

Illuminating Engineering Society.—The annual convention of the society will be held in Pittsburgh, Pa., beginning September 22, 1913.

An interesting programme is being prepared, which will include the usual number of social events, excursion trips, and visits to industrial establishments in or near Pittsburgh.

The Mode of Combustion of Carbon. T. F. E. RHEAD and R. V. WHEELER. (*Chem. Soc. Proc.*, xxix, 51.)—The authors have shown that carbon dioxide and carbon monoxide are produced together when carbon is burned, and now they give experiments to show how this simultaneous production of the two oxides occurs. Carbon, at all temperatures up to 900° C. and probably above that temperature, has the power of pertinaciously retaining oxygen. This oxygen cannot be removed by exhaustion alone, but only by increasing the temperature of the carbon during exhaustion. When quickly released in this manner, it does not appear as oxygen, but as carbon dioxide and monoxide. The proportions of these two oxides when completely removed depend on the temperature at which the carbon has been heated during oxygen fixation. This "fixation" cannot be accounted for by any physical explanation; in all probability it is the outcome of a physico-chemical attraction between carbon and oxygen: physical, inasmuch as it seems hardly possible to assign any definite molecular formula to the complex formed, which indeed exhibits progressive variation in composition; chemical, in that no isolation of the complex can be effected by physical means. When the complex is decomposed by heat, carbon dioxide and monoxide are produced. At a given temperature of decomposition these oxides make their appearance in a given ratio. Further, when a rapid stream of air at a given temperature is passed over carbon (which has been previously saturated with oxygen at that temperature), carbon dioxide and monoxide appear in the products of combustion in nearly the same ratio as they do in the products of decomposition of the complex at that temperature. It is therefore suggested that the first product of combustion of carbon is a loosely-formed physico-chemical complex which can be regarded as an unmistakable compound of carbon and oxygen of an, at present, unknown formula, C_xO_y . It is probable that no definite formula can be assigned to this complex.

