

The Hygiene of the Home.

By A. J. BACON.

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V.—THE MOISTURE IN THE AIR.—LUMINANTS.

It requires but little consideration of the matter to come to the conclusion that the natives of any country must perforce be that variety of the genus man most fitted to dwell there. As the ages have rolled by remorseless Nature has unceasingly eliminated those of each successive generation whose constitution has not been suited to the conditions obtaining, and by this simple process has imperceptibly produced a type of being able to withstand the vagaries of the particular climate he lives in. Thus the Kaffir or the negro will be perfectly well in a place which would kill off a European within a few months, and Britons who attempt residence in the Netherlands are nearly certain to contract low fever, from which the true Dutchman almost invariably remains exempt. Similar examples could be quoted without end.

This reflection leads us unerringly to the conclusion that in our dwellings, if we wish to keep them healthy, we should seek as far as possible to reproduce those conditions of atmosphere which we find in the open and not those obtaining in some foreign clime. It is this evident fact that forces us this week to the study of a question almost universally neglected, even in the case of our most important buildings, to wit, the subject of the moisture contained in the air.

Probably this question may be quite new to some readers of these papers, so little is attention generally paid to it, and others may be totally unaware of its importance. A short digression in the way of explanation must, therefore, be pardoned by those more favoured.

It is a curious fact that, just as Nature is commonly and truly said to abhor a vacuum, so it also seems to have an innate objection to purity in any substance. Pure water, *i.e.*, H₂O, without the addition of any other ingredient is one of the most corrosive substances to be met with; a boiler fed with distilled water will become pitted with holes and useless as a vessel in a very short time, for water abominates the virgin state and will literally feed on the iron rather than endure such a condition. So universal is this law and so difficult to overcome, that such terms as "commercially pure" and "chemically pure" have got into common use, and have an important meaning for scientific investigators, and are not without interest to the physician.

Now, the air we breathe is an inveterate polygamist. It will, so to speak, wed with almost anything under the sun, as the endless variety of perfumes and stinks encountered in life sufficiently testify. One of its favourite wives is water. In a vapoury state it is ever present, and absolutely *dry*

air is, perhaps, as difficult to obtain as it is to secure a *perfect vacuum*.

But this capacity of the air to combine with water varies enormously with its temperature. At 1 deg. of heat it may perhaps be perfectly saturated, and yet the presence of this abnormal quantity of vapour will be quite unsuspected by an ordinary observer; but let the temperature drop even ever so little, and the same air will suddenly become quite opaque with cold steam. The man in the street will say: "It has turned quite foggy all at once!" and will have a vague idea that the vapour has risen out of the ground. The fact is just the opposite of this; steam, contained in the air, has all at once sprung into view and is condensing and falling to the ground, as the damp pavements witness, in the shape of dew. During the day the air has affinity for a far greater quantity of water than at night, when it is cooler, and this fact has an important bearing upon our subject.

Who amongst us cares whether the air we breathe is dry or moist? Who, indeed, knows to what extent it should be either, to be healthy? Amongst her working tools, does any nurse count a hygrometer a necessity? It is more than probable that few indeed have even a remote conception what such an instrument is and certainly no idea that it could aid them in their work! And yet, all of us suffer constantly from the almost universal neglect of this important matter, for we all know how dry the throat gets after a time in any room that is artificially heated, and especially if in one where there is a stove or some kind of steam or hot-water apparatus. Still, we are not altogether ignorant of the matter. Just as in our aquaria we take great pains to give our fish *pure water*, so, in our conservatories and hot houses, we see to it that our plants have *fittingly moistened air*! But then fishes and plants cost money, and in some cases are difficult to procure; of mankind there is a glut and a few persons more or less are of no importance. Again, we are not ignorant of the subject when we want to dry our washing, for then we raise the temperature of our drying-rooms as high as we can without actually scorching our clothes in order to increase the avidity of the air for moisture. In Lancashire cotton mills and weaving sheds (especially the latter) the air is systematically moistened to keep the threads from snapping in the process of manufacture and to such an extent was this the case that a special Act of Parliament had to be passed to check the abuses that were common in this way. The greed of gain led the masters to force their people to work in a veritable steam bath! No! We cannot plead total ignorance of this question, but when discussing household hygiene, we must admit our utter neglect.

Mr. Thomas Box, in his valuable "Practical Treatise on Heat" (1880),* tells us that taking the

* E. and F. N. Spon. 12s. 6d.

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