

chimney robs the hot air at the chamber top of part of its heat. The disadvantages in practice however, and difficulty of creating and maintaining a downward draught through the smoke flue, do more than counterbalance any advantage to be gained by the desired arrangement ; for even when the necessary dampers are opened previous to a new supply of fuel, it still takes a considerable space of time for the smoke to abandon its wonted course and resume a new one, and during the interval there is certainty of the emission of smoke in large quantities from the feed door. In furnaces where the smoke takes a downward direction it is difficult and almost impossible to kindle a fire at the first outset, unless a small fire be previously kindled in the chimney shaft to exhaust the air from the flues and thereby create the required draught through them, and ordinary servants in dwelling houses will always prefer the disadvantage of a room full of smoke to the trouble of working dampers and kindling a first fire by which to procure a draught for the second. To be sure in many chimnies there is a sufficient natural draught but that is the exception and not the rule.

It is obviously necessary also for smoke consuming