

The Hygiene of the Home.

By A. J. BACON.

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III.—ITS NEED OF VENTILATION—THE REMEDY.

An aquarium might be defined as a collection of *water* tanks, inhabited by aquatic creatures; in the same way a house might be described as a collection of *air* tanks, in which human beings dwell. If we visit an aquarium (the one at Brighton, for example) and manage to get behind the scenes, we shall find a complete paraphernalia, including boiler, engine, shafting, belting, pulleys, pumps, &c., night and day in constant action to keep the water in those tanks ever on the move, sweet and fresh. The air tanks, intended for man's occupation, have on the other hand not the slightest vestige of anything that can tend to keep the air he lives in wholesome. At the Zoological Gardens, the greatest attention is paid to the aeration of the houses and cages of the various animals; in stables and cattle-sheds this is also not lost sight of, although in human dwellings the question is so utterly neglected.

The by-laws of a beneficent local authority or, if we live in London, the clauses of a full-grown Act of Parliament, insist on our houses being built in a specified manner. The walls must have a definite minimum thickness; the area of the window surface must bear at least a certain ratio to that of the flooring; the building must have adequate foundations, and so on, through a host of ordinances, often tiresome enough to satisfy. The remarkable fact, though, is that not a single regulation is laid down, that will ensure a proper and automatic supply of air! And yet, our houses, after all, are simply collections of *air* tanks.

Most, if not all, of the class of dwellings, which, in the last article, we accepted as typical of an average Briton's house, are the product of that dubious benefit, the speculating builder. The writer lately heard of one of this tribe, who boasted that he had begun business with £2 10s., raised by pawning his watch! With this cash he had paid a deposit upon a freehold plot of land, and, his title thus secured, had given a sharp solicitor a right to a ground rent in exchange for a building lease and a sum of money. This latter sufficed to start the building; a mortgage upon the carcass enabled him to finish it; and a lucky sale pulled him out of the mess (but, after all, what had he to lose?) and provided him with funds for the next venture. What would such a man care about the ventilation of the rooms he constructed? Anything that would pass the surveyor and would sell would be good enough for him, in fact, too good. The surveyor can only insist on adherence to the by-laws or the Building Act (and these are mute upon the point); the purchaser is callous, because he is ignorant upon the matter. The result is evident.

In these islands there exists also the rooted belief

that the open fireplace is a powerful ventilator; that if the fire is burning a room must of necessity be sweet. Many practitioners will order one to be lit, whatever the season; the moment illness declares itself, and this because they share in the public faith in this fallacy. For it is nothing less, and part of the purpose of this article is to prove this point. It is quite impossible to convert a Jew or a Mahomedan to Christianity unless you first convince him that his own cult is based on error; we shall also make but little headway with our gospel of pure air, if we allow this fetish worship of the fireplace as a ventilator to live.

All know that there is a powerful up-current in the chimney of an open grate; it is, too, a matter of common knowledge that the major part of the heat from the fuel consumed flies uselessly up this same shaft, that it is not all smoke and heat, however, that go this way, but chiefly air taken from the room. Though these facts, which everyone knows, are perfectly correct, they in no way show that the room is consequently ventilated so as to be of service to its occupant, man.

When speaking of natural phenomena we very frequently use expressions which have their origin in our primary misconception of their cause; many of these expressions, indeed, tend to universalise these first errors. For instance, we speak of a cork *rising* to the surface of water, of smoke *rising* in the air, of a chimney *drawing*. None of these terms are scientifically accurate, for there is nothing ponderable on earth that possesses any inherent power to move a fraction of an inch from its surface. The cork is *forced* to the surface by the heavier water and the smoke and the heated air in a chimney are *forced* upwards by the colder and, therefore, heavier air outside it. The chimney is purely and solely a passage, the appointed way, and is utterly innocent of power to *draw* anything whatever. The power that *forces* its action is the cold air outside our building, and, to do its work, it enters our rooms, generally through the crack beneath the door; if this suffice not, through the window cracks or those in the floor. Anyone who may doubt this statement has only to step into the passage and hold a lighted candle or match to the underside of the door and he will soon be convinced. Further, the cold air which comes in as described, being heavier than the warm air of the room, is powerless to rise, and all the vaunted ventilation which goes on within our Briton's "castle," is a violent current of icy cold air along the floor level, of which not a mouthful ever reaches his lungs. Hence the cold feet we know so well; hence our footstools (conspicuous by their absence, where fireplaces are not used), and hence the reason why both dog and cat always seek either them, a chair, or even the table, for a resting place.

Last week we saw some of the disastrous effects of this condition of things, and by this time are forced to the irresistible conclusion that our boasted

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