is farther from the wind than the chimney commanded. To explain this a figure may be neceſſary. Suppoſe then a building whoſe side AB happens to be expoſed to the wind, and forms a kind of dam againſt its pro­greſs. Suppoſe the wind blowing in the direction FE. The air obſtructed by this dam or building AB will like water preſs and ſearch for paſſages through it; but finding none, it is beat back with violence, and ſpreads itſelf on every ſide, as is repreſented by the curved lines e, *e, e, e, e, e.* It will therefore force itſelf down the ſmall chimney C, in order to get through by ſome door or window open on the other ſide of the building. And if there be a fire in ſuch chimney, its ſmoke is oſ courſe beat down, and fills the room.

*Remedy.* There is but one remedy, which is to raiſe ſuch a funnel higher than the roof, ſupporting it if ne­ceſſary by iron bars. For a turncap in this caſe has no effect, the dammed up air preſſing down through it in whatever poſition the wind may have placed its open­ing.

Dr Franklin mentions a city in which many houſes are rendered ſmoky by this operation. For their kitch­ens being built behind, and connected by a paſſage with the houſes, and the tops of the kitchen-chimneys lower than the tops of the houſes, the whole ſide of a street when the wind blows againſt its back forms ſuch a dam as above deſcribed ; and the wind ſo obſtructed forces down thoſe kitchen-chimneys (eſpecially when they have but weak ſires in them) to paſs through the paſ­ſage and houſe into the ſtreet. Kitchen chimneys ſo formed and ſituated have another inconvenience. In ſummer, if you open your upper room windows for air, a light breeze blowing over your kitchen chimney towards the houſe, though not ſtrong enough to force down its ſmoke as aforeſaid, is ſuſſicient to waft it into your windows, and fill the rooms with it ; which, be­ſides the diſagreeableneſs, damages your furniture.

7. Chimneys, otherwiſe drawing well, are ſometimes made to ſmoke by *the improper and inconvenient ſituation of a door.* When the door and chimney are on the ſame side of the room, if the door being in the corner is made to open againſt the wall, which is common, as being there, when open, more out of the way, it follows, that when the door is only opened in part, a current of air ruſhing in paſſes along the wall into and acroſs the opening of the chimney, and flirts ſome of the ſmoke out into the room. This happens more certainly when the door is ſhutting, for then the force oſ the current is augmented, and becomes very inconvenient to thoſe who, warming themſelves by the tire, happen to fit in its way.

The *remedies* are obvious and eaſy. Either put an intervening ſcreen from the wall round great part of the fireplace ; or, which is perhaps preferable, ſhift the hinges of your door, ſo as it may open the other way, and when open throw the air along the other wall.

8. A room that has no fire in its chimney is ſome­times filled with *ſmoke which is received at the top of its funnel, and deſcends into the room.* Funnels without fires have an effect according to their degree of coldneſs or warmth on the air that happens to be contained in them. The ſurrounding atmoſphere is frequently changing its temperature ; but ſtacks of funnels covered from winds and fun by the houſe. that contains them, retain a more equal temperature. If, after a warm ſeaſon, the out­

ward air ſuddenly grows cold, the empty warm funnels begin to draw ſtrongly upward; that is, they rarefy the air contained in them, which of courſe riſes, cooler air enters below to ſupply its place, is rarefied in its turn, and riſes ; and this operation continues till the funnel grows cooler, or the outward air warmer, or both, when the motion ceases∙. On the other hand, if after a cold ſeaſon the outward air ſuddenly grows warm and of courſe lighter, the air contained in the cool fun­nels being heavier deſcends into the room ; and the warmer air which enters their tops being cooled in its turn, and made heavier, continues to deſcend ; and this operation goes on till the funnels are warmed by the paſſing of warm air thro’ them, or the air itſelf grows cooler. When the temperature of the air and of the funnels is nearly equal, the difference of warmth in the air between day and night is sufficient to produce theſe currents : the air will begin to aſcend the funnels as the cool of the evening comes on, and this current will con­tinue till perhaps nine or ten o’clock the next morning, when it begins to helitate ; and as the heat of the day approaches, it ſets downwards, and continues ſo till to­wards evening, when it again heſitates for ſome time, and then goes upwards conſtantly during the night, as before mentioned. Now when ſmoke iſſuing from the tops of neighbouring funnels paſſes over the tops of fun­nels which are at the time drawing downwards, as they often are in the middle part of the day, ſuch ſmoke is of neceſſity drawn into theſe funnels, and deſcends with the air into the chamber.

The remedy is to have a sliding plate that will ſhut perfectly the offending funnal. Dr Franklin has thus deſcribed it : “ The opening of the chimney is con­tracted by brick-work faced with marble ſlabs to about two feet between the jams, and the breaſt brought down to within about three feet of the hearth. An iron frame is placed juſt under the breaſt, and extending quite to the back of the chimney, so that a plate of the ſarne metal may ſlide horizontally backwards and for­wards in the grooves on each ſide of the frame. This plate is juſt ſo large as to fill the whole ſpace, and ſhut the chimney entirely when thruſt quite in, which is con­venient when there is no fire. Draw it out, ſo as to leave between its further edge and the back a ſpace of about two inches ; this ſpace is sufficient for the ſmoke to paſs ; and ſo large a part of the funnel being ſtopt by the rest of the plate, the paſſage of warm air out of the room, up the chimney, is obſtructed and retarded ; and by thoſe means much cold air is prevented from co­ming in through crevices, to ſupply its place. This ef­fect is made maniſeſt three ways. 1. When the ſire burns briſkly in cold weather, the howling or whiſtling noiſe made by the wind, as it enters the room through the crevices, when the chimney is open as uſual, ceaſes as ſoon as the plate is slid in to its proper diſtance. 2. Opening the door of the room about half an inch, and holding your hand againſt the opening, near the top of the door, you feel the cold air coming in againſt your hand, but weakly, if the plate be in. Let another perſon ſuddenly draw it out, ſo as to let the air oſ the room go up the chimney, with its uſual freedom where chimneys are open, and you immediately feel the cold air ruſhing in ſtrongly. 3. If something be ſet againſt the door, juſt sufficient, when the plate is in, to keep the door nearly ſhut, by reſiſting the preſſure of the