

The Hygiene of the Home.

By A. J. BACON.
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IV. (Part 2).—HOW IT SHOULD BE WARMED.— THE VALUE OF COLD AIR.

In the category of heating appliances, which only partially warm by radiation must be included every known system excepting the open fireplace, so cherished by the Briton and almost by him alone. Unfortunately, many of these latter are robbed of their great hygienic value by ignorant ironfounders, who, thinking to increase their heating power, add all kinds of devices to warm the surrounding air. Such an open fire-grate was proudly shown to the writer a few weeks back by a vapid salesman as "having four tubes running up inside the firebox." "These," he said, "drew air in at the bottom and delivered it heated into the room at the top of the precious invention. You cannot think," he added, "how much greater is the effect!" Little did he dream that this brilliant idea destroyed the chief principle of the open fire or, at all events, rendered it almost nugatory.

But then, what compulsion is there in "free" England for such a man to know anything at all about the principles of his business? Any tyro, who can afford to pay the sign-writer, can dub himself a "heating and ventilating engineer," and we have only to wander through a few of our nearest streets to be painfully aware that too many may take full advantage of this freedom our laws permit. Pure beer, pure water, pure food are things all can talk of glibly enough, but pure air few know anything of, and the most of us care less. So, we let any quack, doctor this essential of our existence with the first nostrum his empty brainpan can think of, and then wonder why we are so listless and out of sorts. Deprive a man's beer of a single degree of its strength, and he will set the law in full operation to obtain his rights; extract 10 per cent. of the oxygen in the air he breathes, charge it with carbonic acid gas till it fairly stinks, and he will not say a word; on the contrary, he will, perhaps, commend you to his neighbour as one who really does know his business.

In most continental countries a man may not call himself an "engineer" unless he can show a diploma, certifying that he has satisfactorily passed through a course of study. The term has a definite meaning, and does not signify anything from the driver of a donkey-pump or a steam-roller to the proud designer of a Forth Bridge. Even the initials "C.E." have no certain meaning in this country, for all can assume them, and there is no authority to say "nay." The old time warning against false prophets applies equally amongst us to engineers, both civil and ordinary; it is alone "by their works ye shall know them!"

This being true, it is important that the man in

the street should arm himself against the empty vapourings of quacks by acquiring some elementary knowledge of the principles which should govern the ventilation and the warming of our dwellings, offices, and workshops in which we must perforce pass most of our time. It is well also that those who are called in to care for the ailing should be able to point out the cause of the pale cheek, of the aching head, things more often than not the outcome of the unhealthy state of the "air-tanks" the patient inhabits.

The root principles are simple enough. Oceans of fresh, pure, cool air. In the winter we wear warmer clothing than in the dog days, and therefore can take our air colder than in the summer. Sixty deg. Fahr. will be found ample (the writer prefers 55 deg. or even 50 deg., but some might find these temperatures too low). An outdoor life as far as may be, but if an indoor existence is a necessity, then let us secure the reproduction of the out-door state as nearly as possible. Perhaps example is better than precept, therefore, at the risk of seeming egotism, let it be given here. These articles are written in the heart of Bloomsbury; the whole winter through, the writer's windows have never once been entirely shut, excepting to momentarily oblige a chance visitor, and have generally been widely open; at night they are always open to the full, for then there is no one to complain; and yet not 1 cwt. of coal has been consumed in the grate for his personal comfort, despite the fact that writing is sedentary employment! Warm underwear of course, but cool, nay cold air, containing the greatest quantity of oxygen for the lungs always! This is his régime to-day—it has been the practice for twenty years. And the result? Not a sixpence on doctor's bills, not a headache the whole time!

Such conditions of life would not suit all, but the principle involved is right. Those who must have warmth should be very jealous of any interference with their open fire, positively antagonistic to the introduction of any close form of stove.

For this is the only means we have of warming our surroundings and keeping the air we breathe cool, and therefore healthy. Of course, it must be admitted that the open grate is a very extravagant mode of heating our rooms; probably not 10 per cent. of the fuel consumed is usefully burnt and thick curls of turgid smoke, all of which is potential heat, are constantly passing up the open throat of the chimney. But this is the fault of the latter, for it is far too large for the work it has to do. Every combustible flashes into flame at some fixed temperature, and not before it has been warmed up to that point. The cold air of the room mingling with the smoke keeps it below the degree of heat required in its case, and hence it will not flame. Anyone can prove this by experiment; it is merely necessary to close the register permanently, so as to

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