

The rooms in the Agricultural wing, to which the Vault System does not fully extend, are warmed by means of horizontal and box steam coils.

#### VENTILATION.

The various rooms on the quadrangle front are ventilated by flues,  $8\frac{1}{2}$  by  $8\frac{1}{2}$  inches, carried up in the walls and having registers situated at the floors and near the ceilings. These flues lead into a series of 9-inch earthenware pipes, laid along the attic floor, communicating with the arched brick ventiduct,  $9\frac{1}{2}$  feet by 3 feet 9 inches, over the western corridor. This discharges at its southern end into the ventilating shaft at the south-west angle of the boiler-house. The rooms in the north wing have similar pipes leading into the north end of the ventiduct. The south front is ventilated from each end, towards the centre, the main duct over the corridor being divided by a partition wall opposite the ventilating shaft in the rear, at the south entrance. From this point, two separate arched branches lead into the shaft. The pipes from the flues to the north portions of the ventiduct are of earthenware, and 9 inches diameter. The pipes are in all cases laid so as to join the ventiducts in the direction of the escaping foul air current. Those from some of the rooms lead into chimneys which are provided with separate flues for that purpose.

#### WESTERN BLOCK.

The cold air ducts for this Block have two inlets on the south front; one on the west; and five in the rear: nine in all.

Those in the front consist of plain openings in the area walls, provided with gratings; except that on the west side, which has a cut stone termination. The three in rear of the quadrangle front meet at a point about 40 feet from the building, and are continued in a westerly direction to the brow of the hill, where they form one range in the termination. The other two are carried to the same point, and immediately over those just mentioned, and form a second range at a higher level. At the edge of the hill they are finished in dressed block limestone, and furnished with wrought-iron gratings.

In the interior, the main duct runs along near the centre of the building for the whole length of the south and west sides; from which branches lead off to the several inlets.

The aggregate length of the ducts is 2,564 feet—of these 842 feet are in the interior. They are 3 feet 9 inches wide and 2 feet 3 inches high, with sides of dressed limestone covered with flags in the interior and arched over outside the building.

The boiler-house is 40 feet square, and situated in the rear angle formed by the west and south portions of the block. It is sunk to the same depth below the basement floor, similarly roofed and fitted up as that of the Eastern Block, with the exception that there is one built girder, which is supported by two cast-iron columns. There are two Cornish boilers, 20 feet long and 5 feet in diameter, with all the requisite apparatus for regulating the supply of water and steam. The warm air vaults are 570 feet in length, of the same sectional area, and with steam coils fitted up in them in like manner as described for the Eastern Block.

The steam pipes are arranged, and the heating of the basement, attics, and tank rooms in the towers is effected in the same way as in the Eastern Block.

There is also a smoke and ventilating shaft in the angle of the boiler-house, and another connected with it by underground flues. This is situated in rear of the west front, near its north-west angle.

The warm air flues and flues for ventilation are carried up in the walls. The latter connect with numerous 9-inch earthenware pipes, leading into arched brick ventiducts constructed over the corridors, and communicating with the ventilating shafts in the same manner as already described for the other Block.

The lengths of the various cold air ducts, warm air vaults, flues, pipes, &c., connected with the heating and ventilation of all the Buildings are, approximately, as follows:—

Cold air ducts.....	8,999 lineal feet.
Warm air vaults .....	2,186 “