versible transformation are above 0° ; starting from 27.12 percent of nickel, the transformation point for cooling lies below 0° , the value for 29.94 percent nickel lying below -78° . At 25.84 percent nickel, there occur points both of reversible and of irreversible transformation, the temperature at which the reversible change takes place rising with increasing percentage of nickel. *W. D. B.*

Solubility of benzophenone. *E. Derrien. Comptes rendus, 130, 721 (1900).*
— Isolated solubility determinations in about twenty solvents. *W. D. B.*

On the liquefaction of mixtures of carbon dioxide and sulphur dioxide. *F. Caubet. Comptes rendus, 130, 828 (1900).* — The author has determined the boiling-point and dew-point curves for a number of mixtures of carbon dioxide and sulphur dioxide. All mixtures show retrograde condensation.

W. D. B.

Poly-Component Systems

Action of hydrogen on antimony sulphide. *H. Pélabon. Comptes rendus, 130, 911 (1900).* — The author has studied the reaction $\text{Sb}_2\text{S}_3 + 3\text{H}_2 \rightleftharpoons 2\text{Sb} + 3\text{H}_2\text{S}$. At 440° both the antimony and the sulphide are solid and the ratio of the two gases is found to be independent of the absolute amount of the two solid phases. At 610° the sulphide of antimony is liquid and dissolves the metallic antimony. The ratio of the gases varies with the amount of antimony until so much is added that antimony separates as solid phase.

W. D. B.

Solubility of a mixture of salts having a common ion. *C. Touren. Comptes rendus, 130, 908, 1252 (1900).* — The author has determined isotherms for potassium nitrate and chloride, for potassium nitrate and bromide, and for potassium chloride and bromide in aqueous solutions. Equivalent quantities of potassium chloride and of potassium bromide have exactly the same effect on the solubility of the potassium nitrate. Potassium bromide and chloride give one continuous curve instead of two intersecting curves. The author is perfectly clear as to the theoretical significance of this.

W. D. B.

Note on partially miscible aqueous inorganic solutions. *J. S. Newth. Jour. Chem. Soc. 77, 775 (1900).* — Saturated potassium carbonate and strong aqueous ammonia form two liquid layers, and the temperatures at which these phases become identical vary with the amount of water present.

W. D. B.

Chemical reactions produced in a solution; vapor-pressure of the solvent. *A. Ponsot. Comptes rendus, 130, 782 (1900).* — A cyclical proof to show that, at constant pressure and temperature, a reversible reaction always increases the vapor-pressure of the solvent, provided the solvent takes no part in the reaction. This is interesting, of course, but one cannot help wondering whether it would hold true for the change of paraldehyde into acetaldehyde, for instance, or for the reaction between alcohol and acetic acid in benzene solution. It is very easy to overlook things even in the simplest thermodynamic proof.

W. D. B.

Limited chemical reactions in homogeneous systems. *A. Ponsot. Comptes rendus, 130, 829 (1900).* — The author shows that the equilibrium in a homogeneous gaseous mixture is independent of the nature and concentration of substances not entering into the reaction. He also claims that, at equilibrium, the

volume is a minimum for constant pressure and temperature, which is certainly not true. The author further deduces Valsen's law of the moduli, ostensibly without use of the electrolytic dissociation hypothesis, though, as a matter of fact, he postulates the acid and basic radicals as independent constituents.

W. D. B.

The combination of sulphur dioxide and oxygen. *E. J. Russell and N. Smith. Jour. Chem. Soc. 77, 340 (1900).*—The following conclusions were drawn:

1. When a mixture of sulphur dioxide and oxygen is allowed to stand over certain metallic oxides at the ordinary temperature, combination takes place to a certain extent between the two gases, owing to the "surface action" exerted by the metallic oxide.

2. With the same oxide, the amount of the sulphur trioxide formed depends on the extent of the surface of the oxide.

3. With the same oxide, this amount depends also on the state of the surface. It appears to be least with freshly precipitated oxides which are not yet dried, and to increase if the oxide has been moderately heated or kept for a long time so as to become dry.

4. The amount appears to be absolutely dependent on a simultaneous combination of the oxide with the sulphur dioxide, and in fact seems to proceed concurrently with this. ...

5. The most striking instance of this surface action is afforded by manganese peroxide, some twenty percent of the sulphur dioxide being converted into sulphur trioxide. If the materials are carefully dried by means of phosphorus pentoxide, no combination takes place as, even after standing several days, no change in volume can be detected. By drying the mixture, combination of manganese dioxide and sulfur dioxide is thus prevented, as is also the surface action of the oxide which brings about the union of sulphur dioxide and oxygen.

6. When sulphur dioxide and oxygen are passed over heated platinized pumice, combination diminishes as the materials are more completely dried, and can be made very small.

W. D. B.

Influence of the nascent state on the combination of dry carbon monoxide and oxygen. *E. J. Russell. Jour. Chem. Soc. 77, 361 (1900).*—Pure carbonyl sulphide will not explode if sparked with oxygen. With a small amount of impurity, some carbonyl sulphide is decomposed into carbon monoxide and sulphur, without these substances reacting with the excess of oxygen. The same thing is true of mixtures of carbonyl sulphide and nitrous oxide. The state of affairs following on a violent reaction—such as explosion of carbon disulphide or chlorine monoxide—has a considerable influence in bringing about a combination of carbon monoxide and oxygen, but there is no satisfactory proof that nascent carbon monoxide differs appreciably from the ordinary gas.

W. D. B.

The decomposition of chlorates. *W. H. Sodeau. Jour. Chem. Soc. 77, 137, 177 (1900).*—The author's experiments are explained by him on the assumption of two independent reactions, the evolution of oxygen, and the evolution chlorine and oxygen. With potassium chlorate there are only traces of