obtained. In all these cases, the particles were positively charged. On the other hand, solutions of platinum, gold, and silver in ethyl malonate were readily obtained and the particles were negatively charged. Colloidal solutions could not be obtained with the more electro-positive metals in this solvent. The observed facts indicate that the formation of the solution is essentially dependent on the nature of the metal and of the solvent. The contact differences of potential between the charged particles and the liquid have been calculated. H. M. D.

Significance of Water in the Formation of Colloidal "Bubbles" from Soaps. FRIEDRICH KRAFFT (*Zeit. physiol. Chem.*, 1906, **47**, 5—14. Compare Abstr., 1902, ii, 601).—Observations on the lines of those already recorded (*loc. cit.*) support the view that the molecules in the interior of a mass of water are engaged in a regular vortex movement. J. C. P.

Filtration of Crystalloids and Colloids through Gelatin. J. A. CRAW (*Proc. Roy. Soc.*, 1906, *B*, **77**, 311—331. Compare Abstr., 1905, ii, 747).—Martin's gelatin filter (a Pasteur-Chamberland filter, the pores of which are filled with solid gelatin) was at first supposed to be permeable to crystalloids and impermeable to colloids, but later work by Waymouth Reid and others showed that this is not strictly true. The author has carried out a series of experiments on this subject with typical colloids and crystalloids as well as with mixtures of these substances.

The filter is highly, but not completely, permeable for such crystalloids as sodium chloride, potassium iodide, and butyric acid; it is only slightly permeable for colloids such as ferric hydroxide and soluble starch. As filtration proceeds, the crystalloids pass through in increasing concentration, whereas the colloids gradually decrease to zero. The presence of one substance often affects the rate of filtration of another, and the permeability also depends on the gelatin; thus a filter prepared with 15 per cent. gelatin solution is less permeable to certain colloids than one of 7·5 per cent., and formalised gelatin is less permeable to sodium chloride than ordinary gelatin. The rate of filtration is greatly dependent on variations in the pressure; thus a sudden diminution gives very concentrated filtrates of both crystalloids and colloids, whereas a gradual diminution has very little effect.

The results with some colloids can be explained on a purely mechanical basis, but with crystalloids, such as sodium chloride, it seems probable that the phenomenon of adsorption plays an important part. The great influence of change of pressure on the permeability seems to depend partly on the diffusion outwards of adsorbed salt from the filter when the pressure is released, and partly on changes in the size of the filter pores. G. S.

The Periodic System and the Methodical Classification of the Elements. CONSTANTIN ZENGELIS (*Chem. Zeit.*, 1906, **25**, 294—295 and 316—317).—The author proposes to modify the periodic classification of the elements so as to reconcile it with the more systematic

arrangement adopted in many text-books for studying the properties of the elements. He accordingly does away with the eighth group, but introduces an additional group comprising the gaseous elements helium, argon, krypton, and xenon before group 1. Elements which have similar properties and have atomic weights differing only by a few units the author considers are not entitled to occupy a separate place in the table, and accordingly the metals iron, cobalt, and nickel are incorporated, together with manganese, in group 7; in the same way, the three elements ruthenium, rhodium, and palladium, and the elements osmium, iridium, platinum, and gold are all placed in group 7. Again, group 3 contains, in addition to the elements ordinarily placed there, two similar aggregations composed respectively of the elements lanthanum, cerium, praseodymium, and neodymium on the eighth horizontal line, and of samarium, gadolinium, terbium, erbium, thulium, and ytterbium on the line below. P. H.

Pressure Regulator. Temperature Regulator. ANTOINE VILLIERS (*Ann. Chim. anal.*, 1906, **11**, 88—90, 90—96).—An apparatus is illustrated for giving a fixed and absolutely constant pressure to a gas evolved under a varying pressure.

The temperature regulator is a modification of the ordinary mercurial regulator, in which the cut off is effected by a disc floating on the top of a column of mercury connected with the reservoir coming into contact with the ground horizontal extremity of the exit tube. The free surface of the mercury being covered by the disc, oxidation is prevented. The papers contain drawings showing the application of the regulators to several purposes. L. DE K.

Extraction Apparatus. ALLEN ROGERS (*J. Amer. Chem. Soc.*, 1906, **28**, 194—196).—An apparatus specially devised for making aqueous extractions of tea, coffee, tanning materials, &c.

It mainly consists of a round-bottomed extractor fitted with a Bunsen valve and connected to two wash-bottles, one of which holds the water, whilst the other serves for collecting the percolate. The water is forced from the bottle into the extractor by applying suction with a filter pump. The water may be brought to the desired temperature by heating the wash-bottles on a water-bath.

L. DE K.

Modified Westphal Balance for Solids and Liquids. F. M. WILLIAMS (*J. Amer. Chem. Soc.*, 1906, **28**, 185—187).—Modifications of the Westphal balance are described, which enable it to be used for the determination of the sp. gr. of solids as well as liquids. The modified balance is especially suitable for cements and other solids, the composition of which is changed by immersion in water, and it is also a rapid and accurate instrument for determining the sp. gr. of minerals. The chief modification consists in suspending a special support carrying two pans, one above the other, from the pointer arm at a distance from the fulcrum equal to the length of the other arm. The solid is weighed in the upper pan, the lower pan being immersed