

After a somewhat diffuse essay on the hearth of the ancients—in which, by the way, the theory is too easily adopted that the Romans were entirely ignorant of the chimney—we come to the methods of our ancestors. Why the cosy folding screen must henceforth be given up, and why, in speaking of the introduction of the smoke-jack, the past services of the turnspit dog are entirely ignored, may be asked in passing.

Page 17 introduces some interesting particulars of the first use of coal, and page 30 a well-merited eulogium on the labours of Count Rumford in the improvement of fire-grates, and we now approach the pith of the whole matter, namely—how to burn our coal so as to get the maximum of heat with the minimum of smoke and soot. (pp. 44 *et. seq.*) Here the author, having one excellent contrivance to recommend (namely, Dr. Arnott's smoke-consuming grate), has allowed himself to be unfair to other inventors whose grates for certain purposes are preferable. Of this class perhaps the most conspicuous example is the manner in which Taylor's stove, manufactured by the Coalbrookdale Co., is treated in the work before us. It is indeed mentioned (page 51) as an ingenious contrivance but full of deficiencies in practice, and as one which "now appears to have become forgotten." As respects its deficiencies, several instances are well known to us in which this grate of Mr. Taylor's has given the greatest satisfaction. No unsightly contrivances—no troublesome machinery—a bright fire—the whole apartment pervaded by the fresh warm air brought from an external source to the back of the stove, and emitted from the radiating tiles—the chimney-sweeper's visits for years dispensed with—such are some of its characteristics; and as to its "having become forgotten," assurance has been received from good authority that the demand for these grates is well kept up.

There are also several stoves which in a work like the present should have been noticed, *e.g.* Wright's, Woodcock's, Rosser's, and especially Galton's.

At page 54 the author discusses the recommendations of the committee appointed by the Board of Health, and gives some valuable comments upon them, and then proceeds to consider the question of the *Stove of the Future*, in its materials and management. Nothing has been more clearly established than the superiority of fire-brick over iron for the "fire-pot," or actual inclosure of the fuel. But the benefit of this discovery has, as yet, only reached the upper and middle classes of society, "but," says the author, p. 66, "in small houses and in the apartments occupied by skilled and unskilled workmen, the use of fire-brick is unknown, so that those who most require to use economical grates are those who are most ill provided. The working classes have either the most trumpery contrivances that Thames-street can furnish, and which are put into the fire-place at the smallest possible expense for labour and materials; or they use, in streets which have become gradually deserted by the classes which once lived in them, the badly arranged fire-places of thirty or fifty years ago."

We hope that these valuable observations will not be lost. Such fire-places as Pierce's Cottage Grate, described p. 39, are scarcely more expensive than the cheap and trumpery contrivances referred to, and if the proper arrangement of the chimney throat could also be secured in all newly constructed houses for the working-

classes, the effect would be soon apparent both in favour of their health and of their pockets.

This improvement of the chimney throat is described by the author p. 73, and consists in contracting the flue to its ordinary capacity at once at the top of the fire-place opening, instead of the more common practice of gathering it in by degrees.

In p. 85, the plan of having a single main chimney-shaft for all fire-places which are situated in the same part of the house is advocated. It is not evident, from the text, whether the author is aware that this plan has been carried out, in several instances, in different parts of the country. It is a subject, certainly, which deserves more attention than it has yet received.

In the last chapter (p. 90), the general warming of halls, corridors, &c., is considered. It may be mentioned in connection with the Russian and Swedish method referred to, that the Germans, who have hitherto adopted generally the same plan, are beginning to place the fire-front of the stove in the apartment that is to be warmed by it, instead of in the corridor, with the stove surface only in the apartment, and, as may be supposed, with a manifest improvement in the ventilation.

This chapter is well worth attention: exception must, however, be taken to the way in which Gurney's stove is mentioned, p. 108. "The prestige attaching to the name of its producer," may, indeed, have not been without its use in obtaining for these stoves their first trial, but would hardly have been sufficient, apart from their intrinsic good qualities, to have obtained for them the wide reception both at home and abroad which they have had; or to have created the almost invariable satisfaction with which their use has been attended.

The book is a useful contribution to the literature of the subject, and well illustrated by engravings. F.C.P.

#### OUR BOOK SHELF

*The Mammalia of Massachusetts.* By J. A. Allen. (Trubner & Co.)

FROM this carefully drawn-up report we learn that there are sixty-five mammals at present indigenous to this American State. The common ones, with a few exceptions—as the mink (*Putorius lutreolus*), weasel (*P. ermineus*), and skunk (*Mephitis mephitica*), among the carnivores; *Vespertilio subulatus* and *Lasiurus noveboracensis* among the bats—belong to the families of the rodents, the squirrels, mice, and hares, and to the *Balanidae* and *Delphinidae*, which latter are of course marine. The panther, moose, reindeer, elk, and beaver have comparatively recently become extinct. A notice is appended to the work by Prof. Agassiz, earnestly requesting friends to forward to him males, females, and young of almost any of the European mammals. Books on mammalia would be equally valued, and in exchange he offers on the part of the museum at Cambridge, U.S., representatives of the North American fauna and American books.

*Effects of Climate and Soil upon Plants.—Die Abhängigkeit der Pflanzengestalt von Klima und Boden.* Von A. Kerner. Pp. 48. (Innsbruck, 1869. London: Williams and Norgate.)

THIS pamphlet is of greater importance than would be indicated by its mere size, as a contribution towards an investigation of the causes which lead to the diversities of floras, and hence towards a knowledge of the laws on which depends the great problem of the origin of species. M. Kerner has made a special study of the flora of the