Town Hall, Wellington.

The excellent picture, which we print on this month's cover, depicts the Wellington Town Hall, New Zealand's finest municipal building.

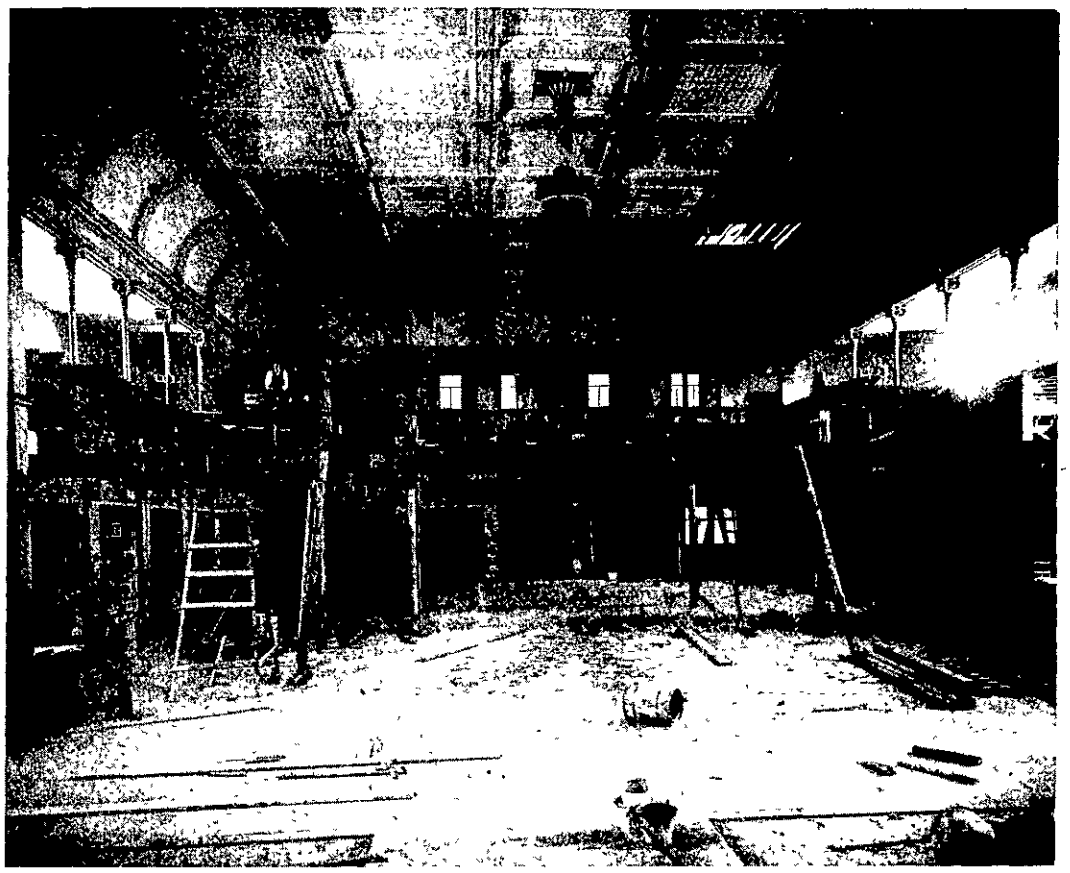
The architecture is Italian Renaissance and Corinthian, and the effect of these styles is imposing when viewed from an outside vantage point. Looking towards the building from the north the beholder is first impressed with the handsome main portico supported on its graceful Corinthian columns, and surmounted by the clock tower—209 ft. from ground to flagstaff truck. But the symmetrical proportions of the huge building are evident on all sides, while the embellishments on the pediments and superstructure generally form quite a feature in the external scheme. These are appropriately confined to allegorical groups and the civic symbolism of the city.

Entering the building at the main entrance in Cuba street, the visitor is at once delighted with the chasteness of pure white wall and ceiling; and, passing into the Great Hall—one of the largest in the Southern Hemisphere—he is fascinated by the sheer bigness of things. This chamber is 150 ft. long, 75 ft. wide, and 48 ft. high. It accommodates, without overcrowding, 3,000 people, and possesses acoustic properties of the first order. A continuous gallery, 10 ft. from the ground floor, encircles the hall, and seats quite half the forementioned number. The colouring of ceiling and gallery balustrade constitutes, perhaps, an unnecessary expenditure, but, nevertheless, remains as pleasing to the eye as the artistic application of harmonious tints can procure. The organ, built by Norman & Beard, London, is one of the finest in the Australasian colonies, and cost upwards of £6,000. The design of the instrument is such as to enhance the architectural effect of the Great Hall.

Passing upstairs to the first floor, the visitor next inspects the Small Hall, 62 by 46 by 30 ft., an admirable little chamber for the average concert, and capable of seating 500 people. Herein are permanenly fixed a sloping stage, with a couple of contiguous ante-rooms, and modern devices for ensuring requisite warmth and ventilation. On this floor are also the Council Chamber and Mayor's Offices, besides the host of smaller rooms used in direct connection with the Council's work. In the Council Chamber a horseshoe table has been adopted in place of the inconvenient, oblong one of old. This idea brings about a considerable saving of time in despatching the business of the Council.

The provisions for escape in event of fire are quite commensurate with the detail bestowed upon the eye-pleasing qualities of the Town Hall. The building is fireproof and the exits are considered perfectly adequate in event of panic. The body of the Great Hall and the gallery have six egresses, all opening on to the main 10 ft. corridors to fire escapes. Of the latter there are two—one leading from the Great Hall into Mercer-street yard, the other into an interior area. Cloak rooms and conveniences for performers and public abound. Electricity is used for the lighting, and a system of ventilation is installed which militates against oppressiveness when the halls are crowded.

The contractors were Patterson, Martin and Hunter, and the price to date is close on £60,000, architect, J. Charlesworth; clerk of works, J. Short. Among the sub-contractors were the following.—furnishings, H. Feilder; ironwork, Crabtree & Sons (200 tons of steel girders and ironwork for balustrades); plumbing and heating, G. Snadden; plastering and tiling, T. Foley & Sons; painting, Jackson & Co.; electrical work, J. Dawson; zinc (Wunderlich), Briscoe & Co.; linoleums, etc., Kirkcaldie & Stains.



THE CANTERBURY HALL IN COURSE OF ALTERATION; WHEN FINISHED THE HALL WILL SEAT 250 IN ORCHESTRAL STALLS, 600 IN STALLS, 400 IN PIT, 350 IN DRESS CIRCLE—TOTAL, 1600.
[*Clarkson & Ballantyne, Architects.*

Principles of Ventilation.

By Alfred L. Hubbard, M.E.

The problem of maintaining air of a certain standard of purity in various buildings occupied is one of supreme importance, and stands in very close relation to the problem of heating.

The introduction of pure air can be done properly only in connection with some system of heating; and no system of heating is complete without a supply of pure air, depending in amount upon the kind of building and the purpose for which it is used.

Composition of the Atmosphere.

Atmospheric air is not a simple substance, but a mechanical mixture Oxygen and nitrogen, the principal constituents, are present in very nearly the proportion of one part of oxygen to four parts of nitrogen by weight. Carbonic-acid gas, the product of all combustion, exists in the proportion of 3 to 5 parts in 10,000 in the open country. The quantity of water present, in the form of vapour, varies greatly with the temperature, and the exposure of the air to open bodies of water. In addition to the above, there are generally present in variable but exceedingly small quantities, ammonia, sulphuretted hydrogen, sulphuric, sulphurous, nitric, and nitrous acids, floating organic and inorganic matter, and local impurities. Air also contains ozone, which is a peculiarly active form of oxygen; and in 1895 a hitherto unknown and exceedingly inert constitutuent called "argon" was discovered.

Oxygen is one of the most important elements of the air, so far as both heating and ventilation are concerned. It is the active element in the chemical process of combustion, and also of a somewhat similar process which takes place in the respiration of human beings. Taken into the lungs, it acts upon the excess of carbon in the blood, and possibly upon other ingredients, forming chemical compounds which are thrown off in the act of respiration or breathing.

Nitrogen comprises the principal bulk of the atmosphere. It exists uniformly diffused with oxygen and carbonic-acid gas. This element is practically inert in all processes of combustion or respiration. It is not affected in composition, either by passing through a furnace during combustion, or through the lungs in the process of respiration. Its action is to render the oxygen less active, and to absorb some part of the heat produced by the process of oxidation.

Carbonic-acid gas is of itself only a neutral constituent of the atmosphere, like nitrogen; and, contrary to the general impression, its presence in moderately large quantities (if uncombined with other substances) is neither disagreeable nor especially harmful. Its presence in the air, however, provided for respiration, decreases the readiness with which the carbon of the blood unites with the oxygen of the air, and therefore, when present in sufficient quantity, may cause indirectly, not only serious, but fatal results. The real harm of a vitiated atmosphere is caused by its other constituent gases, and by the minute organisms which are produced in the process of respiration. It is known, however, that these other impurities exist in fixed proportion to the amount of carbonic acid present in an atmosphere vitiated by respiration. Therefore, as the relative proportion of carbonic acid may be easily determined by experiment, the fixing of a standard limit of the amount in which it may be allowed also limits the amounts of other impurities which are found in connection with it.

When carbonic acid is present in excess of 10 parts in 10,000 parts of air, a feeling of weariness and stuffiness, generally accompanied by a headache, will be experienced; while with even 8 parts

THE RESIDENCE OF MR. CRACROFT WILSON, CHRISTCHURCH. [*S. Hurst Seager, Architect.*