SCHOOL ARCHITECTURE;

OR,

CONTRIBUTIONS

TO

THE IMPROVEMENT OF SCHOOLHOUSES

IN

THE UNITED STATES.

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Plan and Description of the Free Academy in the City of New York.

The Free Academy is situated on the S. E. corner of Twenty-third street and Lexington avenue, in the upper part of the city, being convenient of access from all the great thoroughfares. The style of architecture, in which the building is erected, is the same as that of the town halls and colleges of the 14th century, in Europe. This style attained its greatest perfection in the Low Countries, and especially in Belgium, which at that period was the great seat of learning, science and the arts, as well as the great centre of the commercial enterprise of Europe. It was the opinion of the architect, therefore, apart from the economy in construction, of the Gothic style, when properly managed, that this style would be peculiarly appropriate for the High School of the city of New York, and was also well adapted to the materials of which it was proposed to construct the building, many of the old halls and colleges being built of brick. The architect, Mr. Renwick, of New York, in a letter to the President of the Board of Education, remarks,

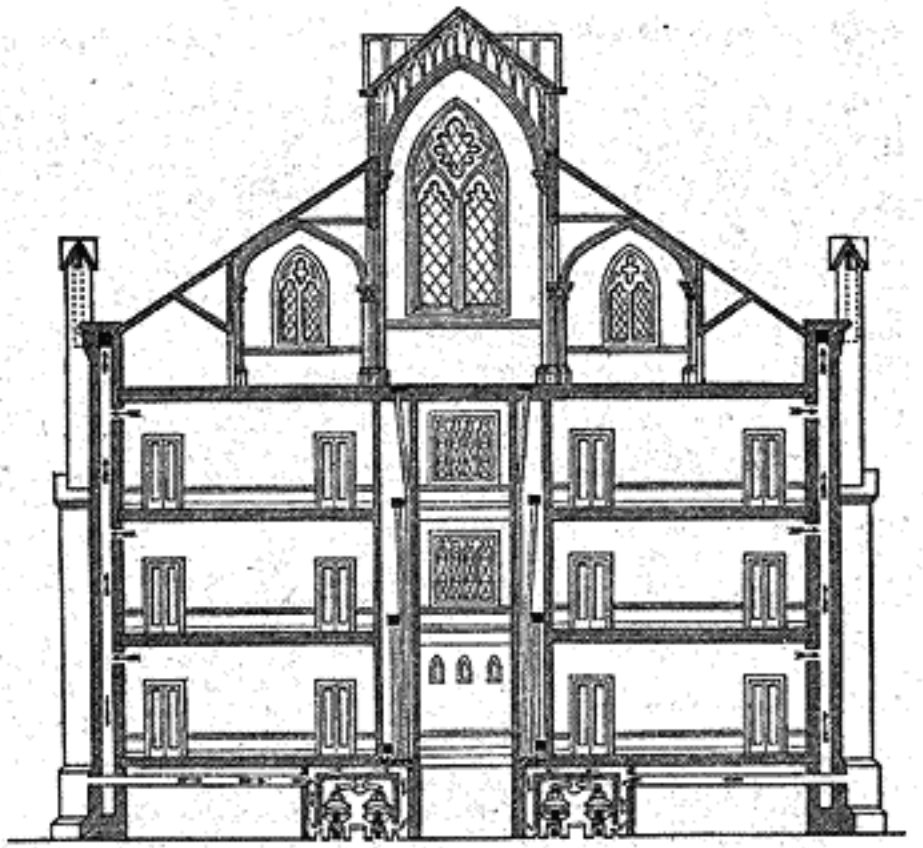
"I am confident that the style I have adopted is, at the same time the strongest, the cheapest, and the one best adapted to the purposes of heat and ventilation, being the only one, except the Norman, in which chimneys and flues become ornamental, and a roof of high pitch, necessary for external beauty, and capable of being intersected by dormer windows, which latter will add to the beauty of the building and to the convenience of lighting and ventilating the great hall, in the roof.

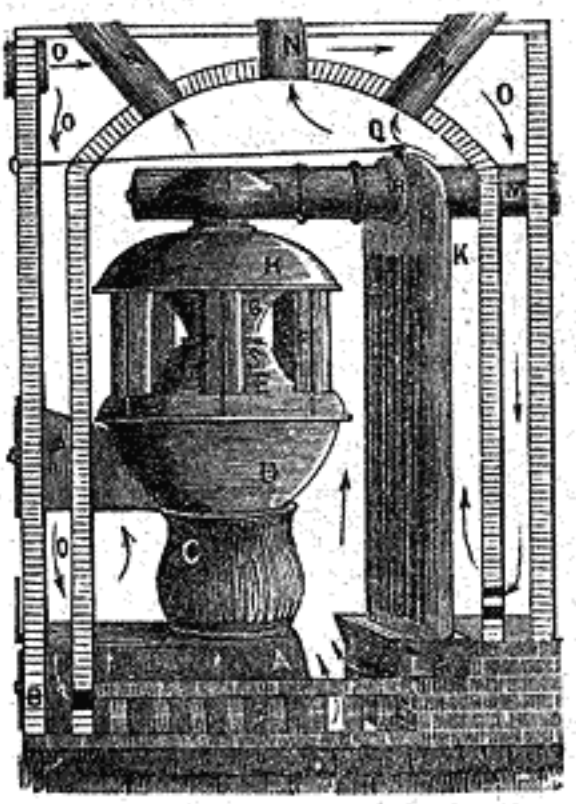
"As you (the Board) have proposed, with perfect correctness, to make the great hall in the Gothic style, for it can be in no other order, placed in such a position immediately beneath the roof, and is capable of being made highly ornamental in such a place, I was of opinion that the exterior of the whole building should accord with it, as, if it were planned in any other style, it would appear inharmonious, and therefore produce an unpleasant effect on the mind by its incongruity. The height of the building, too, the great pitch of the roof, and the numerous chimneys and ventilating flues necessary to render the arrangement perfect, would entirely preclude the adoption of the Grecian, Roman, or modern Italian styles, with any good effect, apart from their being much more expensive, and less beautiful.

"I have entered at length into the reasons which guided me in the adoption of a style for the building, because it might at first sight appear expensive, and therefore improper for such an institution. You will at once perceive the great strength which the buttresses impart to the building, and the consequent reduction in the thickness of the walls. These buttresses will also serve for ventilating flues, which in such a building should be of large size, in order to prevent, as far as possible, any friction from interfering with the passage of the currents of air, an end which can only be attained by large and smooth flues."

The dimensions of the building are as follows: The length of the building, exclusive of all projections, is 125 feet, and the breadth 80 feet. The height, to the eaves, 65 feet, and to the top of the gable, 100 feet. The height of the towers, 110 feet

The building is divided into a basement, three stories, and a great hall under the roof. The basement is nine feet in height, and is arched to afford ground for exercise in bad weather. In it, also, are the janitors' lodgings, the chemical laboratory, and the closets for the hats and clothes of the students. The first, second and third stories are divided into four great rooms by two wide, spacious halls, which are carried through the centre of the building longitudinally and transversely. Two of these rooms, on each floor, are again divided, affording smaller rooms for recitation, &c. Above these stories is the great hall, 125 feet long by 60 feet in breadth, divided by the king and queen posts of the roof, which are made ornamental, into three aisles, the centre one of which is 40 feet in height, and the two side aisles each 20 feet in height. The ceiling of this room is of wood immediately under the roof, of which it forms part, and it is ornamented with carved ribs of wood, in the manner of the old college halls at Oxford and Cambridge. It is lighted by windows at the ends and by dormers in the roof, and when finished, will probably be the largest and finest collegiate hal. in this country.





A. Iron or brick ash-pit.
B. Ash-pit door.
C. Pot, or coal Burner, with or without *soap-stone* lining.
D. Fire chamber.
E. Lower half of tubular drum.
F. Elliptical tubes.
G. Upper half of tubular drum.
H. Top of tubular drum.
I. Cap and smoke-pipe.
K. Flat radiator.
L. Water basin or evaporator.
M. Smoke pipe to chimney.
N. Conductors of hot air.
N. Cold air conductor and chamber.
P. Feed door.
Q. Hot air chamber.
R. Damper in globe with rod attached.
S. Pendulum valve for cleaning.
+— Shows the direction of the currents of hot or cold air.

Fig. 3.—Culver's Furnace.

The mode of warming and ventilating the several apartments of the Free Academy can be easily understood by consulting Figures 2, 3 and 4. Four of Culver's furnaces are set in the basement, as shown in Fig. 3. A large quantity of fresh air from out of doors, after being warmed by these furnaces, is carried up to the several stories by pipes in the division walls, (Fig. 2,) and is admitted into the rooms at a convenient point, as indicated in Figures 5 and 6. The air of each room, as it becomes vitiated by respiration, is discharged by openings near the ceiling into the buttresses, which are constructed hollow and finished smooth, so as to constitute large ventilating flues. Each opening is fitted with one of Culver's Ventilators or Registers, with cords attached, by which the capacity of the opening for the discharge of vitiated air can be enlarged and diminished at the pleasure of the teacher. The practical working of the furnaces and flues for ventilation, secures the object aimed at—a genial and pure atmosphere at all times.

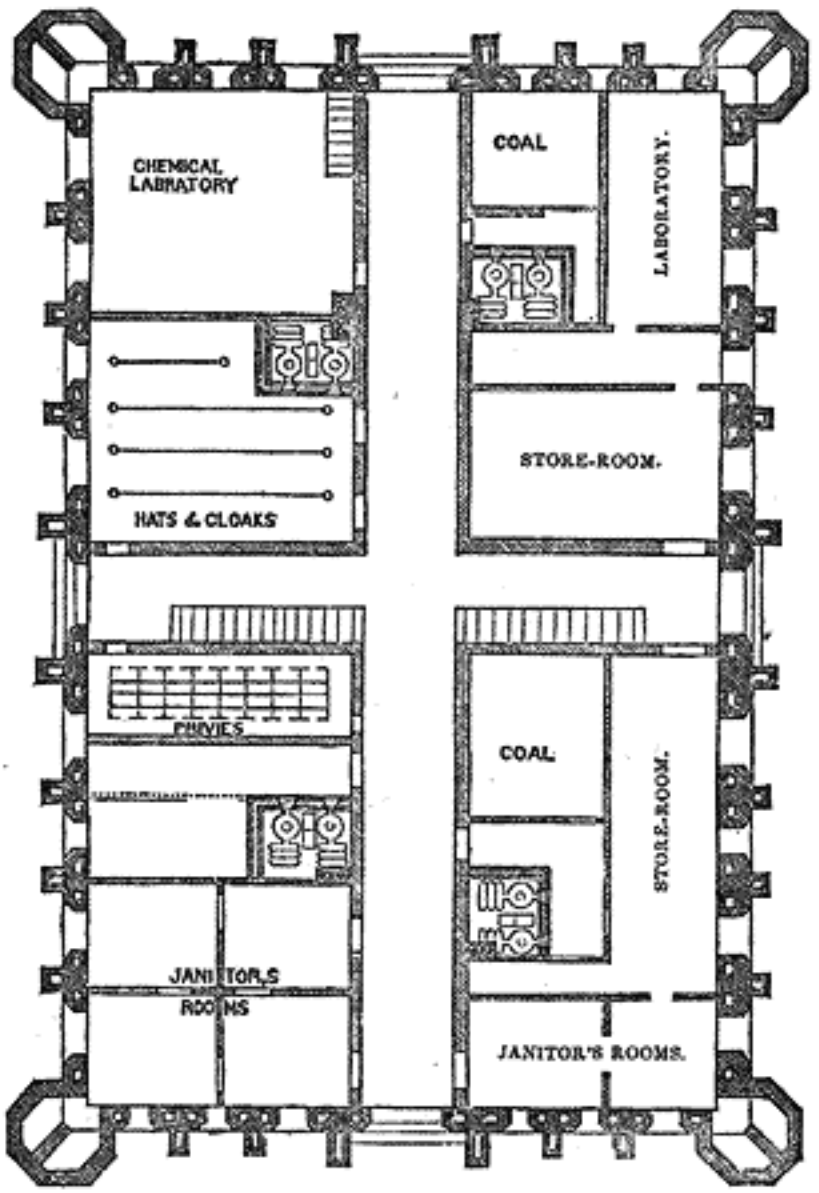
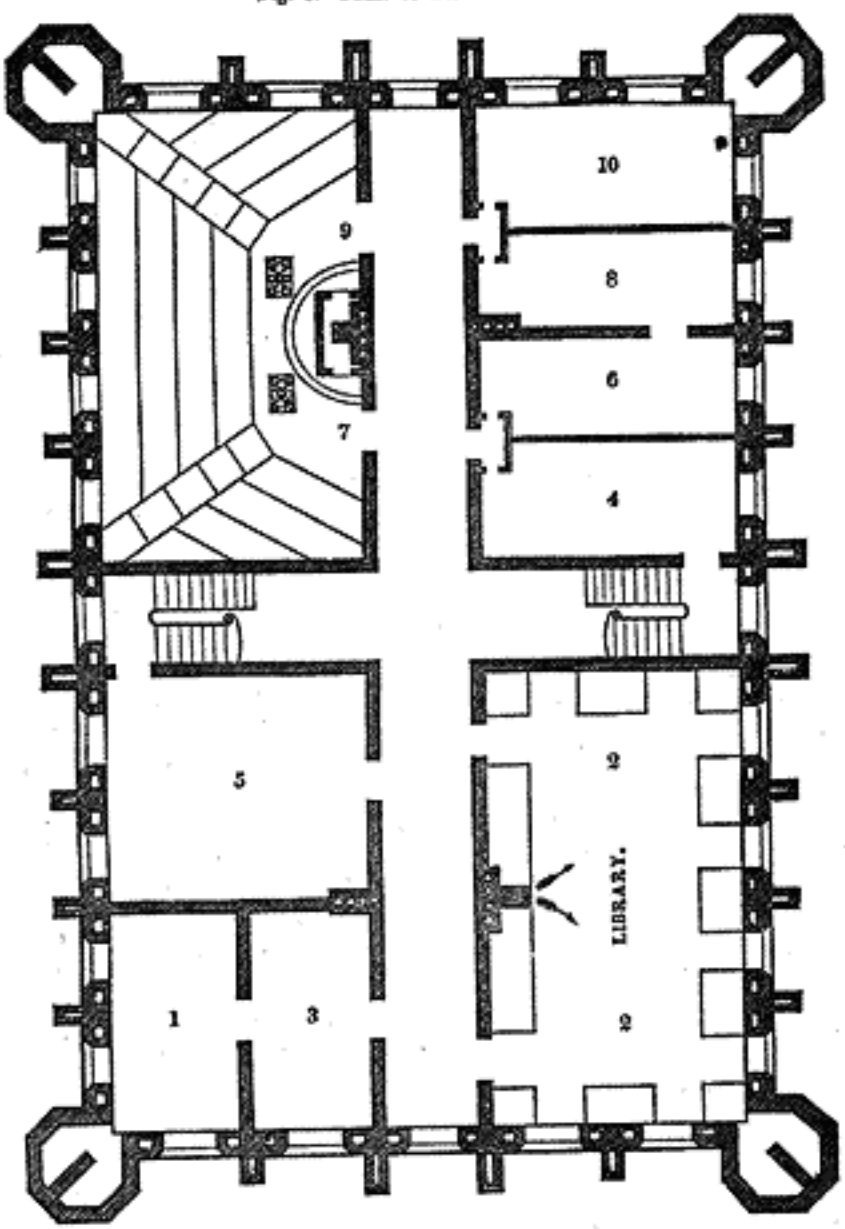


Fig. 3.—Basement Floor.

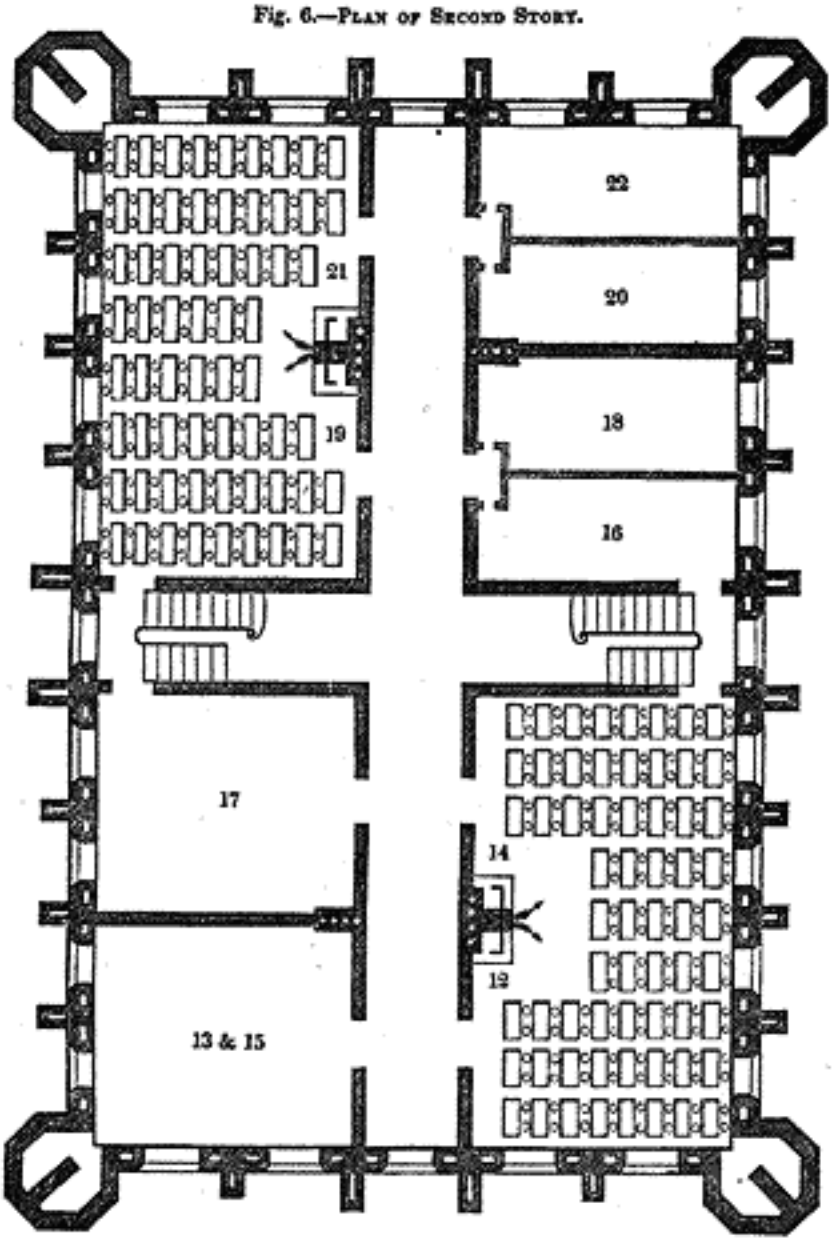
The above cut gives an incorrect view of the exterior of the building, but a good idea of the internal arrangement of the basement story.

Fig. 5.—Plan of First Story.



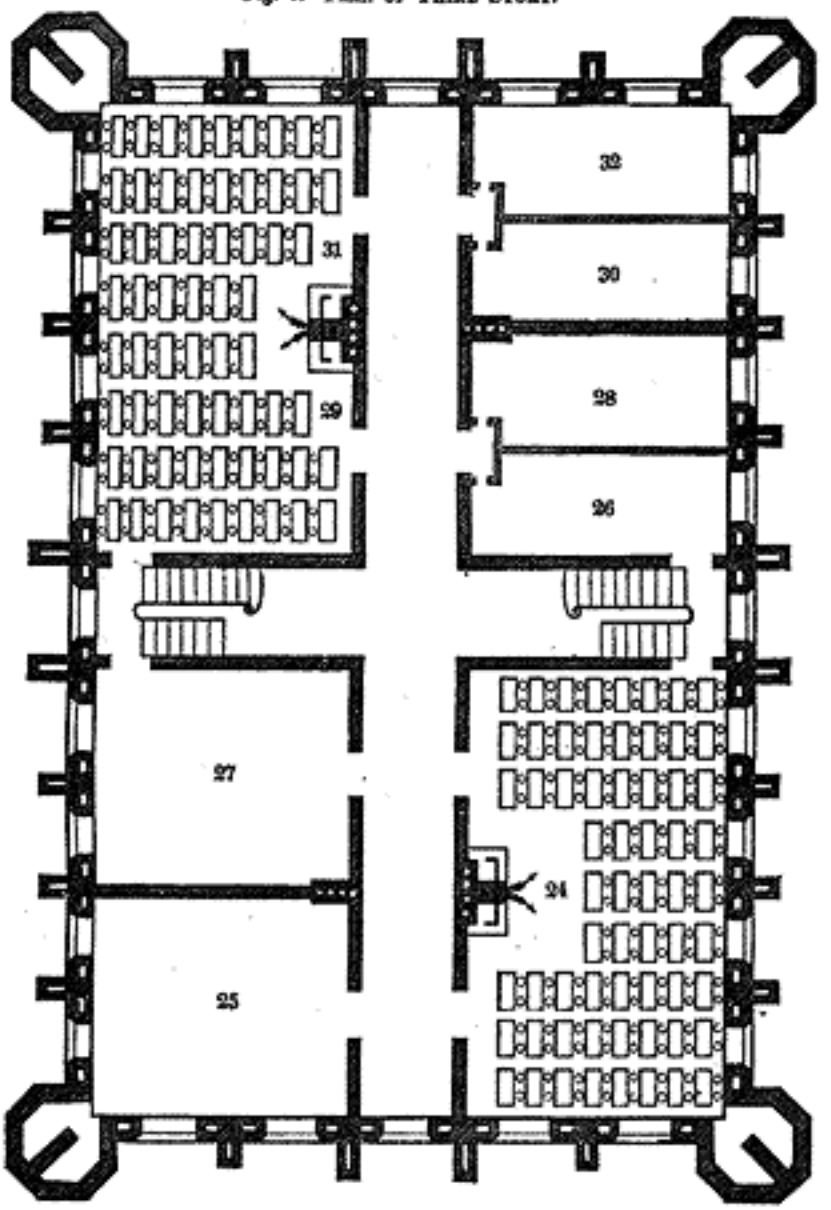
Nos. 1. Office of Principal.
2. Library.
3. Depository of Text-Books.
4. Class Room in Mathematics.
6. Professor in French.
7 and 9. Lecture Room.
8. Class Room in Mathematics.
10. Professor of History and Belles Letters.

Fig. 6.—Plan of Second Story.



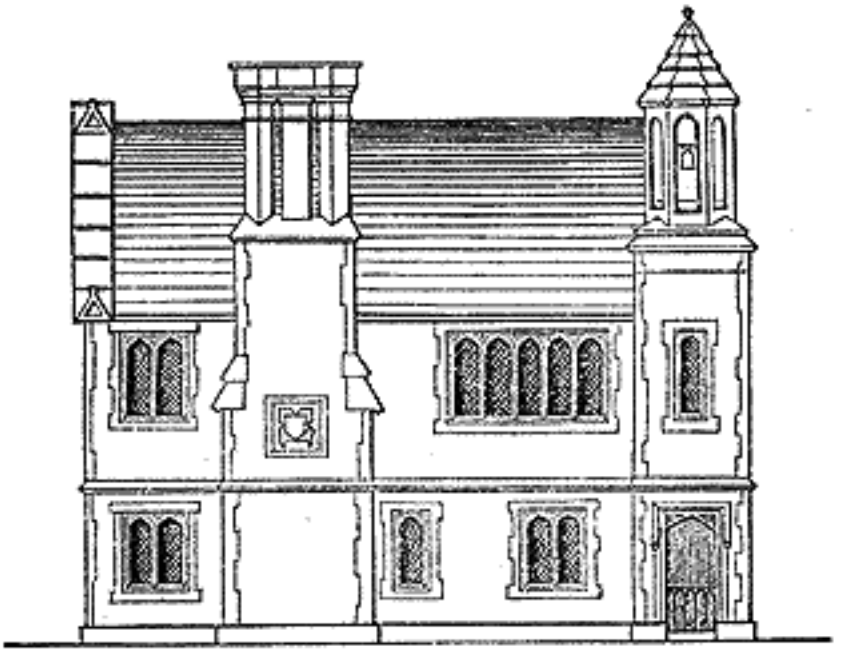
Nos. 13 and 15. Professor of Civil Engineering.
12 and 14. Study Hall.
16. Class Room for Tutor in Mathematics.
17. Study Hall.
18. Class Room for Tutor in Moral Philosophy.
19 and 21. Drawing Hall.
20. Professor of Ancient Languages.

Fig. 7.—Plan of Third Story.



Nos. 24. Study Hall.
25. Professor of Mathematics.
26. Class Room for Tutor of Moral Philosophy.
27. Study Hall.
28. Class Room for Tutor of Rhetoric.
29 and 31. Study Hall.
30. Class Room for Tutor of Rhetoric.
32. Professor of English Literature.

PLAN—No. 12. FRONT ELEVATION.



PLAN—No. 13. FRONT ELEVATION.