has often a perforation, which always allows some egress. This aperture is seldom half large enough. Better to obstruct below. The fittings of the stove should be screwed tightly all round. See that no screw has dropped out. See that the doors fit as snugly as possible. See that the mica fits the door frames accurately. Children poke holes through mica. See that fresh mica is supplied forthwith, or, for economical reasons tin may take the place of mica in school. If so, see that the edges of the tin have the same regular curve as the door-frame, for the tin is apt to be bent. See that the mica or tin is fitted tightly to the door. See that the lid on reservoir fits accurately and see that there is no coal dust or small coal intervening between it and the top. There is a direct and an indirect draught. If the flame be moderate the direct draught is the better. Combustion may readily be kept moderate by obstructing ingress sufficiently. The indirect draught is over the edge of the firepot and up the pipe by a more circuitous route. It is claimed that this hot air heats a greater extent of metal surface, and so radiates more heat. This is hypothetical. The truth is that iron is so good a conductor of heat it will get hot anyway in proportion to the heat of the furnace, and this indirect current is unnecessary. As a semi-obstruction it is objectionable. Assuming fifteen pounds to the square inch as the pressure of the atmosphere in all directions, this indirection in the draught, and the obstructing damper in the pipes raises the gas pressure in the furnace to 16 or 18 lbs. to the square inch. What is the result? The furnace and reservoir leak noxious gases. You cannot get your fittings air-tight. That is often a hard problem in mechanics—to get an air-tight joint. Practically, we have not got air-tight stoves yet. Until we have, we must keep the fittings as tight as we can, and keep the gaseous pressure in the furnace down as near as we can to 15 lbs. This is best done by following my previously dogmatic, now rational, statement: Don't obstruct egress. If the pipe be long before delivery into the chimney, it is still more important to have egress free, as it takes quite a pressure to move a long volume of air. This is doubly true if the pipes be largely horizontal or nearly so. It requires considerable *vis a tergo* to create motion in the gases in the pipes It may be objected that motion is created by the heat causing expansion of air and gases which are thereby lightened and so rise. True, yet we do not get a lower pressure than 15 lbs., and we may get a higher before such a volume of air and gas is moved, especially through horizontal pipes. See that the fittings are tight in the pipes. The edges of pipes are often bent to make them enter one another. This permits escape of gas unless they are pushed so far on as to become tight. Small openings in a horizontal pipe are a constant source for gas leakage. Those who know how hard it is to get an air-tight joint will appreciate the necessity of having all fittings accurate. Those who understand the principles involved will see their importance. By this plan there need be no wasted heat. Ventilation in winter is always a struggle between economy of heat and the necessity for free air. Of two evils choose the least. When sailing between Scylla and Charybdis, a little care will prevent calamity on either hand. If health is not worth this care, what is? By this plan the heated air in the furnace may occasionally get below 15 lbs. pressure. Air is then taken from the school-room through the imperfect fittings around the furnace, and so becomes a positive adjunct to ventilation, which with the air received below is quite useful in taking air out of the school-room the place of which will be taken from outdoors.

What is the chief symptom in pois-