

to pass into the room. Wolpert has calculated that, for every cubic foot of gas, 1800 cubic feet of air must be introduced to properly dilute the products of combustion; and this is not too much if we remember that a cubic foot of good coal gas produces about 2 cubic feet of carbonic acid, and that sulphuric acid and other substances may be also formed. A common gas burner will burn nearly 3 feet per hour, and will consume 10 or probably 12 cubic feet in an evening (4 hours), and therefore from 18,000 to 21,600 cubic feet of air must be introduced for this purpose alone in the 4 hours, unless the products of combustion are removed by a special channel. The power of illumination being equal, gas does not produce more carbonic acid than candles (Odling), but usually so much more gas is burnt that the air is much more deteriorated; there is also greater heat and more watery vapour. The products should never be allowed to escape into the air of the room. Weaver has shown how important a source of impurity this is; and the bad effects of breathing the products of gas combustion are well known.

"A lb of oil demands, for complete combustion, 138 cubic feet of air; and to keep the air perfectly pure, nearly as much air must be introduced for 1 lb of oil as for 10 feet of gas. In mines, 60 cubic feet per hour are allowed for each light; the lights generally are dim, and the amount of combustion is slight; but this seems an extremely small amount.

"If gas is not burnt in a room, or in a very small amount, or if only candles or oil lamps are used, it is seldom necessary to take them into account in estimating the amount of air.

*Quantity required for Sick Men.*—"With regard to sick men, it is impossible to say what quantity should be given. In some diseases, so much organic substance is thrown off, that scarcely any ventilation is sufficient to remove the odour. At the Hospital Beaujon in Paris, it was shown, as long ago as 1847, that 60 cubic metres (=2118 cubic feet) per head per hour did not remove all odour from the surgical wards after dressings. Grassi mentions that a perceptible odour diffused from a case of cancerous ulcer in a ward in the Hospital Necker at Paris, although the ventilation at the time was 3600 cubic feet per head per hour; but bad odour will perceptibly taint an hospital ward with a greater allowance of air even than this. Dr. Sankey found the wards in the London Fever Hospital to be not free from odour when 3720 cubic feet per head per hour were passing in. In the new Hotel Dieu at Paris, it is intended to give at least 100 cubic metres (3500 cubic feet) per head per hour; but it is questionable whether this is suffi-