

tilating shafts in the roof. The circumstances that the percentage of carbonic acid actually diminishes during the use of the incandescent gas burners conclusively proves that the products of combustion from which damage to the pictures, etc., and inconvenience to the public might be apprehended, are completely carried off by the ventilation which is promoted by these burners. Now mind you, although an electric arc does not give rise to sulphur compounds, they do generate ozone and oxides of nitrogen, which are calculated to act prejudicially on pictures and like works of art. The air in any room solely lighted by electricity is always stagnant, hence the yawning and gaping in most public halls, churches, etc., during the time they are occupied, caused by the vitiating of the air by the carbonic acid given off from the people. The only cure, if electricity is used, is good mechanical ventilation of pure air, or to have one or more open gas jets burning in a high part of the building under a ventilating shaft, which will cause a current of air to be drawn upwards.

As regards the effects of different illuminants on the air in a room, we are indebted to Dr. Max West, Ph.D., investigator for the U. S. Government, who made an investigation on this subject. The comparisons taken are for 16 c.p. lights, except in the case of the regenerative and Welsbach burners, which actually give more powerful light.

	Quantity Consumed per hour.	C.P.	Oxygen consumed cu. ft.	Heat produced calories	Vitiation equal to adults.
Tallow candle .	2200 gr.	16	10.7	1400	12.0
Sperm.....	1740 gr.	16	9.6	1137	11.0
Parafin Oil....	992 gr.	16	6.2	1030	7.5
Kerosene Oil...	909 gr.	16	5.9	1030	7.0
Coal Gas—					
Batwing....	5.5 cu. ft	16	6.5	1194	5.0
Argandé....	4.8 cu. ft	16	5.8	1240	4.3
Regenerative	3.2 cu. ft	32	3.6	760	2.8
Welsbach...	3.5 cu. ft.	50	4.1	763	3.0

It is rather startling to learn that an ordinary kerosene or gas light vitiates the air as much as the breath of half a dozen people breathing, and that even incandescent gas lights are equal to the breathing of two or three persons, but these are facts which it is well to remember when making provision for the ventilation. Undoubtedly the last word in gas lighting for houses is the inverted burner.

As regards cost of lighting, you can reckon that the electric incandescent light is about seven times as much as incandescent