and the organic sulphur compounds, which have already been referred to as incapable of removal from the gas by the present methods of purification. The formation of sulphurous acid can readily be proved, and even its amount estimated, by passing the products of combustion of a jet of gas through a small Liebig’s condenser; the condensed product being heated to boiling with the addition of a few drops of nitric acid, and then treated with solution of chloride of barytes, yields a white precipitate of sulphate of barytes, if any sulphur compound be present in the gas. These impurities, which are encountered in almost all coal gas now used, are the principal if not the only source of the unpleasant symptoms experienced by many sensitive persons in rooms lighted with gas. It is also owing to the sulphurous acid generated during the combustion of these impurities that the use of gas is found to injure the bindings of books, and impair or destroy the delicate colors of tapestry. Therefore the production of gas free from these noxious sulphur compounds is at the present moment a problem of the highest importance to the gas manufacturer, and one which demands his earnest attention. As it is nearly impossible for the consumer to procure gas free from these objectionable compounds, the only method of obviating their unpleasant and noxious effects is to remove entirely the products of combustion from the apartments in which the gas is consumed, and thus prevent them from mingling with the circumambient air. This suggestion was first made by Faraday, who, accomplishing this object, contrived the very beautiful and effective ventilating burner (in operation upon the lecture table). This apparatus, which is used at Buckingham Palace, Windsor Castle, the House of Peers, and in many public buildings, may be truly said to have brought gas illumination to perfection; for not only are all the products of combustion conveyed at once into the open air, but nearly the whole of the heat is in like manner prevented from communicating itself to the atmosphere of the room. The only obstacles to the universal adoption of this description of burner are, its expense, and the difficulty of conveying the ventilating tube safely into the nearest flue without injuring the architectural appearance of the room. The public at large will, therefore, await the removal of the objectionable compounds in question by the gas manufacturer, before they will universally adopt this otherwise delightful means of artificial illumination.—Proc. Roy. Inst., May 20, 1853.

The allegation that the present method of gas purification will not remove all the sulphur, is certainly erroneous. We have seldom been able to find a trace of sulphur, either in the gas of our City, or in its products of combustion. The test alluded to, unless carried much farther, would not distinguish the sulphuric from carbonic acid.

*From the London Builder, June, 1853.
On Oxygen.

By Prof. Faraday.*

The object of the speaker was to bring before the members, in the first place, M. Boussingault's endeavors to procure pure oxygen from the atmosphere in large quantities; so that being stored up in gasometers it might afterwards be applied to the many practical and useful purposes which suggest themselves at once, or which may be hereafter developed. The principle of the process is to heat baryta in close vessels and per-oxidize it by the passage of a current of air; and afterwards by the application of the same heat, and a current of steam (with the same vessels), to evolve the extra portion of oxygen, and receive it in fitly adjusted gasometers; then the hydrated baryta so produced is dehydrated by a current of air passed over it at a somewhat higher temperature, and finally oxidized to excess by the continuance of the current and a lower temperature; and thus the process recurs again and again. The causes of failure in the progress of the investigation were described as detailed by M. Boussingault; the peculiar action of water illustrated; the reason why a mixture of baryta and lime, rather than pure baryta, should be used, was given; and the various other points in the Mémorie of M. Boussingault were noticed in turn. That philosopher now prepares the oxygen for his laboratory use by the baryta process. The next subject consisted of the recent researches of MM. Frémy and E. Becquerel "On the Influence of the Electric Spark in converting pure dry Oxygen into Ozone." The electric discharge from different sources produces this effect, but the high intensity spark of the electric machine is that best fitted for the purpose. When the spark contains the same electricity, its effect is proportionate to its length; for at two places of discharge in the same circuit, but with intervals of 1 and 2, the effect in producing ozone is as 1 and 2 also. A spark can act by induction; for, when it passes on the outside a glass tube

* From the London Athenæum, June, 1853.