CHEMISTRY

Chairman: KARL S. MEANS, Butler University

J. L. Riebsomer, DePauw University, was elected chairman of the section for 1941.

ABSTRACTS

Permeability of human red cells to sodium and potassium ions. DR. K. LARK-HOROVITZ and H. LENG, Purdue University.—Radioactive NaCl and KCl have been administered orally in aqueous solution and in ordinary capsules for absorption from the stomach and by capsules in enteric coatings for absorption from the small intestine. The time rate of intake in the blood has been studied by measuring the activity of blood samples taken from the fingertips or from the vein in intervals up to 40 hours. By centrifuging, the cells have been separated from the plasma. It has been found that the amount absorbed is proportional to the intake and by measuring the distribution of the ions between plasma and cells the exchange ratio has been determined. Whereas 80 to 100% of the sodium ions in the cells are exchanged only 10 to 20% of the potassium ions are able to penetrate.

Testing of enteric coatings with radioactive indicators. DR. K. LARK-HOROVITZ and H. LENG, Purdue University.—Capsules filled with radioactive sodium chloride have been covered with enteric coatings of different makes and the efficacy of the coatings has been studied in the following way. The capsule is followed on its way through the digestive tract by means of a thin wall counter. It can be located quite accurately, and by taking the number of counts, it can be definitely established whether the capsule holds together, leaks or breaks. Using a second counter to observe the activity in the hand, the time when the radioactive material appears in the blood stream is determined. A commercial coating following a prescription of Professor C. O. Lee of the Purdue School of Pharmacy has been used and it has been found that the latter coating is far more reliable than the commercial one.

Relation of valence and nomenclature to formulas for the negative ions of ternary inorganic compounds. K. S. MEANS, Butler University.—Group numbers for the different elements can be used in determining their valences. For this purpose the Periodic Table is divided into three parts. Nomenclature is used to determine the valence of the element in a given ion as well as the elements present. Also the name in some instances designates the number of atoms of a given element in the ion, such as dichromate, where there are two atoms of chromium. In ternary compounds the negative ion consists of two elements one of which is usually oxygen. From the negative charge of the oxygen, and the positive charge of the other element, the amount of oxygen in the ion of the meta compound can be determined since the ion must be negative.