repeatedly breathed and compounded with all the vola­tile emanations of the room, quickly loses that refreſhing quality that is ſo deſirable, and even ſo necessary for health. It is never renewed except by very partial admixtures when the room doors are thrown open, and becomes diſagreeable to any perſon coming in from the open air ; and in the houses of the leſs opulent becomes really offenſive and nauſeous.

Something of this is unavoidable in all rooms heated by ſtoves. Even in our apartments in this island, per­sons of delicate nerves are hurt by what they call the cloſe air of a room ; and it is long before the ſmell of dinner is quite removed from a dining-room, notwithstanding the copious current up the chimney. This muſt be incomparably more ſenſible in a room heated by a ſtove ; and this inconvenience is peculiarly ſenſible with respeect to the ſtove which we are conſidering at preſent, where we employ a ſmall ſurface heated to a great degree.

Such ſtoves are ſeldom made of any thing elſe than caſt-iron. This (in thoſe parts at leaſt which are in immediate contact with the fuel) is in a ſtate of conti­nual calcination, and even throwing off ſcales. This in­deed is not ſeen, becauſe it is the bottom or ſole of the fire-place which is ſo heated : but the effect on the air of the room is the ſame. The calcination of the iron is occaſioned by the combination of pure vital air with the iron. This is abstracted from the general maſs of atmoſpheric air in the room, of which it usually conſtitutes about 2/5ths. By this abstraction the remainder becomes leſs fit for ſupporting animal life or flame, and may even become highly dele­terious. In every degree the remainder becomes leſs refreſhing, and grows dull and oppreſſive. This is al­ways accompanied by a peculiar ſmell, which, though not diſguſting, is unpleaſant. It reſembles the ſmell of burnt feathers, or more exactly the ſmell we feel if we rub violently for ſome time the palms of our hands together when perfectly dry.

For ſimilar reaſons theſe iron ſtoves occaſion a ſickly ſmell, by burning every particle of dust which falls on the hot parts ; and if they be wiped with a woollen cloth, or any cloth not perfectly free from every kind of greaſy or oily matter, a ſmell is produced for a day or days afterwards; ſo that without the moſt ſcrupulous attention we ſuffer by our very cleanlineſs.

For ſuch reaſons we think that the flows of brick­work covered with ſtucco or with glazed tiles are vaſtly preferable. Theſe are much uſed in the genteeler houſes in Flanders and Holland, where they are made in the moſt elegant forms, and decorated with beautiful ſculpture or enamel ; but it is plain that they cannot be ſo effectual, nor equally warm a room with the ſame expence of fuel. Earthen ware, eſpecially when covered with porous ſtucco, is far inferior to metal in its power of conducting heat. If built of bricks, they muſt be vaſtly more bulky when the fire-place and flues are of the same dimenſions. The moſt perfect way of constructing them would certainly be to make them of pot­tery, in parts exactly fitted to each other, and joined by a proper cement. This mode of conſtructing would admit of every elegance of form or richneſs of ornament, and would not be ſo bulky as thoſe which are built of bricks. The great difficulty is to prevent their crack­ing by the heat. Different parts of the ſtove being of very different heats, they expand unequally, and there is no cement which can withſtand this, eſpecially when we recollect that the ſame heat which expands the baked earth cauſes the clay or cement, with which the parts of the ſtove are put together or covered, to con­tract. Accordingly thoſe earthen ware stoves ſeldom ſtand a winter or two without cracking in ſome place or other, even when strengthened by iron hoops and cramρs judiciouſly diſpoſed within them. Even hoop­ing them externally, which would be very unsightly,will not prevent this ; for nothing can resiſt the expanſion and contraction by heat and cold. When a crack happens in a ſtove, it is not only unſightly, but highly dangerous ; becauſe it may be ſo ſituated, that it will diſcharge into the room the air vitiated by the fire.

For theſe and other reaſons, we can ſcarcely hope tσ make ſtoves of brick-work or pottery which ſhall bear the necessary heat without cracking ; and their uſe muſt therefore be confined to cases where very moderate heat is ſufficient. We need not deſcribe their conſtruc­tion. It is evident that it ſhould be more simple than that of iron ſtoves ; and we imagine that in the very few caſes in which they are likely to be employed in this country, a single fire place and an arch over it, di­vided, if we pleaſe, by a partition or two of thin tile to lengthen the flue, will be quite enough. If the ſtove is made in whole or in part of potters ware, a baſe for the fire-place, with an urn, column, obeliſk, or pyramid above it, for increasing the ſurface, will alſo be ſufficient. The failure commonly happens at the joinings, where the different pieces of a different heat, and perhaps of a different baking, are apt to expand unequally, and by working on each other one of them muſt give way. Therefore, inſtead of making the joints cloſe and using any cement, the upper piece ſhould ſtand in a groove formed in the undermoſt, having a little powdered chalk or clay ſprinkled over it, which will effectually prevent the paſſage of any air ; and room being thus given for the unequal expanſion, the joint remains entire. This may be considered as a general direction for all furnace­work, where it is in vain to attempt to hinder the mu­tual working of the parts.

We have ſeen ſtoves in ſmall apartments at St Peterſburg, which were made internally of potters ware, in a great variety of forms, and then covered with a thick coat of ſtucco, finiſhed externally with the utmoſt ele­gance of ornament, and we were informed that they were very rarely ſubject to crack. They did not give much heat, on account of the very low conducting power of the porous ſtucco ; but we imagine that they would be abundantly warm for a moderate room in this country.

When fitted up in theſe situations, and with theſe precautions, the brick or pottery ſtoves are incomparably more ſweet and pleaſant than the iron ones.

But in the intenſe colds of Ruſſia and Sweden, or even for very large rooms in this kingdom, ſtoves of theſe ſmall dimenſions are not ſufficiently powerful, and we muſt follow the practice of thoſe countries where they are made of great ſize, and very moderately heat­ed. It is needleſs to deſcribe their external form, which may be varied at pleaſure. Their internal ſtructure is the ſame in all, and is diſtinctly deſcribed in Pneuma­tics, n⁰ 364, We ſhall only enlarge a little on the