

THE THOMPSON PHYSICAL LABORATORY AT WILLIAMS COLLEGE.

BY HENRY LEFAVOUR.

THE Thompson Physical Laboratory, in addition to two other buildings for the chemical and biological departments respectively, was built and presented to Williams College by Frederick F. Thompson, Esq., of New York City. The architect was Mr. Francis R. Allen, of Boston, and the principal contractors were Messrs. Haskell Dodge & Co., also of Boston.

The buildings are constructed of "rain-struck" brick, trimmed with

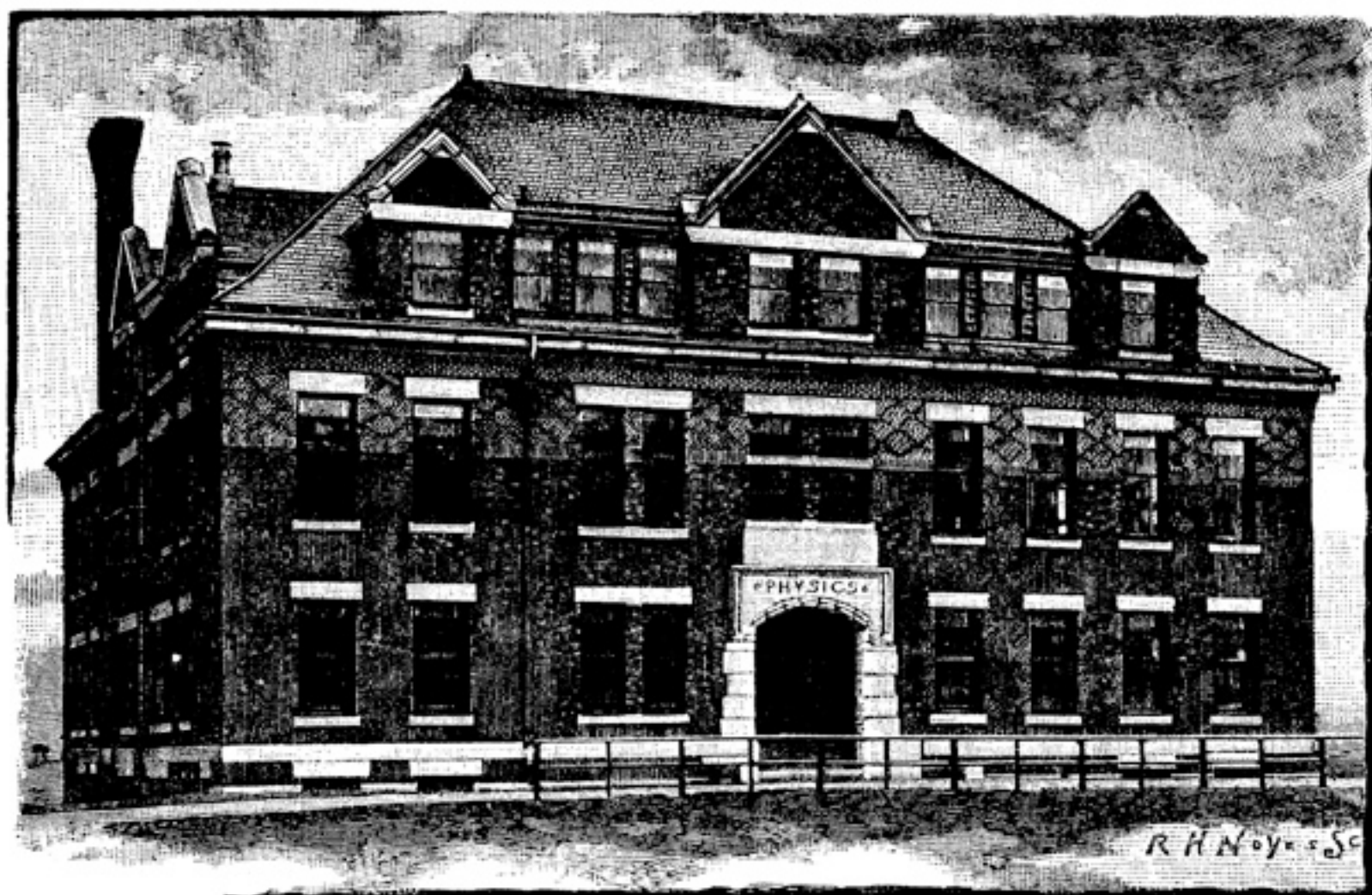
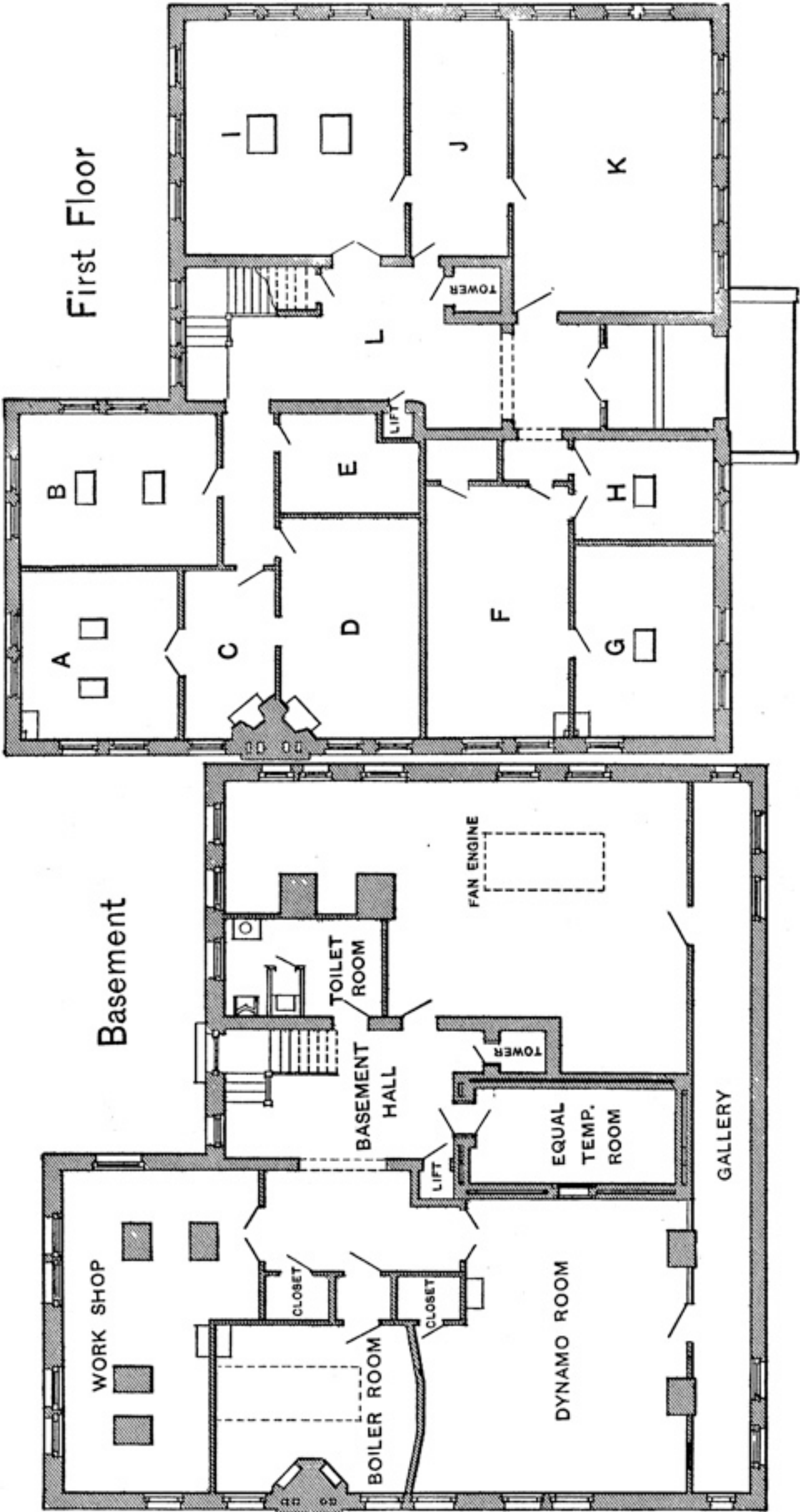
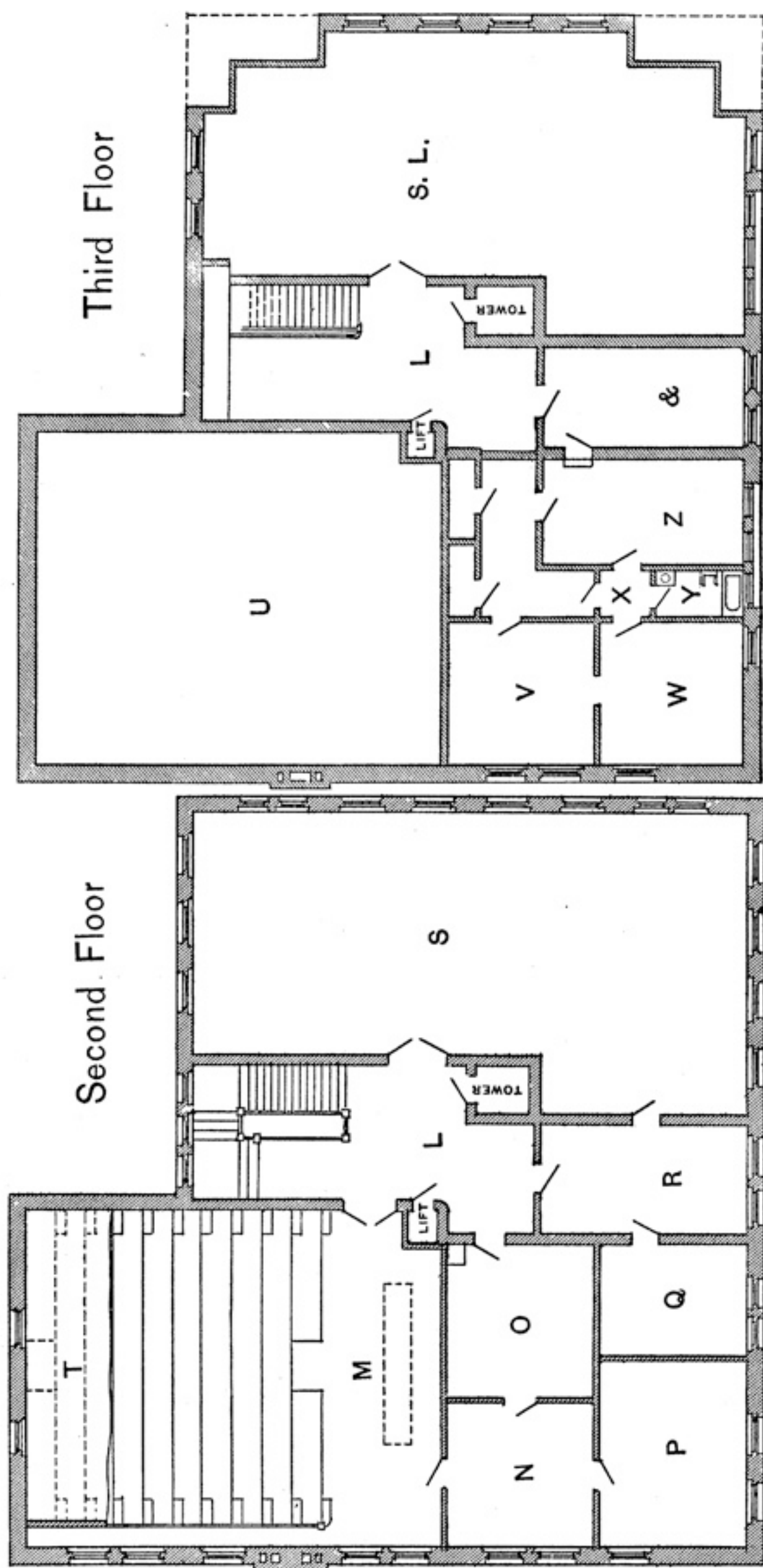


Fig. 1.

Warsaw bluestone, their front elevations of the same height, and planned with reference to a symmetrical arrangement. The physical laboratory (Fig. 1) is the easternmost of the three, and is separated from the second building, the chemical laboratory, by an interval of about 50 feet. It has a frontage of 80 feet on the north, a depth of 60 feet on the west, while





the eastern half is carried back by a projection to a total depth of 77 feet. The heights of the different floors vary, that of the basement being 8 feet in the clear; the first and third floors, 10 feet and 6 inches; and the second floor, 12 feet and 10 inches. The lecture room has the height of two floors for the most part, but all the rooms of the third floor lose in height near the walls because of the shape of the roof.

The interior is finished in hard pine, the walls and ceilings are plastered with King's Windsor cement, and are tinted with a light cream color. The building is divided into three sections by brick partitions, which enclose the hallways, and the floor timbers rest on iron girders, which in turn are supported by these walls. Eight brick piers with stone caps rise from the foundations into various rooms of the first story, and all work-rooms are amply provided with slate shelves imbedded in the brick walls.

The laboratory is heated by direct radiation and by forced draught; the former method being employed in the small rooms, the latter in the larger and more crowded rooms, thus securing thorough ventilation at the same time. The steam is brought from the chemical laboratory at high pressure, and is distributed to the engine which operates the Sturtevant blower, and to a reducing-valve, from which it is carried at the ordinary low pressure to the radiating coils. Each workroom is supplied with hoods, water, gas for illuminating and heating purposes, electric current, and with cases for apparatus.

The instruction in physics in the college contemplates a required course in general physics for the sophomores, to be carried on by lectures, recitations, and elementary laboratory work, a year of more advanced general physical measurements (which is elective to the juniors), and a third year's course in special problems or thesis work for those of the senior class who may have developed a special interest in the subject. The arrangement of the rooms, therefore, includes a lecture room and the accessory apparatus rooms, an elementary laboratory, a general laboratory, and a few smaller rooms to be equipped for special investigations and measurements, as well as for the use of professors and assistants. The accompanying floor plans show the situation of the different rooms.

The basement contains a workshop, for which power is to be supplied by water and electric motors, a boiler room containing a 20 h.-p. boiler, used exclusively to furnish power for the engine, a toilet room, a room for the Sturtevant blower and the heating coils, the room to be used also for unpacking and storing cases, a room with double walls, in which the temperature can be maintained fairly constant, a long gallery extending the length of the building, for experiments requiring a long uninterrupted space, closets for chemicals and the storage battery, and a dynamo room. The dynamo room is equipped with a 15 h. p. Westinghouse engine, a

5 k. w. incandescent dynamo, two experimental motors, and the usual regulating and measuring apparatus.

On the first floor are the professor's office, *C*, with his private laboratory, *A*, on the one side, and the library of the laboratory, *D*, on the other. By permission of the Trustees, the books and periodicals that are of especial interest to the several scientific departments are now kept in the respective laboratories, and it has already proved to be of the greatest advantage to have the books so accessible. *B*, *H*, *F*, and *I* are the rooms to be devoted to advanced physical work, *B* to optical or spectrometric measurements, *F* to photography and chemical physics, and *I* to electrical testing. In the last room and in its vicinity an effort has been made to avoid the use of iron in any way that would make the magnetic field unusually variable. The small room *H* is reserved for any general research work. A recitation room, *K*, with seats for fifty, is at the right of the entrance, and next to it is the coat room, *J*. *E* is a storeroom for laboratory supplies, and *G* is the assistant's private laboratory.

On the second floor, *S* is the general laboratory for the juniors. It is furnished with movable tables with slate tops, with wall shelves, a bookcase, a case for chemicals, and a set of lockers for the students. Leading from this is the laboratory apparatus room, *R*, which also serves as the assistant's office. *Q* is used for acoustical measurements or for any work that requires isolation. Next to this is the photometric room, *O*, without windows and with blackened walls. The lecture room, *M*, will seat about 140. It is furnished with the Heywood chair, with tablet, arm, and hat rack. The tiers rise with a general slope of one foot in three. The lecture table has the usual conveniences of water, gas, and electricity, and in addition there are pipes for bringing compressed air, oxygen, and hydrogen from the basement. There are places for the projecting lantern in the rear of the room and in front of the lecture table, and for both positions there are permanent plaster screens on the wall behind the table. The room is lighted by eight windows, and these may be darkened by black, opaque shades, reinforced by shutters when there is need of perfect darkness. These shades can be operated from three points, but it is possible to have them all connected with a water cylinder. For the present, whenever there is need of interrupting the projections, the room will be lighted by electricity. The sun's rays may be brought into the room through either the east or the south windows. The room is connected with the dynamo room by a speaking-tube, and the whole building is well supplied with electric bells. Adjoining the lecture room are the apparatus rooms, *N* and *P*, and the space under the seats, *T*, is also used for storing apparatus.

On the third floor is the elementary laboratory, *S.L.*, of nearly the same size as the general laboratory below it, but it is more simply equipped.

The remainder of the floor is taken up with two suites of assistants' rooms, *V-W* and *Z-£*, the bath room, *Y*, and the upper part of the lecture room, *U*. Provision in case of fire is made by having the stairways of iron with stone treads, and by placing two fire escapes on the outside. A brick-walled shaft, marked "Tower" on the plans, extends from the basement to the roof, and affords facilities for pendulum and other experiments requiring height or depth, and a small lift serves to transport apparatus from the basement to the upper floors.

As is frequently the case, there have been restrictions which prevented the fullest realization of the original plans, and larger experience always suggests improvements, but thus far the building has shown itself in its six months of use to be admirably adapted to the demands made upon it.