legislators. While the work of this committee is no secret, it would seem best to not bring in state representatives until we have something to show them.

The suggestion for a permanent mechanism to carry out the idea behind this committee is an excellent proposal. Dr. Learn will bring the suggestion up with appropriate people in the University.

5. In looking over some of the minutes from the 25 sub-committee meetings, it would appear that several groups are ready to prepare an outline report of the final report. Do you think it would be useful for each sub-committee to present a brief oral report to this committee? I was thinking of something like three reports on August 9, 1965 and four reports on August 22, 1965. It does seem that we will have to meet twice a month, at least in August and September, until all of the outlines have been reviewed.

   A comment was made that the time table should allow for full consultation with the faculty. It would appear that the fall report will affect the future of a fair number of people. This might explain the reluctance to volunteer for preliminary reports in August.

   Dr. Learn pointed out that time would be needed for an editing committee of the full committee to review the sub-committee reports and put the whole report together. This would mean we will need an outline by at least September 1, 1965

if we are to meet the October deadline.

Dr. Howard made the comment that he didn't think these preliminary reports requested for August were supposed to be in final form. It was Dr. Howard's understanding that the sub-committee would only come in and say that our report will cover those major areas, and some of the important considerations will be, for example, 1, 2 & 3. Dr. Learn agreed with this comment.

It was then decided that only Dentistry will present on August 9th, and we will probably have two meetings in September and October.

6. PRESENTATION BY JAMES CAREY

Dr. Carey made his main presentation from a statement drafted by the Clinic Directors group for the members of the Committee for the Study of Physical Facilities for the Health Sciences. A copy of the report is appended to these minutes. This report covered the role, objectives and programs of the outpatient clinic, present and future.

By way of introduction, Dr. Carey stated that the paper represents the collective thinking of the Clinic Directors group and is not the work of any one individual. The document was really the culmination of work that had gone on under four previous chairmen of the Clinic Directors group; Richard Magraw, Shelley Chou, Edgar Makowski and Glenn Gullickson. Much of the material in this report comes from an earlier document, which was prepared under the chairmanship and signature of Dr. Gullickson, and was circulated as a report to the faculty of the medical school under a cover letter from Dr. Howard.

Before getting into the report, Dr. Carey thought it was important to mention a few things about the Clinic Directors group. The group was formed when the 1960 curriculum change was put into effect. This change had as one of its objectives, a desire to provide more continuity between the student and the patient. While this isn't the place to go into details of the change, it should be noted that major emphasis was put on greater continuity between student and patient in the outpatient educational program. The organization of students for this shift of emphasis, also meant that there had to be more continuity among the staff. The group has met regularly since 1960, usually every two weeks, and minutes have been kept of all of the meetings. The main purpose was to work out a more efficient way for the teaching and provision of patient care in the OPD clinics. This joint obligation really imposes a separate set of demands on the outpatient staff and facilities.

In order to accomplish this assignment, medical school departments and divisions were asked to designate faculty members who had the responsibility for the clinics. These designees then became part of the Clinic Directors group. Dr. Carey said that he was proud to be a member of this group, and pointed out that the outpatient teaching job is not an easy one, nor a job that is particularly popular or held in high esteem by other faculty members. But every time the group looks up from what they are doing, they see fresh evidence that they are on the right track. In certain areas they have been ahead and very much in harmony with the thinking of other groups around the country. The

report that will be highlighted today contains many ideas that are being repeated again and again as other medical schools and study groups issue reports and statements on medical education and ambulatory care. After reviewing the report, Dr. Carey said he would quote from some of these reports.

Dr. Carey then highlighted the written report.

In summary, he pointed out that this is a program which has as its goal a more organized team approach to the teaching of medical care in our clinics and around the state. To repeat, the Clinic Directors have been ahead in their thinking about this aspect of medical education and medical care. Furthermore, they have been working very hard at this project for over five years. Long ago it was decided that a new building was essential to carry out the objectives and programs.

Returning to other reports in the country on this subject, one of the most exciting and supportive is the Coggeshall Report, formally entitled, "Planning for Medical Progress Through Education." Chapter three of this report, which is dated April 1965, is entitled "Major Trends Related to Health Care and Their Implications." On page 38 of this chapter it is stated,

> "The field of medical education needs to turn its attention to the matter of improved delivery of health services in three ways. First, those in the field of medical education themselves need to devote greater attention to studying how health care can best be provided. Second, they need to teach medical students and young physicians to provide health care in the ways that are most effective medically and efficient economically. Third, the medical school of the future can contribute significantly to the health field by providing the 'model' or 'demonstration' of how health care can best be delivered.
>
> Schools of medicine should be taking the lead in studying the ways medical care is delivered to patients. Their concern should be not only with acute care but also with preventive care and rehabilitative care. Their concern should be with comprehensive family care as well as with specialty care. The university-sponsored medical school is in an unequalled position to draw on the resources of many disciplines - medical practice, economics, business administration, sociology, psychology, education, engineering, and others - to study the way in which comprehensive health care is provided. The need is for careful study of how health care can best be made available - including how medicine can best be practiced - and for the development of more effective plans of organization and delivery of health care."

(For the minutes, an outline of Chapter III of the Coggeshall Report is included. It should be noted that the Clinic Directors Report to the Faculty predates the Coggeshall Report. The similarity of the Coggeshall report to the Report to the Learn Committee is striking.)

"III. MAJOR TRENDS RELATED TO HEALTH CARE AND THEIR IMPLICATIONS (Pages 13-48)

A. Emerging Trends

1. Scientific Advance
2. Population Change
3. Increasing Individual Health Expectations
4. Increasing Effective Demand For Health Care
5. Increasing Specialization in Medical Practice
6. Increasing Use of Technological Advances and Equipment
7. Increasing Institutionalization of Health Care
8. Increasing Use of a Team Approach to Health Care
9. Need For Increasing Numbers of Physicians
10. Need For Increasing Numbers of Health Personnel
11. Expanding Role of Government
12. Rising Costs

B. Implications For Medical Education

1. Need to Devote Increasing Attention to the Requirements of the Nation
2. Need For More and Better Prepared Physicians
3. Need For More Persons For Related Health Professions and Occupations
4. Need to Improve Delivery of Health Services
   (It was from this section that the two paragraphs on page 4 were quoted)
5. Need to View Medical Education as a Continuum
6. Need to Maintain Interdisciplinary Relationships and Relationships Between Research and Instruction
7. Need For the University to Assume Increasing Responsibility For Medical Education

C. The chapter concludes with 'Implications For the Association of American Medical Colleges.'"

(Note: The entire report has received a great deal of publicity outside of the usual medical press. For example, Mr. John Lear, Science Editor of The Saturday Review of Literature, opens his June 5, 1965 article entitled "Who Should Govern Medicine?" with these paragraphs.)

> "For the first time in a half-century, prominent and powerful members of the medical fraternity are openly joined in a struggle to restore the traditional concept of the physician - the concept that the physician, like the lawyer, is an agent of society, before serving himself.
>
> The American Medical Association for the last generation has followed a different precept, derived from the dubious notion that the individual doctor possesses an identity separate from and superior to that of the social agent designated by his license to practice."

Dr. Carey cited the De Bakey Report, "A National Program to Conquer Heart Disease, Cancer, and Stroke". Dr. Carey said he would not enumerate the various

provisions of this proposed legislation, but a part of the program would be centered around the rendering of health care in an ambulatory setting in University Medical Centers.

Medicare is another social legislation measure that will likely have an impact on our outpatient clinics. (The Senate approved the bill by a vote of 68-21 on July 9th.) It is anticipated that the House and Senate will reconcile their comparatively minor differences and the bill will be signed in about two weeks. The basic hospital, home nursing and outpatient clinical benefits would be available starting July 1, 1966. The effective date of provisions for nursing home care and supplementary insurance benefits is January 1, 1967. The first in a series of increases in Social Security taxes would take effect next January 1. In an editorial headed "Medicare Wins", the New York Times of July 10, 1965, goes on to say:

> ". . . . The Senate has improved the bill in several ways, including the decision to include fees for the services of anesthetists and other hospital-based specialists under the Social Security program. . . . A sensible approach is also made in the Senate bill to the difficult problem of catastrophic illness. In addition to the initial sixty days of hospital care under Social Security, it makes possible another sixty days if the patient pays $10 a day toward the costs. Thus the financial burden of long, major illness would be alleviated without straining the actuarial soundness of the system.
>
> Both houses have rightly rejected amendments that would have tied payment of medical benefits to the recipient's income. Medicare, as part of the Social Security program, is to be run in accord with the insurance principle. All those who have worked in covered employment and made their contributions over the years deserve to collect the bendfits, when needed, as a matter of right without submitting to a means test, irrespective of the level of their income in old age.
>
> Extension of Social Security to coverage of hospital bills for the elderly is the MOST IMPORTANT DEVELOPMENT SINCE ITS INCEPTION THIRTY YEARS AGO (Caps provided). Once this bill becomes law, a more secure and dignified old age will be possible for millions of Americans."

Dr. Carey then cited the Folsom report, although concerned primarily with cost of hospital care, comes in with several strong recommendations for more emphasis on outpatient clinics as a means of reducing total costs of medical care to the patient.

Excerpts From a Report Submitted to Governor Rockefeller, From a Committee on Hospital Costs and Services

Chaired by
Chaired by Marion B. Folsom, Former Secretary of Health, Education and Welfare

Ambulatory Care

Pre-admission testing is but a part of a broader spectrum of diagnostic and therapeutic hospital services that should be made available to ambulatory non-hospitalized patients. Such ambulatory services would minimize in-hospital utilization while at the same time integrating in- and out-patient care.

* * *

Home Care

Similarly, home care -- the systematic provision of medical, nursing, social work and related care to patients in their homes -- can produce substantial savings. Such programs offer the advantage of releasing expensive hospital beds for those more in need of them.

* * *

Hospitalization prepayment and insurance plans in New York State, in cooperation with hospitals, the State Health Department and the State and Regional Planning Councils and other interested parties, should:

develop programs to include pre-admission testing and ambulatory, extended and convalescent care among benefits covered by insurance,

multiply substantially the numbers of self-care facilities in hospitals,

encourage and develop the further use of home-care programs by hospitals.

* *

Another RECOMMENDATION relating to Insurance is:

The Committee Recommends: Enactment of a State Hospital Insurance Law. Without attempting to propose its details, it suggests the following principles to be observed in drafting such legislation:

Principle (b)..... It should provide for a basic standard of hospitalization and related services, including ambulatory, home care and long-term care.

* *

The Impact of Medical Care Practices on Hospitals

The group that most influences hospital costs is least integrated into the hospital's administration -- the attending medical staff. The physician determines who will be admitted, how long the patient will stay, and what will be done for the patient while in the hospital. He will also determine what other facilities would be appropriate for the patient in lieu of the acute general hospital.

All physicians do not practice alike. There are distinct variations in hospital stay between the patients of general practitioners and specialists. There are differences in hospital utilization between physicians practicing in groups and those in solo practice. There are even distinct differences from one part of the country to another in the length of hospital stay for patients with identical conditions.

Within the hospital itself, there are marked variations in the use of tests ordered, with clear evidence that some physicians are ordering too many examinations.

At the same time there are inadequate arrangements between doctors and the hospital for the fuller use of the hospital's diagnostic services for the physician's ambulatory cases. More use of the hospital's services for those tests that are clearly needed would provide for greater income to the hospital, for better quality of tests, and to a somewhat lower overhead for the in-patient. Neither hospitals nor the doctors have done enough to bring about such closer relationships.

Some doctors could use the hospital diagnostic services on a solo basis if space were made available for their ambulatory cases to report for tests. Other doctors could actually have their offices there. Still others could form hospital-based group practices. Any and all of these arrangements that would contribute to fuller use of the hospital facilities and for a closer relationship between the hospital and the doctors in its community should be pursued with vigor. The hospital, the doctor, and the patient would all benefit from it.

All of these reports urge a more organized team approach to providing health care, an idea which is also prevalent in the Clinic Directors report. Dr. Carey said he thought Minnesota was in a position to offer leadership in this area, because of the work of the Clinic Directors group. There are few, if any, similar groups in other University Medical Centers. If the group has the cooperation and support of the faculty, as the response to Dr. Howard's transmittal of the Report to the Faculty suggests, then the items mentioned in the report can become a reality. But the lead that the University now has in the outpatient area cannot be maintained without a new facility. Without belaboring the inadequacies of the present facility, it is apparent that the trend that has been described is going to affect all medical centers and Minnesota will be passed by if we do not act promptly on opportunity with monies provided by new health legislation. So the question is not whether the Clinic Directors are right in their planning, but whether there will be a new facility and how can we best go about achieving this goal promptly.

A final word about the new building. For five years our group has looked at other facilities and particularly in the past year Mr. Douglass and Mr. Westerman have helped us survey the state of outpatient buildings in this country. We know of no facility in existence that comes close to what we are doing, let alone envision. We are not talking about another standard clinic building with a maze of rooms squeezed together in a square box.

The Clinic Directors have carefully worked out the concept of a facility to be built around the <u>teaching</u> and <u>providing</u> of health care. We look on our preliminary work

as a real challenge for an architect. It would be unfortunate to approach this challenge with inadequate architectural design that characterizes too many medical centers. In summary, this is a plea for imagination and quality.

Dr. Gullickson remarked that the outpatient clinics were originally constructed for dispensary type of patient handling. The clinics are now the site of a major educational program. The Clinic Directors have realized that it was essential to develop a concept or a philosophy before the problem of a new facility could be solved. Another factor on the development of this statement has been the influence of outstanding guest speakers who are brought in from around the country to address the Clinic Directors group. This seminar series is supported by the Hill Foundation. I believe the group has developed a well thought out statement. We want to provide these teaching of patient care programs in the best possible facility, and remain closely integrated with the medical center.

QUESTION: When you talk about teaching, do you mean just doctors?

No. We have been very cognizant of this in our statement. We really mean the health professions. The patients have demands that M. D. 's alone can't handle. Other health professions are essential and a tremendous health resource.

QUESTION: How will you coordinate all of these efforts?

That is a key question. The group hasn't completely resolved the question of whether the consultant will move to a central clinic or the patient will come to the consultant's clinic. It would appear that a combination will work out. That is, there will be a number of large general clinics where the consultant will come to the patient. There will also be such specialized areas as eye, where it is more practical for the patient to move to the specialty area because of the equipment involved.

QUESTION: Will all of the patients be admitted through the Comprehensive Clinic?

The mechanical system of where the patient is admitted is not as important as the idea of preserving the concept of providing continuity of care and having patients available for teaching.

QUESTION: Does this become a total care unit?

No, the Clinic Directors have no right to obligate their faculty colleagues in a total health care program. But we are obligated to look at the patient as a total person and to develop a health care plan with community health resources. Somewhere we must integrate and organize all of the resources available to the patient. There is no assumption of total life long care, just the assumption that the patient is a total person and will require a workable health care plan which can be taken to his community, his family and his physician.

QUESTION: What you are really talking about is total evaluation then, not total health care?

Yes. In terms of the educational venture, we are endeavoring to teach patient care, which includes total evaluation and a total health care plan. The latter is important in our teaching program because we cannot provide total life long care for all patients who come here, especially when they come from a long distance. We think

graduates, who mostly become specialists, will be required to care for patients in cooperation with other specialists too.

QUESTION: Where do the diagnostic services fit into your plan, both conceptually and functionally?

Along with the movement of patient and consultant, this is a difficult area. We see this building as a hub which might include the clinical laboratory and radiology. However, we must face the fact that these departments have their axis at present in the center of the hospital. Perhaps we'll have to adapt and work out some compromise solution.

COMMENT: Perhaps new communications systems will help solve this problem. In Stockholm, Sweden, for example, there is an auto analyzer that can perform 27 tests from a sample of blood, is hooked into a digital computer which in turn feeds a number of surrounding hospitals. So you don't necessarily need to duplicate these facilities.

QUESTION: Can you describe the type of patient who will come to the clinics? Have you given any thought to Faculty, Graduate Students, or Employees?

I'm not sure if I understand the question, but we have been going on the assumption that the clinics will continue to operate as a referral center. Any change that would impose a new obligation on the faculty would require full discussion and consent.

QUESTION: If, however, we need life long care in the educational program, shouldn't we consider singling out a segment of the population for this purpose? I'm think of some group like the housing development near Prospect Tower.

This may be possible, but we actually have that segment available at one of our affiliated hospitals.

QUESTION: What do you mean by model facility? Something that will be emulated throughout the state?

No, a model teaching facility.

QUESTION: If pre-payment is more and more the common development, how do you participate if you do not demonstrate?

It is our objective to demonstrate first quality health care.

QUESTION: If you follow this multi-disciplinary approach, aren't you going to become involved with more outside agencies?

Yes, we already are involved with them and this will increase.

QUESTION: Do you envision a separate faculty to carry out this program or will they be the same members of the clinical departments?

One of our seminar speakers, Dr. William Stewart, spoke on this issue. He suggested that a separate faculty was necessary to carry out this kind of program. I

would hope that within every department there would be some individuals interested in the community implications of what they are doing. I couldn't obligate the rest of the faculty on this point.

QUESTION: Won't the cost of this be great?

Of course we will need space and people, but we're actually doing much of this now. When hopes are described in a paper such as this, they tend to sound a bit grandiose. I couldn't give you dollar figures without more investigation.

REPLY: I'm not against ambulatory care if it cost the same; in fact so much the better if it can be done on an ambulatory basis. I was only trying to point out that we shouldn't be operating under the guise that this would be cheaper.

Well, we ought to be able to do the job more efficiently and at less cost if we had the right kind of facility. Like our neighbors to the south, we could do more work-ups in two days instead of two weeks.

Dr. Gullickson remarked that the group would be in favor of department identity but there is no strong move toward the creation of a separate faculty.

QUESTION: In Dentistry, most of our training is in an outpatient ambulatory setting, and yet we can't adequately evaluate our product. I note that you stress the importance of measuring what you are doing. Have you developed any measurements of how good your students are at rendering care and the manner in which he receives your message?

Yes, we have made some attempts. Dr. Beaumont, from the New Patient Medicine Clinic, conducts a chart review with the students. Charts of fellow students are selected at random and Dr. Beaumont asks the students to evaluate from the chart such things as: appropriate and inappropriate procedures, diagnosis established, adequate health plan, how much time it has taken, etc.

Another method has been to evaluate the letter sent to the referring physician using similar criteria.

Some criteria have been extended to the community, such as the study in North Carolina conducted by Dr. Osler Peterson (who is heading the Hill Commission study). In the North Carolina study a medical audit was performed by watching the physician in his office practice and rating his performance.

This individual medical audit has its counterpart in systems used by community hospitals, such as the tissue committee. University Hospitals in general have taken a holier than thou attitude about this sort of thing because of all the built in checks and balances. And yet when some measurements have been made, we don't always rate as high as we would like to.

QUESTION: Have you worked with educational psychologists to measure your product?

We have done some work with an educational psychologist. We have found that it is hard to measure attitudes and aptitudes in the professional area- skills are much easier to measure. We'll continue our efforts along thin lines. Some medical schools have full time specialists in this area on their faculties.

QUESTION: What are the implications of this program for the hospital?

We have always regarded our clinic as part of the hospital and will continue to regard our operation as an integral part of hospital and medical center.

COMMENT: It seems clear that the national trend is for clinics and doctors offices to move within or nearby hospitals. Whether this new complex is best labeled a hospital or a medical center, has not yet evolved.

It is evident that in planning this facility we are shooting at a moving target, and worse yet, one that is moving in several directions at once. For hospitals, there is a trend toward greater emphasis on outpatient medicine and in a sense this emphasis is a redress for a long neglected area.

COMMENT: I think the Clinic Directors should be complemented on this report. It indicates that the group has given a great deal of thought to many questions and has been looking forward in a progressive manner.

Thank you Dr. Carey and Dr. Gullickson.

Respectfully submitted,

John H. Westerman
Executive Secretary

UNIVERSITY OF MINNESOTA

SCHOOL OF DENTISTRY

August 9, 1965

TO: MEMBERS OF THE COMMITTEE FOR THE STUDY OF PHYSICAL FACILITIES FOR THE HEALTH SCIENCES

Attached is a preliminary report of the roles, objectives, and programs of the School of Dentistry. The report was approved by the Subcommittee for Dentistry on August 5, 1965. The members of the Subcommittee are:

Allyn G. Bridge, Associate Professor, School of Public Health

Carl B. Heggestad, Associate Professor, Department of Anatomy

JoAnn R. Hubbard, Instructor, School of Nursing

James R. Jensen, Professor, School of Dentistry

Glenn R. Mitchell, Associate Director, University Hospitals

Leon Singer, Professor, Department of Biochemistry

W. Albert Sullivan, Associate Professor of Surgery and Director, Continuation Medical Education

John H. Westerman, Executive Secretary, Committee for the Study of Physical Facilities for the Health Sciences

Mellor R. Holland, Chairman
Subcommittee for Dentistry

Social Responsibility
Is it acceptable?
Team Dentistry?
Where are the pressures?

I. ROLES OF THE SCHOOL OF DENTISTRY

The roles of the School of Dentistry in teaching, service and research are inseparable and are closely interwined in programs serving the people of Minnesota.

A. The teaching role of the School of Dentistry is to OFFER undergraduate, graduate, postgraduate, research and continuation education PROGRAMS to dental students, dental auxiliary students, dental practitioners, members of other health professions and other members of the University community.

These programs are and will be primarily for Minnesota students at the undergraduate level, for practicing dentists of the region at the continuation education level, and for the best qualified students at the graduate, postgraduate and research levels. This teaching role is carried out mainly in the School of Dentistry, the University Hospitals, and basic science departments, but will also include participation with and within other departments of the University and the community.

B. The research role of the School of Dentistry is to PROMOTE RESEARCH BY DYNAMIC FUNDAMENTAL AND APPLIED RESEARCH PROGRAMS which emphasize biologic aspects of oral health, oral disease and preventive dentistry.

This program will achieve the further goal of developing research personnel for Minnesota and other research centers. The program thus serves as a source of academic dentists and has the purpose of contributing to national and international health programs.

C. The service role of the School of Dentistry is to SERVE THE POPULATION of the state and the PRACTICING DENTISTS AND OTHER HEALTH SCIENCE PROFESSIONALS on a referral and non-referral basis with the HIGHEST QUALITY OF COMPREHENSIVE CONSULTATIVE CARE. This role may include varying degrees of responsibility for the provision of oral health care as a function of total health care.

D. A role of the School of Dentistry is to EXPERIMENT WITH PATTERNS OF ORAL HEALTH CARE and to INCORPORATE THE MOST ADVANCED DENTAL PRACTICES into the service programs. This experimental role includes the investigation, application and measurement of educational methods.

The School has no statutory or administrative obligation for any group of patients, but historically has given service to patients referred by practicing dentists, referred from University Hospitals and self-referred patients as are appropriate for the teaching programs.

E. A role of the School of Dentistry, as a sum total of the above roles, is to SERVE AS A LEADER IN THE QUEST TO IMPROVE ORAL HEALTH AS A FUNCTION OF TOTAL HEALTH CARE in society and establish and improve relationships with the community.

II. OBJECTIVES OF THE SCHOOL OF DENTISTRY

TEACHING OBJECTIVES

A. TO PREPARE UNDERGRADUATES FOR HIGH QUALITY DENTAL PRACTICE, THROUGH THE ACQUISITION OF SKILLS, KNOWLEDGE AND ATTITUDES essential to the practice of dentistry.

Further objectives of the undergraduate programs are to increase the emphasis on liberal arts and the basic sciences, with less emphasis on dental techniques. Our goal is to improve the ability of the student to diagnose and help him to better understand the causes of disease. The student must become oriented to an understanding of the patient's total health and be able to better plan, execute and direct oral health treatment. The educational environment should provide the opportunity for the student to be familiar with practicing in hospitals and community health centers, acquaint the students with the fundamentals of practice management and provide the student with experience in working with auxiliary personnel and practicing team dentistry as an integral part of total health care.

B. TO PROVIDE GRADUATE LEVEL TRAINING FOR THE PREPARATION OF INDIVIDUALS INTERESTED IN CAREERS IN RESEARCH, ACADEMIC DENTISTRY AND SPECIALTY PRACTICE.

Included in this objective is the need to continue to attract the best candidates, increase the numbers of graduate students, particularly at the Ph.D. and combination D.D.S. - Ph.D. level, and to improve the graduate programs.

C. TO DEVELOP DENTAL AUXILIARY PERSONNEL through programs designed to assist the practicing dentist and explore new areas where auxiliary personnel may assume duties that are consistent with their skills and training.

Our objective is to increase the student body in dental hygiene and dental assisting programs with improved curriculums that will attract the best qualified applicants. Our experimentation with additional duties for this group includes an obligation to assist the group to practice for what they have been trained under the supervision of dental practitioners.

D. TO RECRUIT AND ATTRACT THE BEST QUALIFIED STUDENTS INTO THE SCHOOL'S TEACHING PROGRAMS.

This means the recruitment and education of the best qualified individuals to be skillful, within their chosen area, in the art of dentistry, knowledgeable in the science of dentistry and sensitive to the obligations of a professional person in general and to a member of a health profession in particular. Further, the students should become

motivated to do research, think critically about the information available, and to understand public health needs and preventive dentistry.

E. TO UTILIZE THE MOST ADVANCED TEACHING METHODS in a curriculum subject to constant review, consistent with the mission of the school. Experimentation in the curriculum should be pursued and imaginative programs developed.

F. TO PROMOTE MEANINGFUL PROGRAMS OF CONTINUATION EDUCATION primarily for practitioners in the region.

These programs will be conducted with the realization that there is a valuable exchange of knowledge between the school and the practitioners or health science workers to the mutual benefit of both parties.

G. TO PROVIDE OTHER HEALTH SCIENCE WORKERS AND THE UNIVERSITY COMMUNITY appropriate insights into the subject of oral health.

H. TO INFORM AND INFLUENCE SOCIETY and our community about the benefits of good oral health.

I. TO BETTER INTEGRATE THE TEACHING PROGRAMS OF THE SCHOOL OF DENTISTRY WITH THOSE OF THE COLLEGE OF MEDICAL SCIENCES AND THE UNIVERSITY.

This improved cooperation would also be desirable in service, research and administrative areas.

J. TO PROVIDE MORE EDUCATIONAL OPPORTUNITIES IN HOSPITALS AND COMMUNITY HEALTH CENTERS FOR UNDERGRADUATE AND GRADUATE STUDENTS.

These opportunities should be developed in the University Hospitals, associated teaching hospitals, the Mayo Graduate School of Medicine and Mayo Clinic, the newly planned out-patient clinic, and other appropriate health centers.

K. TO TAKE APPROPRIATE MEASURES TO ATTRACT AND RETAIN A COMPETENT FACULTY to accomplish the above objectives.

This requires a recognition of the importance of the teaching function and providing educational opportunities for faculty members. The number of full-time faculty members and half-time faculty members will be increased.

SERVICE OBJECTIVES

A. TO PROVIDE EXEMPLARY CARE for patients treated in the clinic.

This includes restorative and preventive oral health care. The efforts of the school will be better coordinated with the community practitioners and other health agencies.

B. TO PROVIDE A PROMPT, EFFICIENT CONSULTATIVE SERVICE to dental practitioners, medical practitioners and other health science professionals.

C. TO PROMOTE AND COOPERATE WITH COMMUNITIES on oral health service projects that are consistent with the mission of the dental school.

D. TO ELEVATE THE STANDARDS OF DENTAL PRACTICE IN THE COMMUNITY.

E. TO DEMONSTRATE AN ATTITUDE OF SOCIAL RESPONSIBILITY AND SENSITIVITY in the dental profession by the way in which service programs are undertaken and carried out.

F. TO SHARE AND DISSEMINATE MEANINGFUL ORAL HEALTH KNOWLEDGE with dental practitioners, other health science workers and the public.

RESEARCH OBJECTIVES

A. TO PROVIDE AN ENVIRONMENT FOR RESEARCH WHICH WILL RESULT IN ATTRACTING AND RETAINING COMPETENT AND PRODUCTIVE INVESTIGATORS.

B. TO ADVANCE THE KNOWLEDGE OF ORAL HEALTH with an active, expanding fundamental and applied research program.

C. TO INVESTIGATE VARIOUS EDUCATIONAL METHODS and develop new techniques and measurements capable of evaluating the educational programs to determine the need for change and improvement.

D. TO INVESTIGATE COMMUNITY ORAL HEALTH PROBLEMS.

E. TO ENGAGE IN SUCH CLINICAL RESEARCH PROGRAMS as genetics, epidemiology and public health studies. There will also be fundamental research activities, biologic in nature, and not confined to oral structures.

F. TO INVESTIGATE THE CAUSES OF ORAL DISEASE AND ELEMENTS OF PREVENTIVE MEASURES.

G. TO DEVELOP AN ENVIRONMENT CONDUCIVE TO FREE AND OPEN INQUIRY into all facets of health, disease and education applicable to the role of dentistry in total health care.

III. PROGRAMS OF THE SCHOOL OF DENTISTRY

PROJECTED STUDENT LOADS

Program	Present Loads	*Projected for 1980
Four year D.D.S.	110 in freshman class	150
Dental Hygiene	50 in freshman class	150
Dental Assisting	35 in freshman class	150
Graduate Study	Total of 40	125
Postgraduate Study	Total of 8	35
Continuation Education	Average 375 annually	800

→ 300 (1975) Team dentistry may make this expand more rapidly.

*These projections may be realized by 1975.

TEACHING PROGRAMS

A. FOUR YEAR D.D.S. PROGRAM

1. RECRUITMENT OF HIGH QUALITY STUDENTS

A MORE ACTIVE AND FORCEFUL RECRUITMENT PROGRAM WILL BE INITIATED TO ENCOURAGE EXCEPTIONALLY ABLE YOUNG MEN AND WOMEN TO PURSUE DENTAL CAREERS. An aggressive effort will be made to inform high school and college counselors and students of the challenging and changing role of the dental profession. This information function will be carried out by University faculty and staff members.

2. INCREASED PREDENTAL LIBERAL ARTS BACKGROUND

A proposed program will increase the minimum entrance requirement to three years; raise the minimum acceptable admission G.P.A.; require comparative anatomy, quantitative chemistry, stronger physics course, college algebra, and possibly an introductory calculus course; and establish distribution requirements to provide a broad liberal arts education.

3. IMPROVEMENT OF UNDERGRADUATE CURRICULUM

AN UPGRADING IS NEEDED IN ALL AREAS OF THE CURRICULUM. RECOMMENDATIONS FOR CURRICULAR CHANGES HAVE BEEN SUBMITTED AFTER A THREE YEAR STUDY AND THE SCHOOL IS NOW IN POSITION TO IMPLEMENT THE RECOMMENDATIONS AS RESOURCES PERMIT. The program should be structured to provide an education which will permit the graduates to plan, execute, guide and supervise the best possible oral health care for the patients. Allocation of time for the dental technic courses will be sharply reduced and clinical conditions will be simulated in these courses as much as possible. The most modern concepts of clinical practice will be taught with an interdisciplinary approach and an emphasis on total oral health care. The basic biological sciences must have greater emphasis and be taught at the highest level.

4. MORE BIOLOGIC ORIENTATION

THERE WILL BE INCREASED EMPHASIS IN ORAL MEDICINE AND ORAL BIOLOGY TO IMPROVE THE STUDENT'S BASIC UNDERSTANDING OF ORAL DISEASES AND HIS ABILITY TO DIAGNOSE AND TREAT THESE DISEASES.

THE STUDENT SHOULD HAVE A KEENER UNDERSTANDING OF CLINICAL MEDICINE IN ITS BROAD CONCEPT. THIS MEANS THAT HE MUST RECEIVE SOME INSTRUCTION AND EXPOSURE TO GENERAL PHYSICAL DIAGNOSIS AND LABORATORY MEDICINE. It is intended that the faculty for this program will be physicians and medical technologists. This plan will permit the students and the practitioners to provide more effective and integrated oral health care as part of total health care. With the certainty that dental practitioners will be very active in hospitals and comprehensive health care centers, instruction in physical diagnosis and laboratory medicine for the dental students seems particularly pertinent.

IN THIS CONNECTION, UPGRADING OF THE BASIC SCIENCES IS IMPERATIVE WITH A GREATER EFFORT TO CORRELATE THE BASIC SCIENCES AND CLINICAL DENTISTRY. Basic science instruction for the dental students should be of the same quality as that given the medical students.

One plan could be to have the dental and medical students in combined classes with no attempt to identify the two groups. If this is implemented, then applied courses in the basic sciences could be taught separately in a vertical or diagonal curriculum. If the classes remained separated, slightly different emphases could be included in the basic courses. For example in gross anatomy, head and neck dissection could be given stronger emphasis for the dental students. Slight variations could be made in other basic sciences but the courses for the dental students should be of high quality and depth.

THE GREATER EMPHASIS ON BASIC SCIENCES WILL GIVE THE STUDENTS BETTER INSIGHT INTO CLINICAL PROBLEMS, BETTER PREPARE THE STUDENTS FOR GRADUATE STUDY, BUT ALSO WOULD BETTER EDUCATE DENTAL PRACTITIONERS FOR THE MORE CHALLENGING ROLE THEY WILL HAVE IN THE FUTURE IN PROVIDING AND DIRECTING COMPREHENSIVE ORAL HEALTH CARE FOR THE PUBLIC. DENTAL PRACTITIONERS MUST BE SPECIALISTS OF THE ORAL CAVITY. The treatment they render, the drugs they use, and the operations they perform affect the patient totally as in many aspects of medical care.

5. PREPARE STUDENTS TO BETTER PLAN, EXECUTE AND DIRECT ORAL HEALTH CARE

Through earlier clinical experience, more time provided for oral diagnosis, total oral health care opportunities, and more effective instruction in treatment planning the students will be able to plan, execute, and supervise full treatment for the patients. Dentists in the future will prescribe more technical procedures to be carried out by laboratory technicians. Also, they will direct and supervise all clinical procedures assigned to dental auxiliary personnel.

6. TEACH STUDENTS TO WORK IN A TEAM APPROACH AND MORE EFFECTIVELY WITH AUXILIARY PERSONNEL

THIS IS UNDOUBTEDLY ONE OF THE KEY MEASURES IN OUR FUTURE PLANS. WITH NEED TO PROVIDE MORE AND BETTER ORAL HEALTH CARE, THE SCHOOL OF DENTISTRY IS OBLIGATED TO EXPERIMENT WITH THE DELEGATION OF CERTAIN CLINICAL DUTIES NOW PERFORMED BY THE DENTISTS TO AUXILIARY PERSONNEL. The concepts of increased group practice, team approach to oral health, practice near and in cooperation with health care centers and hospitals demand that we attract students able to work effectively in these environments and programs. Further, the students should have the temperament and ability to delegate and supervise treatment procedures.

One future plan is to create well designed and well equipped dental offices in the school. The students would work in these offices with several dental auxiliaries - one or two dental hygienists and assistants and a dental technician. Each unit would have four or five dental operating units and dental laboratory facilities. The student will perform complex clinical procedures, supervise routine clinical procedures done by the auxiliary people and prescribe procedures done by the technician.

There will be a number of these office units which will permit the student to perform many phases of clinical oral care in a given unit or he will limit the treatment to a special phase of dentistry. Thus, the student will have experience in a group of specialty practices and in general practice, but in both settings he will be working extensively with auxiliary personnel.

In these units, television cameras could monitor the student's activities. Further, the student could receive instruction via television. He will have available visual aids such as slides and film strips and descriptions of procedures for review or self-instruction. Programmed learning machines will be used in this plan where demonstrated to be effective.

7. TEACH THE STUDENTS TO WORK IN HOSPITALS AND COMMUNITY HEALTH CENTERS

It is essential that dental students receive full orientation to hospital protocol and practices and exposure to and experience in all feasible hospital dental activities. Services to patients will result from this program but the main purpose will be education of the students.

THE HOSPITAL DENTAL PROGRAM WILL BE MARKEDLY EXPANDED AND IMPROVED. THE STUDENTS MUST LEARN TO WORK EFFECTIVELY WITH THE CLINICAL AREAS OF MEDICINE AND THE MEDICAL LABORATORIES IN THE COMMON EFFORT TO PROVIDE BETTER AND MORE COMPLETE HEALTH CARE. They must learn to perform oral health services in these environments.

8. TEACH STUDENTS THE FUNDAMENTALS OF PRACTICE MANAGEMENT

This is a course of instruction which has been given limited attention in dental schools since there has been some question whether this is a responsibility of the schools. Yet, if the practitioner is inadequate and frustrated in practice management he might provide less effective oral health care for his patients. THUS, OUR SCHOOL SHOULD INCREASE THE QUALITY AND EXTENT OF COURSES IN PRACTICE MANAGEMENT TO BETTER PREPARE OUR STUDENTS FOR PRIVATE PRACTICE.

9. INCULCATE A COMMUNITY CONSCIOUS ATTITUDE AS A PART OF THE TOTAL DEVELOPMENT OF THE STUDENT

This implies that the school should provide improved counseling services, must instill in the student the desire to grow in all dimensions, and should provide some opportunities for fine arts, humanities and social science studies. We are interested in attracting students with broad educational backgrounds, continuing liberal arts exposure for the students and graduating individuals who will have a better understanding of their responsibilities to the community and their patients.

10. DEVELOP A MAJOR EDUCATIONAL PROGRAM IN PREVENTIVE DENTISTRY

TWO OF THE MOST COMMON DISEASES OF MAN ARE DENTAL CARIES AND PERIODONTAL DISEASE. OUR BEST HOPE TO CONTROL AND ELIMINATE THESE DISEASES IS THROUGH RESEARCH AND AN ACTIVE PROGRAM OF PREVENTION. In the undergraduate program, it is essential that we create an awareness of the importance of preventive dentistry. This is done by curriculum design, preventive clinical measures, faculty example, and by stressing to the students the value of public health measures.

11. PROVIDE FREE TIME, OFFER ELECTIVES AND HONORS COURSES

A fixed undergraduate program for all will be abandoned. The more gifted students will be given time for electives and self-pursued educational experiences. HONORS COURSES WILL BE DEVELOPED TO CHALLENGE THE TOP STUDENTS. THESE WILL INCLUDE MORE RESEARCH OPPORTUNITIES, ADVANCED CLINICAL EXPERIENCES, A HEADSTART ON GRADUATE STUDY, AND EXCHANGE PROGRAMS WITH OTHER UNIVERSITIES.

B. GRADUATE PROGRAMS

1. MARKED INCREASE PLANNED IN GRADUATE STUDENT ENROLLMENT

We expect to more than triple by 1980 our present number of graduate students to develop research investigators, educators and dental specialists.

2. DEVELOPMENT OF MORE RESEARCH INVESTIGATORS BY EXPANDED PROGRAMS

THIS WILL BEST BE ACCOMPLISHED BY EXPANDING AND IMPROVING OUR PRESENTLY SUCCESSFUL AND WELL REGARDED PH.D. PROGRAMS. In these programs, the major field of study is in a basic biological science or related discipline and the minor is in a special area of dentistry.

One program is the combined D.D.S. - Ph.D. plan which begins for the student after his Sophomore year in dental school and continues for at least six calendar years. The second is the postdoctoral Ph.D. program. With these excellent programs, we can develop competent investigators who will remain in dental research and dental education for our needs in Minnesota and also for other schools and research centers.

3. DEVELOPMENT OF DENTAL EDUCATORS

DENTAL EDUCATION WILL BEST BE SERVED BY INCREASING THE PROPORTION OF FULL-TIME FACULTY MEMBERS WHO HAVE ADVANCED EDUCATIONAL BACKGROUNDS. FROM MINNESOTA THESE PEOPLE WILL COME FROM OUR PH.D. AND M.S.D. PROGRAMS. In the latter program, the students earn the major in a special area of dentistry and a minor in a basic biological science or related field. These programs vary in length from 21-36 months. All efforts will be made to strengthen and expand the M.S.D. programs.

4. EDUCATE GRADUATE STUDENTS FOR DENTAL SPECIALTIES

These programs are designed at the M.S.D. level and should continue to include the accepted specialties of endodontics, oral pathology, oral surgery, orthodontics, pedodontics, and periodontics. Public health dentistry is the other dental specialty approved by the Council on Dental Education of the American Dental Association. THE SCHOOL OF DENTISTRY HAS NOT BEEN ACTIVE IN A PROGRAM TO TRAIN DENTAL PUBLIC HEALTH SPECIALISTS BUT IS WILLING TO COOPERATE AND ASSIST THE SCHOOL OF PUBLIC HEALTH IN SUCH A PROGRAM.

The faculty is motivated to keep pace with and lead in the development of educational programs for specialty practice. We will base these graduate programs on sound biologic principles, the most advanced concepts of clinical practice, and the requirement of research experience.

5. MORE POSITIVE GRADUATE STUDENT RECRUITMENT PROGRAM

One of the keys to assuring major progress in dentistry is to enroll exceptionally able students for graduate study. Special efforts will be made to attract the best candidates into our graduate programs. These efforts will extend into the high schools, colleges and undergraduate dental programs.

6. EXPAND INTERN-RESIDENCY PROGRAM

One of our major efforts will be to expand and improve markedly our intern-residency program in the University Hospitals and associated teaching hospitals. A NEW CHAIRMAN OF HOSPITAL DENTISTRY HAS BEEN NAMED. EXCITING PLANS ARE BEING FORMULATED TO DEVELOP A VERY ACTIVE, ENCOMPASSING HOSPITAL DENTISTRY PROGRAM. THIS WILL INCLUDE AN INTERN-RESIDENCY PROGRAM OF WIDE SCOPE AND DEPTH, greater opportunities for undergraduate students and more participation by the faculty. While considerable dental services will be available through these programs, the main purpose must be teaching and research.

7. DEVELOPMENT OF SPECIAL EDUCATIONAL PROGRAMS

Some of the special programs which have been planned principally for graduate study and faculty activity are a genetics center, cleft palate clinic and a maxillo-facial prosthetic program. THE GENETICS CENTER MAY WELL BECOME ONE OF THE MOST OUTSTANDING ACTIVITIES IN OUR GRADUATE AND RESEARCH PROGRAMS.

1 year - Dental Assistants
2 year Dental Hygiene

C. AUXILIARY PERSONNEL PROGRAMS

1. EXPECTED EXPANSION OF CURRENT PROGRAMS

At the present time, our two auxiliary dental personnel programs are the two year dental hygiene program and the one year dental assisting program. The graduates of dental hygiene perform oral hygiene procedures and work in dental offices, clinics, public health and school programs and in teaching programs. The graduates of dental assisting are not trained for or permitted by law to do any clinical procedures but assist the practicing dentists by doing a variety of helpful tasks.

The needs and demand for oral health services will increase. Many studies conclude that more and better oral health services can be provided through the utilization of auxiliary dental personnel. It is our intention to increase the enrollment in dental hygiene and dental assisting and to make all efforts to improve these programs.

The major purpose of our dental assisting program is not the training of the assistants per se but is the utilization of them in training dental students to work with auxiliary personnel.

IF THE CONCEPT OF TEAM DENTISTRY AT THE UNDERGRADUATE LEVEL DEVELOPS AT A RAPID RATE, THE ENROLLMENT FIGURES FOR THE DENTAL HYGIENE AND DENTAL ASSISTING PROGRAMS COULD EXCEED OUR PROJECTIONS LISTED ON PAGE FIVE OF THIS REPORT.

2. EXPERIMENTAL PROGRAMS FOR AUXILIARY PERSONNEL

AN EXPERIMENTAL PROGRAM WILL BE UNDERTAKEN TO DETERMINE THE KINDS OF CLINICAL DUTIES THIS TYPE OF PERSONNEL CAN ASSUME. Such a program

will likely be started with the dental hygienists who are capable students and, by law, are now permitted to perform some clinical procedures.

It might be possible for us to start some pilot practical experience program under the Public Health Service with a group such as the Indians. Another plan would be to develop the program in the dental school. The advantage of the latter proposal would be to integrate the work of this new level of personnel within the dental team training program.

THESE AUXILIARY PERSONNEL IN THE EXPERIMENTAL PROGRAM SHOULD BE TRAINED TO FUNCTION UNDER THE SUPERVISION OF DENTISTS. Continued guarantee of this supervisory relationship for private practice must be provided by law. It should be noted that any additional clinical duties assumed by auxiliary personnel would require a change in the dental practice act.

3. CHANGES IN ENTRANCE REQUIREMENTS AND PROGRAMS

ENTRANCE REQUIREMENTS MAY BE CHANGED IN DENTAL HYGIENE AND DENTAL ASSISTING TO INCLUDE MEN AND EXTEND THE AGE LIMIT BEYOND 35 YEARS. THE DENTAL HYGIENE PROGRAM MAY BE INCREASED TO THREE YEARS. The first year would be devoted to liberal arts courses and the next two years would be spent in the dental school. This would give the students a broader education and permit more time for clinical instruction and experimental efforts.

THE DENTAL ASSISTING PROGRAM WILL BE EXTENDED FROM NINE TO TWELVE MONTHS. For the first three months, the students will take General College courses, and the last nine months will be devoted to dental courses. This new plan will give the students more experience in dental assisting.

4. AID TO OTHER DENTAL ASSISTING PROGRAMS

If requested, the School of Dentistry will act in a consultative capacity in the development of dental assisting programs under college auspices.

D. POSTGRADUATE PROGRAMS

1. DEFINITION OF POSTGRADUATE STUDY

POSTGRADUATE EDUCATION AS INTERPRETED FOR THIS REPORT INCLUDES SPECIAL ADVANCED STUDY THAT DOES NOT LEAD TO A DEGREE, is of less depth than graduate study, AND IS OF LONGER DURATION THAN CONTINUATION STUDY but of less length than graduate study. While there isn't agreement on the distinction between postgraduate study and CONTINUATION EDUCATION, the latter SHOULD BE CONSIDERED IN THIS REPORT AS PERTAINING TO REFRESHER COURSES OF A FEW DAYS TO ONE OR TWO WEEKS IN LENGTH.

2. DEMAND FOR SUCH PROGRAMS

There is a need to provide opportunities for dentists and other health science professionals to enroll for special study in postgraduate courses as defined above. IT IS POSSIBLE THAT THERE WILL BE A MARKED INCREASE IN DEMAND FOR THIS KIND OF STUDY BUT WE HAVEN'T PROJECTED SUCH A TREND IN THIS REPORT. Postgraduate programs can be time consuming for the faculty and would require additional support if they are to be expanded.

ONE PLAN THAT MAY INFLUENCE THE EXTENT OF OUR PROGRAM COULD BE IF SABATTICAL STAFF APPOINTMENTS ARE OFFERED TO QUALIFIED PRACTITIONERS. These could be one to three months appointments and would involve instruction of dental students and provide the practitioner with opportunities to pursue his own interests.

REQUIREMENTS OF VARIOUS AGENCIES WITHIN THE DENTAL PROFESSION MAY INCREASE PRESSURE ON THE UNIVERSITIES TO OFFER EXPANDED POSTGRADUATE PROGRAMS. A prime example of this would be that DENTAL PRACTICE ACTS MAY REQUIRE CONTINUATION AND POSTGRADUATE EDUCATION FOR MAINTENANCE OF LICENSURE. Another influence may be that VARIOUS PROFESSIONAL ACADEMIES AND SPECIALTY GROUPS MAY REQUIRE POSTGRADUATE EDUCATION TO CONTINUE RECOGNITION GIVEN BY THESE GROUPS.

E. RESEARCH TRAINING PROGRAMS

1. EXPAND THESE PROGRAMS

We will provide undergraduates with more opportunities for research in the curriculum, special summer programs, and honors programs. Major emphasis in research training will, of course, be at the graduate level. Development of experience and knowledge in research methods will be one of the main missions of the Ph.D. programs and part of the M.S.D. program.

2. RESEARCH SUPPORT FOR FACULTY

This will include the provision of space and staff so the faculty will have room and time to pursue investigative projects. ANOTHER FORM OF RESEARCH SUPPORT FOR FACULTY WOULD BE THE DEVELOPMENT OF IN-SERVICE RESEARCH METHODOLOGY PROGRAMS. Research methodology will be an important aspect of the graduate programs and therefore it seems appropriate for the school to develop programs around experience and knowledge in this area.

F. CONTINUATION EDUCATION PROGRAMS

1. UPGRADE THE PROGRAM FOR DENTAL PRACTITIONERS

We now conduct approximately 15 short courses a year for over 350

oral health care people. The demands of the profession and improvement of educational techniques have combined to cause dental schools throughout the country to re-examine their continuation education programs. IN OUR SCHOOL EXISTING COURSES WILL BE REDESIGNED, NEW COURSES WILL BE INTRODUCED AND ALTERNATIVE FORMS OF EDUCATIONAL PROGRAMS WILL BE EXPLORED.

2. INCREASE THE OPPORTUNITIES FOR AUXILIARY PERSONNEL

With increased emphasis on the role of dental auxiliary personnel in the team approach at the undergraduate level, the school recognizes the need to extend educational opportunities to this group after graduation. OUR PROGRAMS WILL CONCENTRATE ON KEEPING AUXILIARY PERSONNEL ABREAST OF TECHNICAL DEVELOPMENTS AND METHODS IN WHICH THE DENTAL TEAM CAN FUNCTION MORE EFFICIENTLY IN PRACTICE.

3. EXTENSION INTO THE COMMUNITIES

WITH ADDITIONAL RESOURCES, THE SCHOOL COULD OFFER ONE AND TWO DAY COURSES IN THE LOCAL COMMUNITIES. This program would reach a larger number of practitioners and reflect an attitude of concern and interest of the school for the practitioners. HOPEFULLY, THIS EXTENSION TO THE COMMUNITY WILL BRING WITH IT SUCH IMPORTANT SHIFTS OF EMPHASIS AS THE ADVANTAGES OF A TEAM APPROACH WITHIN THE FIELD OF DENTISTRY AND THE IMPORTANCE OF INTEGRATION WITH ALL OF THE HEALTH SCIENCES.

4. COURSES FOR SPECIAL GROUPS

These programs would be for groups within and outside the field of dentistry, and may be given in cooperation with other units of the health sciences. ONE PARTICULAR AREA WOULD BE WORKSHOPS AND INSTITUTES ON TEACHING METHODS for our faculty and the faculty from other schools. RESEARCH METHODOLOGY IS ANOTHER CONTINUATION COURSE THAT COULD BE OFFERED TO SPECIAL GROUPS such as dental educators in dental schools and teaching hospitals.

SERVICE PROGRAMS

A. EXEMPLARY ORAL HEALTH CARE

The clinics program, the hospital program and other community programs all involve dental students. Therefore IT IS ESSENTIAL THAT THE SERVICES GIVEN IN THE SCHOOL AND ASSOCIATED FACILITIES SET A STANDARD WORTHY OF EMULATION BY THE STUDENT WHEN HE GOES INTO PRACTICE. It is also recognized that the reputation of the school is tested in a very tangible manner by the service rendered to every patient.

B. PROVISION OF EXTENSIVE CONSULTATIVE SERVICES

An extension of the direct care to the patient, is the consultative service to the referring practitioner or other health science professionals. Some of the consultative services we now offer or will begin are:

1. A biopsy and cytological service, which can be increased as needed.

2. Will establish a laboratory to provide aids and tests in the control of caries. This service will be available to practitioners.

3. Response to inquiries from practitioners and the posting of consultative reports.

C. SHARE AND DISSEMINATE ORAL HEALTH KNOWLEDGE

The school recognizes that a program is needed to meet the objective of sharing oral health knowledge with the health professions and the public. Some of the programs we have and will develop to carry out this objective are:

1. Participation in public health programs e.g. efforts to start a fluoridation system in a community. Some of our faculty have been very active in this way, and we should be prepared to continue this valuable service.

2. Increased involvement, as time permits, in public health programs such as cancer detection clinics. These clinics are designed to alert the public and to educate the dentists and physicians.

3. Speaking on various dental subjects, such as preventive dentistry, before P.T.A. groups and civic clubs.

4. Increased activity in teaching continuation education courses at the University and in the communities.

5. Taking an active part in dental society affairs at the local, state and national levels.

6. Making a positive effort to release to the communication media articles on oral health measures and research findings.

7. Increasing contributions to the scientific literature and at scientific meetings.

D. PROGRAM FOR SOCIAL RESPONSIBILITY AND SENSITIVITY

This is the kind of program that cannot be described, measured, documented or readily made tangible. FACULTY ATTITUDE, CONCERN FOR THE DIGNITY AND IMPORTANCE OF THE INDIVIDUAL PATIENT, RESPONSIVENESS TO REQUESTS FROM INDIVIDUAL PRACTITIONERS AND COMMUNITY AGENCIES ARE ALL A PART OF THIS VERY IMPORTANT PROGRAM. Our lofty objectives and earnest teachings could all be lost if the school did not concern itself with a

philosophy or attitude which will insure that the best of what is taught is also practiced. It is said that teaching and service are inseparable. Therefore the teaching program could be seriously undermined by a careless, insensitive service program of execution.

RESEARCH PROGRAMS

A. EXTENT OF ORAL DISEASES - NEED FOR RESEARCH

THE PREVALENCE OF ORAL DISEASES IN THE UNITED STATES CLEARLY INDICATES THAT OUR PRESENT METHODS OF CONTROL, PREVENTION AND AVAILABILITY OF TREATMENT ARE GROSSLY INADEQUATE. Reports in the Survey of Dentistry and in a recently published survey by the United States Public Health Service reveal the following statistics on the oral health problems in the American population.

1. Among the 10 percent of children under five years of age who visit the dentist, only one of three is free of untreated carious lesions; one of 10 has eight or more cavities.

2. One child out of five needs orthodontic treatment for afflictions ranging from faulty alignment of teeth to severe facial deformity. One out of 800 children is born with a cleft lip or palate.

3. In the year 1960 there were 700 million untreated dental cavities.

4. Diseases of supporting bones and gingival tissues affected at least half of the population by the age of 50 and almost everyone by age 65.

5. Adults had an average of 20.4 decayed, missing or filled teeth per person.

6. One in four adults had no natural teeth remaining in either one or both jaws and nearly one in two had lost all teeth by 65-74 years.

7. ONLY A LITTLE OVER 40 PERCENT OF THE POPULATION VISITS THE DENTIST EVERY YEAR, AND ONLY ONE-THIRD OF THE DENTAL ILLS OF THE NATION ARE BEING TREATED. 20% OPTIMAL

8. Twenty thousand persons develop oral cancer each year.

THE IMMENSITY OF THESE ORAL HEALTH PROBLEMS DEMANDS THAT DYNAMIC, AMBITIOUS FUNDAMENTAL AND APPLIED RESEARCH PROGRAMS BE LAUNCHED THROUGHOUT THE COUNTRY TO DETERMINE THE CAUSES AND MEANS OF PREVENTION AND ELIMINATION OF THESE DISEASES.

B. RESEARCH MISSION OF THE SCHOOL OF DENTISTRY

Although the School of Dentistry has developed a productive research program in recent years, all efforts will be made to increase and improve our research and research training activities. FUNDAMENTAL RESEARCH WILL

BE EXPANDED, BUT WE WILL NOT LOSE SIGHT OF OUR CONTINUING MAJOR RESPONSIBILITY IN THE AREAS OF DENTAL CARIES, PERIODONTAL DISEASE, AND ORAL AND FACIAL GROWTH AND DEVELOPMENT.

Research activity must fluorish in all segments of the school but will be in different forms and at different levels of complexity and depth. BASIC RESEARCH IN THE QUEST FOR FUNDAMENTAL NEW KNOWLEDGE WILL BE PROMOTED. CLINICAL AND PEDAGOGICAL STUDIES WILL BE ENCOURAGED AND SUPPORTED.

Our research training programs will receive positive attention and will be expanded as resources permit. IT IS HOPED THAT FACILITIES AND FUNDS WILL ALLOW US TO TRAIN MORE FOREIGN STUDENTS IN DENTAL RESEARCH AND TO INCREASE THE EXCHANGE OF RESEARCH INVESTIGATORS AND DENTAL EDUCATORS WITH OTHER COUNTRIES. This interchange will be mutually helpful to all concerned and will further the cause of international goodwill.

We will maintain an environment which will result in attracting and keeping competent and productive investigators. The school will actively seek financial support from the University, private sources and federal funds to provide the physical facilities, equipment, technical staff and a deversified research faculty to permit greater emphasis on research. A CONSERVATIVE ESTIMATE WOULD BE THAT OUR PRESENT RESEARCH SPACE NEEDS TO BE INCREASED AT LEAST FOUR TIMES TO GIVE US THE FACILITIES NEEDED FOR OUR PROJECTED RESEARCH AND RESEARCH TRAINING PROGRAMS.

C. FUNDAMENTAL RESEARCH PROJECTS

Our over-all fundamental research program will become multidisciplinary, more sophisticated, and increasingly integrated with other research programs in the University. The following are some examples of basic research projects which are being done or likely will be done in our laboratories.

1. The complex dental caries process demands research in the crystal and organic components of enamel which has as its background a search into the origins of calcified tissues and the mineralization process in general. Our research people in biochemistry and other areas will continue to attack these and other aspects of the caries process.

2. Studies on the transmissibility of dental caries through germ-free experiments and other microbiological investigations.

3. Collagen, the principal component tissue of periodontal structures, degenerates in periodontal disease. It is reasonable to assume that fundamental research will give new insight regarding the basic mechanisms involved in maintaining the integrity of periodontal structures, including alveolar bone, and provide an explanation at the molecular level of the pathogenesis of collagen tissue breakdown in periodontal disease.

4. Investigation will be continued on determining the best implant material for bone induction in the periodontium and to determine how the material induces bone formation.

5. Research will continue in the microcirculation and gross circulation of teeth, bones and soft tissue. One current application of this study to clinical dentistry concerns the preservation of pulpal vitality in human teeth.

6. Neurophysiological approach to myographic studies. Clinical studies can be done as well with this basic technic to determine neuromuscular imbalance from malocclusion.

7. Studies on bacterial genetics will continue and immunological aspects of transplantation will be investigated at the basic and clinical levels.

8. Study of the embryological mechanisms adversely affected to produce palatal and other deformities. Experimental teratogenesis will contribute further to the understanding of oral and facial growth and development.

9. A very challenging basic research project in dental materials would be to develop a restorative material with positive adhesive qualities, excellent esthetics, highly durable, easily manipulated and non-toxic.

D. CLINICAL RESEARCH PROJECTS

Clinical investigations with sound biologic bases are being done and will increase in number and quality in the future. Some appropriate examples are the following.

1. Tolerance of dental pulp to filling materials and to the high speed cutting techniques for removal of enamel and dentinal tissues.

2. As in orthodontics, studying the biologic reactions in bone to applied stresses.

3. Epidemiological studies of dental caries, oral cancer, oral and facial anomalies, periodontal disease and other oral problems. Epidemiological investigations provide a composite picture of the natural history of disease and promise to reveal useful data on the incidence and causes of oral diseases.

4. Psychosomatic aspects of oral diseases.

5. Physiological and pharmacological reactions to various systemic and topical drugs used in clinical dentistry e.g. general and local anesthetics.

6. Human genetics and the study of oral and facial syndromes and deformities.

7. The implication of a specific group of pleuropneumonia-like organisms in the etiology of oral diseases such as recurrent aphthous stomatitis.

8. Bone and soft tissue healing considering such factors as blood supply, contamination and trauma.

E. STUDIES OF EDUCATIONAL METHODS

Pedagogical methods will be investigated. These research projects can be more difficult than basic laboratory investigation because of the variabilities of the subjects. We expect to have assistance from educational psychologists in the design and implementation of these studies. The following are examples of projects that will be initiated.

1. Determine the quality, validity and reliability of different examination methods.

2. Compare the value and effectiveness of teaching techniques e.g. live lectures, television and seminars.

3. The application of various preclinical techniques to clinical dentistry.

4. Careful consideration will be given to determining the quality of our product - the graduates.

5. Programmed learning will be studied carefully and used where feasible and determined worthwhile.

6. Data processing will be installed to record examination results; maintain variety, quality and quantity control of clinical procedures; analyze the grading patterns of the faculty; and maintain patient records.

F. RESEARCH INSTITUTE OR CENTER

EFFORT WILL BE MADE TO DETERMINE THE POSSIBILITY AND FEASIBILITY OF DEVELOPING A RESEARCH INSTITUTE. All resources for funds should be explored including federal funds. The Institute could be a part of or separate from the School of Dentistry. If separate it should be so organized that easy interaction can be developed between the School of Dentistry and the Institute.

UNIVERSITY OF MINNESOTA
Minneapolis 14

Office of the President

COMMITTEE FOR THE STUDY OF PHYSICAL FACILITIES FOR THE HEALTH SCIENCES

Minutes of Meeting August 9, 1965 (#10)

Present: Elmer Learn, Chairman, Gaylord Anderson, Winston Close, Lyle French, Sterling Garrison, N. L. Gault, Jr., Isabel Harris, Mellor Holland, Robert Isaacson, Frederic Kottke, Richard Magraw, Erwin Schaffer, Judith Furber, John Westerman.

Absent: Edna Fritz, Gertrude Gilman, Eugene Grim, Robert Howard, Ione Jackson, James Jensen, James Stephan.

Guests: Manual Bobenreith, Mc Collum Brasfield, Carl Heggestad, Glenn Mitchell.

NEXT MEETING MONDAY, SEPTEMBER 13, 1965, 3:30 P.M., 510 DIEHL HALL

PRESENTATION OF OUTLINE BY BASIC SCIENCES SUB-COMMITTEE

1. Chairman Learn welcomed the guests to the meeting. Dr. Learn noted that he was particularly pleased to see members of the dental sub-committee present for the preliminary report of their group.

2. Dr. Learn commented on the loss of Dr. Barnum, mentioning Dr. Barnum's gifts as an individual and contributions to the committee and University.

3. A timetable for future meetings was proposed:

September 13	Report of Basic Sciences and Public Health
September 27	Report of Hospital Task Force and Clinical Medicine
October 11	Report of Nursing and Ancillary

Dr. Anderson said the Public Health Sub-Committee would have some problems with this deadline because so many of the key faculty members are out of town. Dr. Learn asked Mr. Westerman to meet with Dr. Anderson and work out a suitable time for the report. There appeared to be no conflicts with the other sub-committees in meeting this schedule.

4. Since the July 12th parent committee meeting, the following minutes and materials have been posted to members of the committee:

Minutes

A. Hospital Task Force June 28 (#4)
B. Dentistry July 6 (#5)
C. Nursing July 9 (#6)
D. Clinical Medicine July 9 (#4)
E. Parent Committee Minutes of July 12 (#9)

F. Public Health July 19 (#3)
G. Hospital Task Force July 26 (#5)
H. Hospital Task Force July 29 (#6)
I. Public Health July 29 (#5)

Papers

A. Health Sciences Center, John McCreary, Dean University of British Columbia.
B. Plan & Concepts of the UBC Health Sciences Centre Reflecting the Health Team Approach by James Stephan.
C. Clinic Directors Report to the Learn Committee, July 8, 1965, under the signature of James B. Carey Jr., MD chairman, Clinic Directors Group.
D. Excerpts from Principles of Hospital Design prepared by James Stephan.
E. Planning of Medical Schools - Study Plan by Dr. Ing Gerd Fesel, Dipl-Ing Wolfgang Doring.

5. The following sub-committee meetings have been held for which minutes were not available on August 9.

Minutes

A. Clinical Medicine Task Force July 19, (#5)
B. Public Health July 22 (#4)
C. Clinical Medicine Task Force August 2 (#6)
D. Public Health August 5 (#6)
E. Dentistry August 5 (#6)

6. PRESENTATION BY MELLOR HOLLAND

(Note: These minutes will also serve as the dental sub-committee minutes of August 5, 1965 (#6), as much of the same material was covered. Attending the meeting on August 5th were: Mellor Holland, Chairman, Allyn Bridge, Carl Heggestad, Jo Ann Hubbard, James Jensen, Glenn Mitchell, Leon Singer, John Westerman. W. Albert Sullivan was absent. The sub-committee approved a preliminary report for the Learn Committee.)

Dr. Holland made his main presentation from a report prepared and approved by the Dental Sub-committee for the members of the Committee for the Study of Physical Facilities for the Health Sciences. A copy of the report is appended to these minutes.

In his introductory remarks, Dr. Holland said that the dental sub-committee was happy to be the first sub-committee to present to the Learn committee. The reason this group was able to present at this time is due to the interest and work of the sub-committee members. Dr. Holland then mentioned his sub-committee by name. Another reason facilitating the presentation is the work of the curriculum committee within the School of Dentistry. This committee, structured in a similar fashion to the Learn committee, has just completed a three year study of the curriculum and many of the recommendations from the curriculum committee are

incorporated in the sub-committee report. Dr. Jensen, from the Learn committee, has served as chairman of the curriculum committee. Implicit in the work of the curriculum committee has been a thorough interaction and consultation with the faculty on matters contained in the report.

Dr. Holland then gave a brief background of the history of this Dental School and its relationship to major trends in dental education and practice. The first Dental School in the world was founded in Baltimore, Maryland in 1840. The University of Minnesota School of Dentistry was founded in 1888. Thus it can be seen, unlike our colleagues in law and medicine, that the dental profession itself is very young, and that it has developed in the United States, as opposed to being exported from Europe. The school at Minnesota steadily improved until by the 1920's and 1930's the school was world famous for its restorative dentistry. Research, graduate study, and continuation education received little emphasis at Minnesota and other schools during this period. In the 1950's, under Dean Crawford, Minnesota began the emphasis on research, preventive dentistry, and obtaining full time faculty. This was really the start of what we are doing today and are planning for the future.

One of the chief sources of reference used by the sub-committee is a book, "Survey of Dentistry." Many of the recommendations of this book are incorporated in this report. An abstract of the book has been circulated to members of the Learn committee.

Dr. Holland then highlighted the written report.

QUESTION: Dr. Holland, what do you mean by team approach? It seems as though you are using it in two different ways. Yes, that should be made more clear. On page 7 of the report I am using it in terms of a dental team. There are other references where I refer to the total health science team.

QUESTION: Why have you made such a point of disclaiming the education of dental assistants as such? Is it because they are not useful? No, but I wanted to point out the training of this group is related to the number than can be used in the educational program. It is not the intent of this school to turn out as many dental assistants as possible. We believe there are other resources in the community that can turn out large numbers of students. The University program should have a special function.

COMMENT: It is pleasing to note that you have included as an objective a more closely integrated program with the College of Medical Sciences in teaching, research and service. We do have cooperation among our faculty members but if we move into new facilities, I think we could achieve your objective even sooner. The recent appointment of a person to direct the hospital dental program seems to be a good step toward better integration.

COMMENT: Another excellent thing about your report is that in many places the objectives literally ask or point up the question of what facilities will be needed.

QUESTION: Why have you separated the concept of a research institute from the regular school program? Well, I think it would be better as part of the school, but legislation requires that the institutes be separate. This does not mean that the activities will not be coordinated in the total school program.

QUESTION: Do you plan to include the research projects you have listed in your final report? I think we probably will.
If you feel these are the areas dentistry will be working in in the next 10-20 years, I would worry about your limiting yourself with such a statement. We do not regard this as a limiting document. Specific projects are listed only by way of illustrating some of the general trends affecting the research programs.

QUESTION: I think this is a well written and interesting report. Earlier we heard some information on the topic of eradicating caries. Could you go over that material again? Dr. Holland has that information in page 15 of this report. In general, 1/3 of the population receives necessary dental care and about 20% receive optimal care.

COMMENT: I'm struck by the perspective one gets by these figures (also in medicine) in that the practice of dentistry is very satisfying from the point of view of the individual dentist but is less satisfactory from the point of view of the community.

QUESTION: Several of your objectives carry the phrase "social responsibility". Is this concept accepted by your faculty or is the objective just a pie in the sky? Many, although not all, on our faculty accept this concept. In general, the more forward looking people would accept the idea.

QUESTION: I notice the concept of team dentistry is mentioned several times. What are the pressures for team dentistry? Does it come from federal sources with supporting money? Does it come from the practicing dentists? I think a big reason is the statistical pressure. There simply aren't enough dentists to meet the demand.

QUESTION: What are the attitudes in other schools in regard to the idea of team dentistry and social responsibility? We are among the more progressive schools. These ideas are being discussed, but as far as being implemented -- if we applied to the USPHS for support, Alabama would be the only other school that has taken action.

QUESTION: In terms of patient loads, it would seem you could readily count on a 50% increase, using more auxiliary personnel. So you must be looking forward with some confidence that your program will be adopted? Yes, actually 60% is the figure we were thinking of that just don't get to a dentist. They do not go because of fear, ignorance and financial reasons. Most oral diseases are not painful, and if there is no pain people stay away. Dental service is then looked on as a luxury. We believe team dentistry will provide more dental coverage for less money.

COMMENT: Thinking of South Dakota, the dentists there lobbied through a measure setting up a public health dental sub-division and then limited the activities of

this division to educational matters. South Dakota has the oldest dentists in the country and the unmet needs of the population could be helped by the use of auxiliary personnel in conjunction with a different pattern of using professional dentists. This has been prevented and people still must travel 50 miles to get dental care.

COMMENT: You say one must go 50 miles to see a dentist? Well I don't think that is so bad. It is only a one hour drive and dental emergencies can wait that long. I've heard this same argument with the location of physicians and I think the transportation facilities today undermine the theory of having a doctor or dentist in every hamlet. Also, the dentist can do much more per unit of time today.

QUESTION: Who will train the auxiliary personnel? I'm thinking this may be a subject for the Hill Commission for what if we don't have enough ancillary personnel to carry out this team concept? There are other sources at Mankato, Brainerd, and Bemidji.

QUESTION: Do you have sufficient communication to develop these programs in tandem with the University program? It is our intent to develop a program to teach teachers for auxiliary people. Other programs could be conducted in Junior Colleges.

COMMENT: I notice at least two places where there are implications for other subcommittees. There are suggestions for public health-dental cooperation; implications for an expanded hospital program, and implications for the basic sciences group. I hope the sub-committee chairmen will carefully review these reports so that in the final report we will have no conflicts or gaps. WOULD YOU PLEASE READ THIS REPORT WHEN YOU HAVE LEFT THE MEETING AND FORWARD YOUR COMMENTS TO DR. HOLLAND WITH A COPY TO MR. WESTERMAN.

COMMENT: I would like to re-emphasize the existence of two levels of teaching in the basic sciences. This is understandable because of the greater depth required in the medical school. Our goal in the dental school is to upgrade our student body and program so there won't be a need for two levels of basic science instruction. You can't separate oral health. We need the same depth of instruction. Actually there are areas where the dental student needs greater depth than the medical student. Unless we move to achieve this goal, we will be missing the bet in education. Much of our difficulty goes back to the lack of preparation of dental students. This can be helped in two ways.

1. Our image over the years has been that dentistry is mainly a technical-mechanical profession. If we go to the concept of using auxiliary personnel to aid the dentist, then we can shift our educational emphasis to the biological level. So I would give a charge to the basic sciences committee to have the same courses for medical and dental students in four or five years.

2. In the future, post-graduate and continuation education will not be so much on what new skills have been developed, but on the why of new skills.

In the future these programs will have more of a biologic basis. Dr. Holland, you and your sub-committee should be complimented on the excellent job you have done. This has been a very good report.

Respectfully submitted,

John H Westerman
Executive Secretary

UNIVERSITY OF MINNESOTA

SCHOOL OF DENTISTRY

August 9, 1965

TO: MEMBERS OF THE COMMITTEE FOR THE STUDY OF PHYSICAL FACILITIES FOR THE HEALTH SCIENCES

Attached is a preliminary report of the roles, objectives, and programs of the School of Dentistry. The report was approved by the Subcommittee for Dentistry on August 5, 1965. The members of the Subcommittee are:

Allyn G. Bridge, Associate Professor, School of Public Health

Carl B. Heggestad, Associate Professor, Department of Anatomy

JoAnn R. Hubbard, Instructor, School of Nursing

James R. Jensen, Professor, School of Dentistry

Glenn R. Mitchell, Associate Director, University Hospitals

Leon Singer, Professor, Department of Biochemistry

W. Albert Sullivan, Associate Professor of Surgery and Director, Continuation Medical Education

John H Westerman, Executive Secretary, Committee for the Study of Physical Facilities for the Health Sciences

Mellor R. Holland, Chairman
Subcommittee for Dentistry

I. ROLES OF THE SCHOOL OF DENTISTRY

The roles of the School of Dentistry in teaching, service and research are inseparable and are closely interwined in programs serving the people of Minnesota.

A. The teaching role of the School of Dentistry is to OFFER undergraduate, graduate, postgraduate, research and continuation education PROGRAMS to dental students, dental auxiliary students, dental practitioners, members of other health professions and other members of the University community.

These programs are and will be primarily for Minnesota students at the undergraduate level, for practicing dentists of the region at the continuation education level and for the best qualified students at the graduate, postgraduate and research levels. This teaching role is carried out mainly in the School of Dentistry, the University Hospitals, and basic science departments, but will also include participation with and within other departments of the University and the community.

B. The research role of the School of Dentistry is to PROMOTE RESEARCH BY DYNAMIC FUNDAMENTAL AND APPLIED RESEARCH PROGRAMS which emphasize biologic aspects of oral health, oral disease and preventive dentistry.

This program will achieve the further goal of developing research personnel for Minnesota and other research centers. The program thus serves as a source of academic dentists and has the purpose of contributing to national and international health programs.

C. The service role of the School of Dentistry is to SERVE THE POPULATION of the state and the PRACTICING DENTISTS AND OTHER HEALTH SCIENCE PROFESSIONALS on a referral and non-referral basis with the HIGHEST QUALITY OF COMPREHENSIVE CONSULTATIVE CARE. This role may include varying degrees of responsibility for the provision of oral health care as a function of total health care.

D. A role of the School of Dentistry is to EXPERIMENT WITH PATTERNS OF ORAL HEALTH CARE and to INCORPORATE THE MOST ADVANCED DENTAL PRACTICES into the service programs. This experimental role includes the investigation, application and measurement of educational methods.

The School has no statutory or administrative obligation for any group of patients, but historically has given service to patients referred by practicing dentists, referred from University Hospitals and self-referred patients as are appropriate for the teaching programs.

E. A role of the School of Dentistry, as a sum total of the above roles, is to SERVE AS A LEADER IN THE QUEST TO IMPROVE ORAL HEALTH AS A FUNCTION OF TOTAL HEALTH CARE in society and establish and improve relationships with the community.

II. OBJECTIVES OF THE SCHOOL OF DENTISTRY

TEACHING OBJECTIVES

A. TO PREPARE UNDERGRADUATES FOR HIGH QUALITY DENTAL PRACTICE, THROUGH THE ACQUISITION OF SKILLS, KNOWLEDGE AND ATTITUDES essential to the practice of dentistry.

Further objectives of the undergraduate programs are to increase the emphasis on liberal arts and the basic sciences, with less emphasis on preclinical dental techniques. Our goal is to improve the ability of the student to diagnose and help him to better understand the causes of disease. The student must become oriented to an understanding of the patient's total health and be able to better plan, execute and direct oral health treatment with an emphasis on preventive measures. The educational environment should provide the opportunity for the student to be familiar with practicing in hospitals and community health centers, acquaint the students with the fundamentals of practice management and provide the student with experience in working with auxiliary personnel and practicing team dentistry as an integral part of total health care.

B. TO PROVIDE GRADUATE LEVEL TRAINING FOR THE PREPARATION OF INDIVIDUALS INTERESTED IN CAREERS IN RESEARCH, ACADEMIC DENTISTRY AND SPECIALTY PRACTICE

Included in this objective is the need to continue to attract the best candidates, increase the numbers of graduate students, particularly at the Ph. D. and combination D. D. S. - Ph. D. level and to improve the graduate programs.

C. TO DEVELOP DENTAL AUXILIARY PERSONNEL through programs designed to assist the practicing dentist and explore new areas where auxiliary personnel may assume duties that are consistent with their skills and training.

Our objective is to increase the student body in dental hygiene and dental assisting programs with improved curriculums that will attract the best qualified applicants.

D. TO RECRUIT AND ATTRACT THE BEST QUALIFIED STUDENTS INTO THE SCHOOL'S TEACHING PROGRAMS.

This means the recruitment and education of the best qualified individuals to be skillful, within their chosen area, in the art of dentistry, knowledgeable in the science of dentistry and sensitive to the obligations of a professional person in general and to a member of a health profession in particular. Further, the students should become motivated to do research, think critically about the information available and to understand public health needs and preventive dentistry.

E. TO UTILIZE THE MOST ADVANCED TEACHING METHODS in a curriculum subject to constant review, consistent with the mission of the school. Experimentation in the curriculum should be pursued and imaginative programs developed.

F. TO PROMOTE MEANINGFUL PROGRAMS OF CONTINUATION EDUCATION primarily for practitioners in the region.

These programs will be conducted with the realization that there is a valuable exchange of knowledge between the school and the practitioners or health science workers to the mutual benefit of both parties.

G. TO PROVIDE OTHER HEALTH SCIENCE WORKERS AND THE UNIVERSITY COMMUNITY appropriate insights into the subject of oral health.

H. TO INFORM AND INFLUENCE SOCIETY and our community about the benefits of good oral health.

I. TO BETTER INTEGRATE THE TEACHING PROGRAMS OF THE SCHOOL OF DENTISTRY WITH THOSE OF THE COLLEGE OF MEDICAL SCIENCES AND THE UNIVERSITY.

This improved cooperation would also be desirable in service, research and administrative areas.

J. TO PROVIDE MORE EDUCATIONAL OPPORTUNITIES IN HOSPITALS AND COMMUNITY HEALTH CENTERS FOR UNDERGRADUATE AND GRADUATE STUDENTS.

These opportunities should be developed in the University Hospitals, associated teaching hospitals, the Mayo Graduate School of Medicine and Mayo Clinic, the newly planned out-patient clinic and other appropriate health centers.

K. TO TAKE APPROPRIATE MEASURES TO ATTRACT AND RETAIN A COMPETENT FACULTY to accomplish the above objectives.

This requires a recognition of the importance of the teaching function and providing educational opportunities for faculty members. The number of full-time faculty members and half-time faculty members will be increased.

SERVICE OBJECTIVES

A. TO PROVIDE EXEMPLARY CARE for patients treated in the clinic.

This includes diagnostic, restorative and preventive oral health care. The efforts of the school will be better coordinated with the community practitioners and other health agencies.

B. TO PROVIDE A PROMPT, EFFICIENT CONSULTATIVE SERVICE to dental practitioners, medical practitioners and other health science professionals.

C. TO PROMOTE AND COOPERATE WITH COMMUNITIES on oral health service projects that are consistent with the mission of the dental school.

D. TO ELEVATE THE STANDARDS OF DENTAL PRACTICE IN THE COMMUNITY.

E. TO DEMONSTRATE AN ATTITUDE OF SOCIAL RESPONSIBILITY AND SENSITIVITY in the dental profession by the way in which service programs are undertaken and carried out.

F. TO SHARE AND DISSEMINATE MEANINGFUL ORAL HEALTH KNOWLEDGE with dental practitioners, other health science workers and the public.

RESEARCH OBJECTIVES

A. TO PROVIDE AN ENVIRONMENT FOR RESEARCH WHICH WILL RESULT IN ATTRACTING AND RETAINING COMPETENT AND PRODUCTIVE INVESTIGATORS.

B. TO ADVANCE THE KNOWLEDGE OF ORAL HEALTH with an active, expanding fundamental and applied research program.

C. TO INVESTIGATE VARIOUS EDUCATIONAL METHODS and develop new techniques and measurements capable of evaluating the educational programs to determine the need for change and improvement.

D. TO INVESTIGATE COMMUNITY ORAL HEALTH PROBLEMS.

E. TO ENGAGE IN FUNDAMENTAL RESEARCH ACTIVITIES, BIOLOGIC IN NATURE, BUT NOT NECESSARILY CONFINED TO ORAL STRUCTURES. Applied research will be conducted in such appropriate areas as clinical dentistry, epidemiology, genetics and public health studies.

F. TO INVESTIGATE THE CAUSES OF ORAL DISEASE AND ELEMENTS OF PREVENTIVE MEASURES.

G. TO DEVELOP AN ENVIRONMENT CONDUCIVE TO FREE AND OPEN INQUIRY into all facets of health, disease and education applicable to the role of dentistry in total health care.

III. PROGRAMS OF THE SCHOOL OF DENTISTRY

PROJECTED STUDENT LOADS

Program	Present Loads	*Projected for 1980
Four year D.D.S.	110 in freshman class	150
Dental Hygiene	50 in freshman class	150
Dental Assisting	35 in freshman class	150
Graduate Study	Total of 40	125
Postgraduate Study	Total of 8	35
Continuation Education	Average 375 annually	800

*These projections may be realized by 1975.

TEACHING PROGRAMS

A. FOUR YEAR D.D.S. PROGRAM

1. RECRUITMENT OF HIGH QUALITY STUDENTS

A MORE ACTIVE AND FORCEFUL RECRUITMENT PROGRAM WILL BE INITIATED TO ENCOURAGE EXCEPTIONALLY ABLE YOUNG MEN AND WOMEN TO PURSUE DENTAL CAREERS. An aggressive effort will be made to inform high school and college counselors and students of the challenging and changing role of the dental profession. This information function will be carried out by University faculty and staff members.

2. INCREASED PREDENTAL LIBERAL ARTS BACKGROUND

A proposed program will increase the minimum entrance requirement to three years; raise the minimum acceptable admission G.P.A.; require comparative anatomy, quantitative chemistry, stronger physics course, college algebra, and possibly an introductory calculus course; and establish distribution requirements to provide a broad liberal arts education.

3. IMPROVEMENT OF UNDERGRADUATE CURRICULUM

AN UPGRADING IS NEEDED IN ALL AREAS OF THE CURRICULUM. RECOMMENDATIONS FOR CURRICULAR CHANGES HAVE BEEN SUBMITTED AFTER A THREE YEAR STUDY AND THE SCHOOL IS NOW IN POSITION TO IMPLEMENT THE RECOMMENDATIONS AS RESOURCES PERMIT. The program should be structured to provide an education which will permit the graduates to plan, execute, guide and supervise the best possible oral health care for the patients. Allocation of time for the dental technic courses will be sharply reduced and clinical conditions will be simulated in these courses as much as possible. The most

modern concepts of clinical practice will be taught with an interdisciplinary approach and an emphasis on total oral health care. The basic biological sciences must have greater emphasis and be taught at the highest level.

4. MORE BIOLOGIC ORIENTATION

THERE WILL BE INCREASED EMPHASIS IN ORAL MEDICINE AND ORAL BIOLOGY TO IMPROVE THE STUDENT'S BASIC UNDERSTANDING OF ORAL DISEASES AND HIS ABILITY TO DIAGNOSE AND TREAT THESE DISEASES.

THE STUDENT SHOULD HAVE A KEENER UNDERSTANDING OF CLINICAL MEDICINE IN ITS BROAD CONCEPT. THIS MEANS THAT HE MUST RECEIVE SOME INSTRUCTION AND EXPOSURE TO GENERAL PHYSICAL DIAGNOSIS AND LABORATORY MEDICINE. It is intended that the faculty for this program will be physicians and medical technologists. This plan will permit the students and the practitioners to provide more effective and integrated oral health care as part of total health care. With the certainty that dental practitioners will be very active in hospitals and comprehensive health care centers, instruction in physical diagnosis and laboratory medicine for the dental students seems particularly pertinent.

IN THIS CONNECTION, UPGRADING OF THE BASIC SCIENCES IS IMPERATIVE WITH A GREATER EFFORT TO CORRELATE THE BASIC SCIENCES AND CLINICAL DENTISTRY. Basic science instruction for the dental students should be of the same quality as that given the medical students.

One plan could be to have the dental and medical students in combined classes with no attempt to identify the two groups. If this is implemented, then applied courses in the basic sciences could be taught separately in a vertical or diagonal curriculum. If the classes remained separated, slightly different emphasis could be included in the basic courses. For example in gross anatomy, head and neck dissection could be given stronger emphasis for the dental students. Slight variations could be made in other basic sciences but the courses for the dental students should be of high quality and depth.

THE GREATER EMPHASIS ON BASIC SCIENCES WILL GIVE THE STUDENTS BETTER INSIGHT INTO CLINICAL PROBLEMS, BETTER PREPARE THE STUDENTS FOR GRADUATE STUDY, BUT ALSO WOULD BETTER EDUCATE DENTAL PRACTITIONERS FOR THE MORE CHALLENGING ROLE THEY WILL HAVE IN THE FUTURE IN PROVIDING AND DIRECTING COMPREHENSIVE ORAL HEALTH CARE FOR THE PUBLIC. DENTAL PRACTITIONERS MUST BE SPECIALISTS OF THE ORAL CAVITY. The treatment they render, the drugs they use and the operations they perform affect the patient totally as in many aspects of medical care.

5. PREPARE STUDENTS TO BETTER PLAN, EXECUTE AND DIRECT ORAL HEALTH CARE

Through earlier clinical experience, more time provided for oral diagnosis, total oral health care opportunities, and more effective instruction in treatment

planning the students will be able to plan, execute and supervise full treatment for the patients. Dentists in the future will prescribe more technical procedures to be carried out by laboratory technicians. Also, they will direct and supervise all clinical procedures assigned to dental auxiliary personnel.

6. TEACH STUDENTS TO WORK IN A TEAM APPROACH AND MORE EFFECTIVELY WITH AUXILIARY PERSONNEL

THIS IS UNDOUBTEDLY ONE OF THE KEY MEASURES IN OUR FUTURE PLANS. WITH NEED TO PROVIDE MORE AND BETTER ORAL HEALTH CARE, THE SCHOOL OF DENTISTRY IS OBLIGATED TO EXPERIMENT WITH THE DELEGATION OF CERTAIN CLINICAL DUTIES NOW PERFORMED BY THE DENTISTS TO AUXILIARY PERSONNEL. The concepts of increased group practice, team approach to oral health, practice near and in cooperation with health care centers and hospitals demand that we attract students able to work effectively in these environments and programs. Further, the students should have the temperament and ability to delegate and supervise treatment procedures.

One future plan is to create well designed and well equipped dental offices in the school. The students would work in these offices with several dental auxiliaries - one or two dental hygienists and assistants and a dental technician. Each unit would have four or five dental operating units and dental laboratory facilities. The student will perform complex clinical procedures, supervise routine clinical procedures done by the auxiliary people and prescribe procedures done by the technician.

There will be a number of these office units which will permit the student to perform many phases of clinical oral care in a given unit or he will limit the treatment to a special phase of dentistry. Thus, the student will have experience in a group of specialty practices and in general practice, but in both settings he will be working extensively with auxiliary personnel.

In these units, television cameras could monitor the student's activities. Further, the student could receive instruction via television. He will have available visual aids such as slides and film strips and descriptions of procedures for review or self-instruction. Programmed learning machines will be used in this plan where demonstrated to be effective.

7. TEACH THE STUDENTS TO WORK IN HOSPITALS AND COMMUNITY HEALTH CENTERS

It is essential that dental students receive full orientation to hospital protocol and practices and exposure to and experience in all feasible hospital dental activities. Services to patients will result from this program but the main purpose will be education of the students.

THE HOSPITAL DENTAL PROGRAM WILL BE MARKEDLY EXPANDED AND IMPROVED. THE STUDENTS MUST LEARN TO WORK EFFECTIVELY WITH THE CLINICAL AREAS OF MEDICINE AND THE MEDICAL LABORATORIES IN THE

COMMON EFFORT TO PROVIDE BETTER AND MORE COMPLETE HEALTH CARE. They must learn to perform oral health services in these environments.

8. DEVELOP A MAJOR EDUCATIONAL PROGRAM IN PREVENTIVE DENTISTRY

TWO OF THE MOST COMMON DISEASES OF MAN ARE DENTAL CARIES AND PERIODONTAL DISEASE. OUR BEST HOPE TO CONTROL AND ELIMINATE THESE DISEASES IS THROUGH RESEARCH AND AN ACTIVE PROGRAM OF PREVENTION. In the undergraduate program, it is essential that we create an awareness of the importance of preventive dentistry. This is done by curriculum design, preventive clinical measures, faculty example and by stressing to the students the value of public health measures.

9. PROVIDE FREE TIME, OFFER ELECTIVES AND HONORS COURSES

A fixed undergraduate program for all will be abandoned. The more gifted students will be given time for electives and self-pursued educational experiences. HONORS COURSES WILL BE DEVELOPED TO CHALLENGE THE TOP STUDENTS. THESE WILL INCLUDE MORE RESEARCH OPPORTUNITIES, ADVANCED CLINICAL EXPERIENCES, A HEADSTART ON GRADUATE STUDY AND EXCHANGE PROGRAMS WITH OTHER UNIVERSITIES.

10. PROVIDE OPPORTUNITIES FOR GENERAL DEVELOPMENT OF THE STUDENT AND INCULCATE A COMMUNITY CONSCIOUS ATTITUDE

This implies that the school should provide improved counseling services, must instill in the student the desire to grow in all dimensions and should provide some opportunities for fine arts, humanities and social science studies. We are interested in attracting students with broad educational backgrounds, continuing liberal arts exposure for the students and graduating individuals who will have a better understanding of their responsibilities to the community and their patients.

B. GRADUATE PROGRAMS

1. MARKED INCREASE PLANNED IN GRADUATE STUDENT ENROLLMENT

We expect to more than triple by 1980 our present number of graduate students to develop research investigators, educators and dental specialists.

2. DEVELOPMENT OF MORE RESEARCH INVESTIGATORS BY EXPANDED PROGRAMS

THIS WILL BEST BE ACCOMPLISHED BY EXPANDING AND IMPROVING OUR PRESENTLY SUCCESSFUL AND WELL REGARDED PH.D. PROGRAMS. In these programs, the major field of study is in a basic biological science or related discipline and the minor is in a special area of dentistry.

One program is the combined D. D. S. - Ph. D. plan which begins for the student after his sophomore year in dental school and continues for at least six calendar years. The second is the postdoctoral Ph. D. program. With these excellent programs, we can develop competent investigators who will remain in dental research and dental education for our needs in Minnesota and also for other schools and research centers.

3. DEVELOPMENT OF DENTAL EDUCATORS

DENTAL EDUCATION WILL BEST BE SERVED BY INCREASING THE PROPORTION OF FULL-TIME FACULTY MEMBERS WHO HAVE ADVANCED EDUCATIONAL BACKGROUNDS. FROM MINNESOTA THESE PEOPLE WILL COME FROM OUR PH. D. AND M. S. D. PROGRAMS. In the latter program the students earn the major in a special area of dentistry and a minor in a basic biological science or related field. These programs vary in length from 21-36 months. All efforts will be made to strengthen and expand the M. S. D. programs.

4. EDUCATE GRADUATE STUDENTS FOR DENTAL SPECIALTIES

These programs are designed at the M. S. D. level and should continue to include the accepted specialties of endodontics, oral pathology, oral surgery, orthodontics, pedodontics and periodontics. Public health dentistry is the other dental specialty approved by the Council on Dental Education of the American Dental Association. THE SCHOOL OF DENTISTRY HAS NOT BEEN ACTIVE IN A PROGRAM TO TRAIN DENTAL PUBLIC HEALTH SPECIALISTS BUT IS WILLING TO COOPERATE AND ASSIST THE SCHOOL OF PUBLIC HEALTH IN SUCH A PROGRAM.

The faculty is motivated to keep pace with and lead in the development of educational programs for specialty practice. We will base these graduate programs on sound biologic principles, the most advanced concepts of clinical practice and the requirement of research experience.

5. MORE POSITIVE GRADUATE STUDENT RECRUITMENT PROGRAM

One of the keys to assuring major progress in dentistry is to enroll exceptionally able students for graduate study. Special efforts will be made to attract the best candidates into our graduate programs. These efforts will extend into the high schools, colleges and undergraduate dental programs.

6. EXPAND INTERN-RESIDENCY PROGRAM

One of our major efforts will be to expand and improve markedly our intern-residency program in the University Hospitals and associated teaching hospitals. A NEW CHAIRMAN OF HOSPITAL DENTISTRY HAS BEEN NAMED. EXCITING PLANS ARE BEING FORMULATED TO DEVELOP A VERY ACTIVE, ENCOMPASSING HOSPITAL DENTISTRY PROGRAM. THIS WILL INCLUDE AN INTERN-RESIDENCY PROGRAM OF WIDE SCOPE AND DEPTH, greater opportunities for undergraduate students and more participation by the faculty. While considerable dental services will be available through these programs, the main purpose must be teaching and research.

7. DEVELOPMENT OF SPECIAL EDUCATIONAL PROGRAMS

Some of the special programs which have been planned principally for graduate study and faculty activity are a genetics center, cleft palate clinic and a maxillo-facial prosthetic program. THE GENETICS CENTER MAY WELL BECOME ONE OF THE MOST OUTSTANDING ACTIVITIES IN OUR GRADUATE AND RESEARCH PROGRAMS.

C. AUXILIARY PERSONNEL PROGRAMS

1. EXPECTED EXPANSION OF CURRENT PROGRAMS

At the present time our two auxiliary dental personnel programs are the two year dental hygiene program and the one year dental assisting program. The graduates of dental hygiene perform oral hygiene procedures and work in dental offices, clinics, public health and school programs and in teaching programs. The graduates of dental assisting are not trained for or permitted by law to do any clinical procedures but assist the practicing dentists by doing a variety of helpful tasks.

The needs and demand for oral health services will increase. Many studies conclude that more and better oral health services can be provided through the utilization of auxiliary dental personnel. It is our intention to increase the enrollment in dental hygiene and dental assisting and to make all efforts to improve these programs.

The major purpose of our dental assisting program is not the training of the assistants per se but is the utilization of them in training dental students to work with auxiliary personnel.

IF THE CONCEPT OF TEAM DENTISTRY AT THE UNDERGRADUATE LEVEL DEVELOPS AT A RAPID RATE, THE ENROLLMENT FIGURES FOR THE DENTAL HYGIENE AND DENTAL ASSISTING PROGRAMS COULD EXCEED OUR PROJECTIONS LISTED ON PAGE FIVE OF THIS REPORT.

2. EXPERIMENTAL PROGRAMS FOR AUXILIARY PERSONNEL

AN EXPERIMENTAL PROGRAM WILL BE UNDERTAKEN TO DETERMINE THE KINDS OF CLINICAL DUTIES THIS TYPE OF PERSONNEL CAN ASSUME. Such a program will likely be started with the dental hygienists who are capable students and, by law, are now permitted to perform some clinical procedures.

It might be possible for us to start some pilot practical experience program under the Public Health Service with a group such as the Indians. Another plan would be to develop the program in the dental school. The advantage of the latter proposal would be to integrate the work of this new level of personnel within the dental team training program.

THESE AUXILIARY PERSONNEL IN THE EXPERIMENTAL PROGRAM MUST BE TRAINED TO FUNCTION UNDER THE SUPERVISION OF DENTISTS. Continued

guarantee of this supervisory relationship for private practice must by provided by law. It should be noted that any additional clinical duties assumed by auxiliary personnel would require a change in the dental practice act.

3. CHANGES IN ENTRANCE REQUIREMENTS AND PROGRAMS

ENTRANCE REQUIREMENTS MAY BE CHANGED IN DENTAL HYGIENE AND DENTAL ASSISTING TO INCLUDE MEN AND EXTEND THE AGE LIMIT BEYOND 35 YEARS. THE DENTAL HYGIENE PROGRAM MAY BE INCREASED TO THREE YEARS. The first year would be devoted to liberal arts courses and the next two years would be spent in the dental school. This would give the students a broader education and permit more time for clinical instruction and experimental efforts.

THE DENTAL ASSISTING PROGRAM WILL BE EXTENDED FROM NINE TO TWELVE MONTHS. For the first three months, the students will take General College courses, and the last nine months will be devoted to dental courses. This new plan will give the students more experience in dental assisting.

4. AID TO OTHER DENTAL HYGIENE AND DENTAL ASSISTING PROGRAMS

If requested, the School of Dentistry will act in a consultative capacity in the development of new dental auxiliary programs under college auspices.

D. POSTGRADUATE PROGRAMS

1. DEFINITION OF POSTGRADUATE STUDY

POSTGRADUATE EDUCATION AS INTERPRETED FOR THIS REPORT INCLUDES SPECIAL ADVANCED STUDY THAT DOES NOT LEAD TO A DEGREE, is of less depth than graduate study, AND IS OF LONGER DURATION THAN CONTINUATION STUDY but of less length than graduate study. While there isn't agreement on the distinction between postgraduate study and CONTINUATION EDUCATION, the latter SHOULD BE CONSIDERED IN THIS REPORT AS PERTAINING TO REFRESHER COURSES OF A FEW DAYS TO ONE OR TWO WEEKS IN LENGTH.

2. DEMAND FOR SUCH PROGRAMS

There is a need to provide opportunities for dentists and other health science professionals to enroll for special study in postgraduate courses as defined above. IT IS POSSIBLE THAT THERE WILL BE A MARKED INCREASE IN DEMAND FOR THIS KIND OF STUDY BUT WE HAVEN'T PROJECTED SUCH A TREND IN THIS REPORT. Postgraduate programs can be time consuming for the faculty and would require additional support if they are to be expanded.

ONE PLAN THAT MAY INFLUENCE THE EXTENT OF OUR PROGRAM COULD BE IF SABBATICAL STAFF APPOINTMENTS ARE OFFERED TO QUALIFIED PRACTITIONERS. These could be one to three months appointments

and would involve instruction of dental students and provide the practitioner with opportunities to pursue his own interests.

REQUIREMENTS OF VARIOUS AGENCIES WITHIN THE DENTAL PROFESSION MAY INCREASE PRESSURE ON THE UNIVERSITIES TO OFFER EXPANDED POSTGRADUATE PROGRAMS. A prime example of this would be that DENTAL PRACTICE ACTS MAY REQUIRE CONTINUATION AND POSTGRADUATE EDUCATION FOR MAINTENANCE OF LICENSURE. Another influence may be that VARIOUS PROFESSIONAL ACADEMIES AND SPECIALTY GROUPS MAY REQUIRE POSTGRADUATE EDUCATION TO CONTINUE RECOGNITION GIVEN BY THESE GROUPS.

E. RESEARCH TRAINING PROGRAMS

1. EXPAND THESE PROGRAMS

We will provide undergraduates with more opportunities for research in the curriculum, special summer programs and honors programs. Major emphasis in research training will, of course, be at the graduate level. Development of experience and knowledge in research methods will be one of the main missions of the Ph. D. programs and part of the M. S. D. program.

2. RESEARCH SUPPORT FOR FACULTY

This will include the provision of space and staff so the faculty will have room and time to pursue investigative projects. ANOTHER FORM OF RESEARCH SUPPORT FOR FACULTY WOULD BE THE DEVELOPMENT OF IN-SERVICE RESEARCH METHODOLOGY PROGRAMS. Research methodology will be an important aspect of the graduate programs and therefore it seems appropriate for the school to develop programs around experience and knowledge in this area.

F. CONTINUATION EDUCATION PROGRAMS

1. UPGRADE THE PROGRAM FOR DENTAL PRACTITIONERS

We now conduct approximately 15 short courses a year for over 350 oral health care people. The demands of the profession and improvement of educational techniques have combined to cause dental schools throughout the country to reexamine their continuation education programs. IN OUR SCHOOL EXISTING COURSES WILL BE REDESIGNED, NEW COURSES WILL BE INTRODUCED AND ALTERNATIVE FORMS OF EDUCATIONAL PROGRAMS WILL BE EXPLORED.

2. INCREASE THE OPPORTUNITIES FOR AUXILIARY PERSONNEL

With increased emphasis on the role of dental auxiliary personnel in the team approach at the undergraduate level, the school recognizes the need to extend educational opportunities to this group after graduation. OUR PROGRAMS WILL CONCENTRATE ON KEEPING AUXILIARY PERSONNEL ABREAST OF TECHNICAL

DEVELOPMENTS AND METHODS IN WHICH THE DENTAL TEAM CAN FUNCTION MORE EFFICIENTLY IN PRACTICE.

3. EXTENSION INTO THE COMMUNITIES

WITH ADDITIONAL RESOURCES THE SCHOOL COULD OFFER ONE AND TWO DAY COURSES IN THE LOCAL COMMUNITIES. This program would reach a larger number of practitioners and reflect an attitude of concern and interest of the school for the practitioners. HOPEFULLY, THIS EXTENSION TO THE COMMUNITY WILL BRING WITH IT SUCH IMPORTANT SHIFTS OF EMPHASIS AS THE ADVANTAGES OF A TEAM APPROACH WITHIN THE FIELD OF DENTISTRY AND THE IMPORTANCE OF INTEGRATION WITH ALL OF THE HEALTH SCIENCES.

4. COURSES FOR SPECIAL GROUPS

These programs would be for groups within and outside the field of dentistry, and may be given in cooperation with other units of the health sciences. ONE PARTICULAR AREA WOULD BE WORKSHOPS AND INSTITUTES ON TEACHING METHODS for our faculty and the faculty from other schools. RESEARCH METHODOLOGY IS ANOTHER CONTINUATION COURSE THAT COULD BE OFFERED TO SPECIAL GROUPS such as dental educators in dental schools and teaching hospitals.

RESEARCH PROGRAMS

A. EXTENT OF ORAL DISEASES - NEED FOR RESEARCH

THE PREVALENCE OF ORAL DISEASES IN THE UNITED STATES CLEARLY INDICATES THAT OUR PRESENT METHODS OF CONTROL, PREVENTION AND AVAILABILITY OF TREATMENT ARE GROSSLY INADEQUATE. Reports in the Survey of Dentistry and in a recently published survey by the United States Public Health Service reveal the following statistics on the oral health problems in the American population.

1. Among the 10 percent of children under five years of age who visit the dentist, only one of three is free of untreated carious lesions; one out of 10 has eight or more cavities.

2. One child out of five needs orthodontic treatment for afflictions ranging from faulty alignment of teeth to severe facial deformity. One out 800 children is born with a cleft lip or palate.

3. In the year 1960 there were 700 million untreated dental cavities.

4. Diseases of supporting bones and gingival tissues affected at least half of the population by the age of 50 and almost everyone by age 65.

5. Adults had an average of 20.4 decayed, missing or filled teeth per person.

6. One in four adults had no natural teeth remaining in either one or both jaws and nearly one in two had lost all teeth by 65-74 years.

7. ONLY A LITTLE OVER 40 PERCENT OF THE POPULATION VISITS THE DENTIST EVERY YEAR, AND ONLY ONE-THIRD OF THE DENTAL ILLS OF THE NATION ARE BEING TREATED.

8. Twenty thousand persons develop oral cancer each year.

THE IMMENSITY OF THESE ORAL HEALTH PROBLEMS DEMANDS THAT DYNAMIC, AMBITIOUS FUNDAMENTAL AND APPLIED RESEARCH PROGRAMS BE LAUNCHED THROUGHOUT THE COUNTRY TO DETERMINE THE CAUSES AND MEANS OF PREVENTION AND ELIMINATION OF THESE DISEASES.

B. RESEARCH MISSION OF THE SCHOOL OF DENTISTRY

Although the School of Dentistry has developed a productive research program in recent years, all efforts will be made to increase and improve our research and research training activities. FUNDAMENTAL RESEARCH WILL BE EXPANDED, BUT WE WILL NOT LOSE SIGHT OF OUR CONTINUING MAJOR RESPONSIBILITY IN THE AREAS OF DENTAL CARIES, PERIODONTAL DISEASE AND ORAL AND FACIAL GROWTH AND DEVELOPMENT.

Research activity must fluorish in all segments of the school but will be in different forms and at different levels of complexity and depth. BASIC RESEARCH IN THE QUEST FOR FUNDAMENTAL NEW KNOWLEDGE WILL BE PROMOTED. CLINICAL AND PEDAGOGICAL STUDIES WILL BE ENCOURAGED AND SUPPORTED.

Our research training programs will receive positive attention and will be expanded as resources permit. IT IS HOPED THAT FACILITIES AND FUNDS WILL ALLOW US TO TRAIN MORE FOREIGN STUDENTS IN DENTAL RESEARCH AND TO INCREASE THE EXCHANGE OF RESEARCH INVESTIGATORS AND DENTAL EDUCATORS WITH OTHER COUNTRIES. This interchange will be mutually helpful to all concerned and will further the cause of international goodwill.

We will maintain an environment which will result in attracting and keeping competent and productive investigators. The school will actively seek financial support from the University, private sources and federal funds to provide the physical facilities, equipment, technical staff and a diversified research faculty to permit greater emphasis on research. A CONSERVATIVE ESTIMATE WOULD BE THAT OUR PRESENT RESEARCH SPACE NEEDS TO BE INCREASED AT LEAST FOUR TIMES TO GIVE US THE FACILITIES NEEDED FOR OUR PROJECTED RESEARCH AND RESEARCH TRAINING PROGRAMS.

C. FUNDAMENTAL RESEARCH PROJECTS

Our over-all fundamental research program will become multidisciplinary, more sophisticated and increasingly integrated with other research programs in the University while it is virtually impossible to predict the future direction and types of basic research to be done in our school, the following are some examples of basic research projects which are being done or likely will be done in our laboratories.

1. The complex dental caries process demands research in the crystal and organic components of enamel which has as its background a search into the origins of calcified tissues and the mineralization process in general. Our research people in biochemistry and other areas will continue to attack these and other aspects of the caries process.

2. Studies on the transmissibility of dental caries through germ-free experiments and other microbiological investigations.

3. Collagen, the principal component tissue of periodontal structures, degenerates in periodontal disease. It is reasonable to assume that fundamental research will give new insight regarding the basic mechanisms involved in maintaining the integrity of periodontal structures, including alveolar bone, and provide an explanation at the molecular level of the pathogenesis of collagen tissue breakdown in periodontal disease.

4. Investigation will be continued on determining the best implant material for bone induction in the periodontium and to determine how the material induces bone formation.

5. Research will continue in the microcirculation and gross circulation of teeth, bones and soft tissue. One current application of this study to clinical dentistry concerns the preservation of pulpal vitality in human teeth.

6. Neurophysiological approach to myographic studies. Clinical studies can be done as well with this basic technic to determine neuromuscular imbalance from malocclusion.

7. Studies on bacterial genetics will continue and immunological aspects of transplantation will be investigated at the basic and clinical levels.

8. Study of the embryological mechanisms adversely affected to produce palatal and other deformities. Experimental teratogenesis will contribute further to the understanding of oral and facial growth and development.

9. A very challenging basic research project in dental materials would be to develop a restorative material with positive adhesive qualities, excellent esthetics, highly durable, easily manipulated and non-toxic.

D. CLINICAL RESEARCH PROJECTS

Clinical investigations with sound biologic bases are being done and will increase in number and quality in the future. While the trend and types of theses studies cannot be predicted with any certainty, some appropriate examples of current problems to be studied are as follows.

1. Tolerance of dental pulp to filling materials and to the high speed cutting techniques for removal of enamel and dentinal tissues.

2. As in orthodontic clinical research projects, biologic reactions in bone to applied stresses can be studied.

3. Epidemiological studies of dental caries, oral cancer, oral and facial anomalies, periodontal disease and other oral problems. Epidemiological investigations provide a composite picture of the natural history of disease and promise to reveal useful data on the incidence and causes of oral diseases.

4. Psychosomatic aspects of oral diseases.

5. Physiological and pharmacological reactions to various systemic and topical drugs used in clinical dentistry e. g., general and local anesthetics.

6. Human genetics and the study of oral and facial syndromes and deformities.

7. The implication of a specific group of pleuropneumonia-like organisms in the etiology of oral diseases such as recurrent aphthous stomatitis.

8. Bone and soft tissue healing considering such factors as blood supply, contamination and trauma.

E. STUDIES OF EDUCATIONAL METHODS

Pedagogical methods will be investigated. These research projects can be more difficult than basic laboratory investigation because of the variabilities of the subjects. We expect to have assistance from educational psychologists in the design and implementation of these studies. The following are examples of projects that will be initiated.

1. Determine the quality, validity and reliability of different examination methods.

2. Compare the value and effectiveness of teaching techniques e. g., live lectures, television and seminars.

3. The application of various preclinical techniques to clinical dentistry.

4. Careful consideration will be given to determining the quality of our product - the graduates.

5. Programmed learning will be studied carefully and used where feasible and determined worthwhile.

6. Data processing will be installed to record examination results; maintain variety, quality and quantity control of clinical procedures; analyze the grading patterns of the faculty; and maintain patient records.

F. RESEARCH CENTER

EFFORT WILL BE MADE TO DETERMINE THE POSSIBILITY AND FEASIBILITY OF DEVELOPING A RESEARCH CENTER. All resources for funds should be explored including federal funds. The Center must be a part of the School of Dentistry.

SERVICE PROGRAMS

A. EXEMPLARY ORAL HEALTH CARE

The clinics program, the hospital program and other community programs all involve dental students. Therefore IT IS ESSENTIAL THAT THE SERVICES GIVEN IN THE SCHOOL AND ASSOCIATED FACILITIES SET A STANDARD WORTHY OF EMULATION BY THE STUDENT WHEN HE GOES INTO PRACTICE. It is also recognized that the reputation of the school is tested in a very tangible manner by the service rendered to every patient.

B. PROVISION OF EXTENSIVE CONSULTATIVE SERVICES

An extension of the direct care to the patient is the consultative service to the referring practitioner or other health science professionals. Some of the consultative services we now offer or will begin are:

1. A biopsy and cytological service, which can be increased as needed.

2. Will establish a laboratory to provide aids and tests in the control of caries. This service will be available to practitioners.

3. Response to inquiries from practitioners and the posting of consultative reports.

C. SHARE AND DISSEMINATE ORAL HEALTH KNOWLEDGE

The school recognizes that a program is needed to meet the objective of sharing oral health knowledge with the health professions and the public. Some of the programs we have and will develop to carry out this objective are:

1. Participation in public health programs e. g., efforts to start a fluoridation system in a community. Some of our faculty have been very active in this way, and we should be prepared to continue this valuable service.

2. Increased involvement, as time permits, in public health programs such as cancer detection clinics. These clinics are designed to alert the public and to educate the dentists and physicians.

3. Speaking on various dental subjects, such as preventive dentistry, before P. T. A. groups and civic clubs.

4. Increased activity in teaching continuation education courses at the University and in the communities.

5. Taking an active part in dental society affairs at the local, state and national levels.

6. Making a positive effort to release to the communication media articles on oral health measures and research findings.

7. Increasing contributions to the scientific literature and at scientific meetings.

D. PROGRAM FOR SOCIAL RESPONSIBILITY AND SENSITIVITY

This is the kind of program that cannot be described, measured, documented or readily made tangible. FACULTY ATTITUDE, CONCERN FOR THE DIGNITY AND IMPORTANCE OF THE INDIVIDUAL PATIENT, RESPONSIVENESS TO REQUESTS FROM INDIVIDUAL PRACTITIONERS AND COMMUNITY AGENCIES ARE ALL A PART OF THIS VERY IMPORTANT PROGRAM. Our lofty objectives and earnest teachings could all be lost if the school did not concern itself with a philosophy or attitude which will insure that the best of what is taught is also practiced. It is said that teaching and service are inseparable. Therefore the teaching program could be seriously undermined by a careless, insensitive service program of execution.

SUGGESTED AGENDA FOR AUGUST 9, 1965 LEARN COMMITTEE MEETING

I ANNOUNCEMENTS

A. Loss of Dr. Barnum
B. Welcome guests and substitutes

1. Dr. Bobenreith from Chile
2. Miss Isabel Harriss (nursing rep. on basic sciences committee) for Edna Fritz
3. _____ for Eugene Grim
4. Note that Dr. Howard has been asked to come to White House for signing of Health Education Facilities Act this morning. Dr. Howard was main witness of American Association of Medical Colleges.

LAST ITEM = = = = = = 5. Happy to have 1st sub-committee report from dentistry and welcome the dental sub-committee members who are here for presentation. Dr. Holland will introduce his sub-committee and proceed with report.

II THE FOLLOWING ITEMS HAVE BEEN DISTRIBUTED

MINUTES

A. Hospital Task Force June 28 (#4)
B. Dentistry July 6 (#5)
C. Nursing July 9 (#6)
D. Clinical Medicine July 9 (#4)
* E. Parent Committee Minutes of July 12 (#9)
* F. Public Health July 19 (#3)
G. Hospital Task Force July 26 (#5)
* H. Hospital Task Force July 29 (#6)
* I. Public Health July 29 (#5)

PAPERS

A. Health Sciences Center, John McCreary, Dean University of British Columbia
B. Plan && Concepts of the UBC Health Sciences Centre Reflecting the Health Team Approach- by James Stephan
C. Clinic Directors Report to the Learn Committee
* D. Excerpts from Principles of Hospital Design- prepared by James Stephan.
* E. Planning of Medical Schools- Study Plan by Dr. Ing Gerd Fesel, Dipl- Ing Wolfgang Doring

*= papers handed out today. Others have been posted prior to August 9.

III OTHER MEETINGS FOR WHICH MINUTES ARE NOT AVAILABLE AT THIS TIME

A. Clinical Medicine Task Force July 19, (#5)
B. Public Health July 22 (#4)
C. Clinical Medicine Task Force Augst 2 (#6)
D. Public Health August 5 (#6)
E. Dentistry August 5 (#6)

IV TIMETABLE FOR FUTURE

A. Next Meeting September 13 Basic Sciences and Public Health
B. September 27 Hospital Task Force & Clinical Medicine
C. October 11 Nursing & Ancillary