sorption coefficient of nitrogen and no experiments were made with hydrogen. The author points with pride to these results as showing that the solubility of a gas is not a function of the concentration in the solution of a non-electrolyte. Sodium chloride and barium chloride both affect the solubility, the change in the absorption coefficient being proportional to the two-thirds power of the concentration. Here again, the author is most impressed by the fact that there is zero disturbance for zero concentration.

W. D. B.

On the want of uniformity in the action of copper-zinc alloys on nitric acid. *J. H. Gladstone. Phil. Mag.* [5] **50**, 231 (1900). — Experiments are published, showing that the decomposition-products formed when nitric acid acts on a zinc-copper alloy or a corresponding mixture may, and sometimes do, differ very considerably, so that no conclusion as to the heat of formation of the alloys can be deduced from such experiments.

W. D. B.

The double nitrates of tetravalent cerium and thorium. *R. J. Meyer and R. Jacoby. Ber. chem. Ges. Berlin*, **33**, 2135 (1900). — The authors have prepared the basic nitrate of cerium in a crystalline condition. Cerium, rubidium, and caesium form double nitrates with ammonium and potassium which have been analyzed. Thorium forms salts corresponding to the types, $\text{ThR}'(\text{NO}_3)_5 \cdot 5\text{H}_2\text{O}$; $\text{ThR}'_2(\text{NO}_3)_6$; $\text{ThR}_{11}(\text{NO}_3)_6 \cdot 8\text{H}_2\text{O}$. The potassium salt is peculiar. It has the formula $\text{ThK}_3\text{H}_3(\text{NO}_3)_{10} \cdot 5\text{H}_2\text{O}$, and forms splendid plates.

C. G. L. W.

Commercial thorium nitrate. *W. Muthmann and E. Bauer. Ber. chem. Ges. Berlin*, **33**, 2028 (1900). — To prepare pure thorium compounds the authors fractionate with potassium chromate. Gadolinium and yttrium are only precipitated after the thorium compound is completely thrown out of solution as the chromate. The thorium nitrate was mixed with the requisite quantity of cerium nitrate and the incandescent value of the mixture determined. The mixture gave a slightly greater value than certain commercial sorts.

The salts of didymium and yttrium are detrimental to the lighting value of thorium nitrate, whereas the impurities found in commercial cerium, viz., neodymium and lanthanum do not appear to affect the qualities of the mantle.

The Auer mixture is viewed as a solid saturated solution of cerium oxide in thorium oxide (0.9%). When the cerium oxide is above this amount it acts as a foreign substance and as such reduces the value of the mixture.

C. G. L. W.

The action of permanganate solutions on hydrogen peroxide and on Caro's reagent. *A. Baeyer and V. Villiger. Ber. chem. Ges. Berlin*, **33**, 2488 (1900). — The reduction of permanganate by the action of hydrogen peroxide is not due to the formation of a trioxide of hydrogen. Oxygen gas is set free, and the non-appearance of the gas in former experiments is due to supersaturation of the solution with the gas. In the action of permanganate on sulphomonoperacid (Caro's reagent), hydrogen tetroxide is not formed. In a pure condition these two reagents do not act on one another. Caro's acid decomposes spontaneously into sulphuric acid and hydrogen peroxide. The latter reduces a small quantity of the permanganic acid into manganous sulphate,