

with a reverse current passing through the cell. The two values agree very well, showing the reversibility of the cells. [This is a very surprising result for copper in cupric chloride solutions, since the electrode is not reversible.]

W. D. B.

**On the theory of the electrolytic solution-pressure.** *R. A. Lehfeldt. Phil. Mag.* [5] 48, 430 (1899); *Zeit. phys. Chem.* 32, 360 (1900). — Starting from the assumption of an electrical double layer at the contact between metal and solution, the author "arrives at the conclusion that, in order to produce the solution-pressure attributed to zinc, 1.27 grams of the metal would have to pass into the ionic form per square centimeter immersed, which is obviously not the case."

W. D. B.

**Note on the theory of solution-pressure.** *S. R. Milner. Phil. Mag.* [5] 49, 417 (1900). — The author gives a new deduction of the Nernst formula for the difference of potential between a metal and solution. His proof as to the effect of other substances in the solution is sound only so long as we make the assumption that the solution-pressure is not unchanged by such addition. Lehfeldt's difficulty in regard to the solution-pressure (preceding review) is dismissed with the explanation of "variation from the gas laws."

W. D. B.

**Electromotive behavior of substances with several oxidation stages, I.** *R. Luther and D. R. Wilson. Zeit. phys. Chem.* 34, 491 (1900). — The author shows that it is possible to deduce the potential difference  $\text{Cu} \mid \text{CuSO}_4$  from measurements of  $\text{Cu} \mid \text{CuCl}$  in  $\text{KCl}$  and  $\text{Pt} \mid \text{CuCl}$  in  $\text{CuSO}_4 - \text{KCl}$ . The calculated value was practically identical with that found experimentally. It was also shown that the concentration of copper as ion in a copper sulphate solution is not changed by the addition of potassium chloride or bromide.

W. D. B.

**Novel thermo-electric phenomena.** *W. F. Barrett. Phil. Mag.* 49, 309 (1900). — The large electrical resistance of a sample of nickel steel with 5 percent of manganese, led the author to determine its thermo-electric properties. When coupled with a wire of pure iron, the thermo-electric force rose with the temperature to about  $300^\circ$ , when it became almost exactly steady up to  $1000^\circ$ . Experiments with the alloy were made coupled with other metals. Other iron alloys were tried and, in general, it was found that the indications of the temperature were not always the same, but depended on whether the couple was being heated or cooled.

H. T. B.

**On some effects of twist on the thermo-electric qualities of iron.** *K. Tsuruta. Phil. Mag.* [5] 50, 223 (1900). — The author draws the following conclusions:

That in soft iron of certain kinds there exists the phenomenon of thermo-electric hysteresis with respect to twist (at least when combined with longitudinal tension);

That other things being equal, the hysteresis is reversed at a certain twist:

That mechanical agitation has its own effects, which are reversed as the hysteresis is reversed.

W. D. B.

**The passive state in metals.** *W. Hittorf. Zeit. phys. Chem.* 34, 385 (1900). — Passive iron gradually becomes active and the same is true of nickel