THE UNIVERSITY OF COLORADO SCHOOL OF MEDICINE AND HOSPITAL AT DENVER

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The progress of ideas in medical education is resulting in the development of new types of plan for medical schools. The notion of a teaching hospital which is, as it were, a clinical laboratory of the school, the introduction of clinical teaching in the earlier years of the course, the recognition of the necessity for the closer relationship of the members of the clinical and laboratory faculties, the importance of clinical demonstrations of hospital cases in lecture rooms convenient to the school, the increasing instances of control of the teaching hospital by the university and the identification of the faculty of the school with the staff of the hospital, the increase in the number of full time instructors, the limitation of the numbers of students, the general abandonment of the operating amphitheater, the adoption of some principle of unit arrangement.
for laboratory buildings and the increasing importance of the out-patient department as a teaching and an admitting department have set before the hospital architect a new and intensely interesting problem.

The University of Colorado, whose school of medicine is at present conducted for the first two years on the university campus at Boulder, and for the last two years at Denver, is now establishing this school for the four years' work entirely in Denver and has commenced the erection of a group of buildings comprising a general hospital, an out-patient department and a medical school in one unit, and separate buildings for a nurses' home, a psychopathic hospital, a power house and laundry.

The medical school is arranged for 200 students in classes of fifty. The lecture rooms, however, have a capacity of 100, and, by working the laboratory classes in sections, some 400 students may be accommodated.

The hospital, which will be entirely a free institution without private rooms, will be, together with the Psychopathic Hospital, under the control of the regents of the University of Colorado, and the staff of the hospital and the faculty of the school will be identical.

The site comprises a rectangle of about seventeen acres, with its long dimension running directly east and west and sloping slightly upward toward the south, located on what is now the edge of the built-up portion of the city of Denver. Within a few years the school and hospital will probably be surrounded by small houses of good character.

It was realized in the beginning that all knowledge of this intricate problem did not lie in the mind of one man. Opinion has been sought by the writer and freely given by many physicians, deans and hospital superintendents in all
parts of the country and at various stages in the development of the plans. Nearly all the important medical schools and larger hospitals east of the Rocky Mountains have been visited and their virtues and faults discussed with those in charge. In this preliminary work and in the study of the requirements and relations of departments in a manner illustrated by the accompanying chart, a year was spent before definite sketches of the arrangements were made.

In the beginning a fundamental working method was established. No thought or attention was to be given to the exterior appearance of the buildings until the plans were definitely determined upon. The appearance of the build-
rather than imposing or monumental qualities which in the writer's mind have no place in such a structure.

A cardboard model of the hospital wards was constructed and exposed to the sun under the exact conditions which will exist in the building in its location, and observations were taken and recorded on the model of the travel of shadow over the various walls. With this data in hand the dimensions of the hospital court and the relation of the final height of the ward unit to the width of the south court were established.

In arranging the location and orientation of various sections, the direction and amount of wind which must be expected from various directions was determined from the records of the U. S. Weather Bureau and plotted as shown on the accompanying chart. By this means it was possible for example, to arrange the boiler house and laundry in such a position as to give the least annoyance by smoke or odors.

The hospital and medical school group has four general divisions. The medical school, the administration section, the out-patient department and the hospital wards. The basement is entirely given up to storage and kitchen and dining rooms. From the large north court where automobiles are parked there are entrances on the ground floor to the medical school, administration and out-patients departments. The ambulance entrance is on the easy court. The exit for the undertaker's wagon and the entrance for bringing in cadavers are in the medical school court, which is shielded from public observation by a high wall on the west side. The nurses' entrance is directly to the
hospital and the goods entrance for all supplies for both school and hospital is in the basement below the ambulance entrance.

On the ground floor of the medical school are the dean’s office, lobby and lounges for men and women students, locker rooms, cadaver department and morgue and autopsy room. The cadaver space is connected directly with the dissecting room on the third floor and the animal quarters on the fourth floor by an elevator which is to be used only for taking cadavers to the dissecting rooms, bringing animals to the animal quarters and removing dead animals and dissecting room waste. Such material is taken on this elevator directly to the basement, thence by special passage to the tunnel to the boiler house for cremation. It will be observed that the bodies of patients dying in the hospital may be brought to the morgue without passing other departments.

The ground floor contains also the first out-patient floor. On this floor the general record room serves the out-patient department as well as the hospital. Adjoining the admitting department is the isolation section which is readily accessible from hospital wards, out-patient department and ambulance entrance. The entrance to the nurses’ and staff dining rooms is from the ground floor leaving the basement for kitchen purposes only.

The dean’s offices are closely connected to the general administrative offices which are arranged in units like an office building and are capable of various divisions to meet changing requirements. Beyond the main entrance is the visitors’ and doctors’ elevator, connected by the central corridor with each hospital floor and reaching directly the operating department on the fourth floor. The two hospital elevators run from kitchen to roof garden and serve for hospital purposes only. On the ground floor next to these elevators are the linen and serving rooms. Soiled linen may come by chute or elevator to ground floor and then be sent to basement by lift and by tunnel to laundry.

On the first floor of the medical school are the departments of bacteriology and clinical pathology and a common lecture room. The general hospital clinical laboratory is in direct connection to hospital and with the department of clinical pathology. On this level is the second story of the out-patient building. The x-ray suite is located between the out-patient department and hospital wards, and within easy reach of the doctors’ entrance and lounge on the floor below. The clinical amphitheater is placed over the main entrance where patients may be readily brought from hospital wards or out-patient department. Students enter it from the medical school (on the floor above), and it is flanked by the museum and the library stacks for the convenient assembling of specimens, books, slides or charts, and is provided with a stereopticon and moving picture booth.

**Ward Plan is Flexible**

Because of the variation of opinion in regard to large or small wards, and of the probability of future change in opinion in this regard, the hospital wards are arranged in such a way that they may be divided into wards of various sizes from one to sixteen beds. At present the plan is to arrange beside the small wards and quiet rooms a ward of sixteen beds divided by glazed screens into two eight-bed wards, the beds therein being separated by glass screens and so placed as not to face the light. It will be noticed that different subdivisions are used on the various floors for the different services.

On the second floor are the departments of physiology, pharmacology and biochemistry with a common lecture room, the library reading room and the students’ entrance to the clinical amphitheater.

On the third floor are the department of anatomy, both gross and microscopic, the department of pathology, and the interns’ living quarters. The children’s wards and the maternity department
are on this floor. There are to be at present three floors of hospital wards accommodating 150 patients. In the near future it is planned to add three more stories of wards on top of the present structures, making the capacity 300 beds. By the addition of the future wards to the east and west the capacity may be increased to 600 beds. On the fourth floor of the medical school are the animal quarters, and animal operating rooms, the dog runs being surrounded by a twelve-foot wall to confine the sound.

**Operating Department on Top Floor**

The operating department occupies the fourth floor of the administration section, with close connection by stair with the department of pathology on the floor below. A general gauze sterilizing room for the whole hospital and two surgical dressing rooms are provided on this floor under the control of the operating room staff.

It is intended in the future to complete the section between the medical school and the hospital to the west of the west-connecting corridor for use as additional research rooms, which would thus be convenient both for chemical and laboratory men.

The main kitchen is in the basement and is lighted overhead and at the sides and ventilated by large flues on either side of the central corridor. Food is served on the dumb waiter direct from the main serving rooms to the ward serving rooms. All dish washing is done in the central space provided next the kitchen.

Having in mind the inevitable future progress in medical science and the resulting changes in instruction methods, the entire medical school is built on a unit system, a laboratory 12x21 feet being the unit adopted. Each unit, being provided with facilities for connections for gas, electricity (D.C. and A.C.), steam, hot and cold water, compressed air and vacuum, any section or number of sections may be used for any laboratory purpose without structural changes. The partitions are set on top of the finished concrete floor and may be moved without patching the floor. The medical school unit is arranged so that it may be enlarged to twice its present size, as also may be the out-patient department.

The out-patient department has been designed on the principle of merging all waiting rooms into one general waiting space twenty feet wide with large windows at both ends, glazed transoms from a height of seven feet to the ceiling along the entire length of the walls between the waiting space and the clinics, and exhaust ventilating in addition. The clinic windows are provided with transom ventilation similar to that used in the hospital. In the medical clinic the rooms marked "Waiting Room" are really consultation rooms. Lamson carriers are to be provided for transportation of records from record room to clinics.

The museum on the first floor is for selected specimens for the instruction of students and exhibition to doctors. Adjoining the post-mortem rooms in the ground floor is a storage museum for duplicate specimens.