

in one flask and the remaining constituents and water in a second flask. The two parts were mixed to start the reaction which consequently took place with disappearance of tri-iodion and gave a measurement of the direct rate. In Table 16, the two parts were made up differently: C and D were mixed with half the water in one flask and A and B with the remaining water in the other. Consequently in the latter flask the reaction between A and B took place quickly and by the time all were at 0° C, the solution was only slightly colored, almost all A and B having disappeared. On mixing these two parts the reaction took place with the separation of tri-iodion and gave a measurement of the reverse rate.

The reacting mixtures of Tables 17 and 22, were made up from identical quantities of the solutions of potassium iodide (C), sulphuric acid (D), and arsenic acid (E), all being so chosen as to give the same equilibrium mixture as in Tables 16 and 21. In Table 17 the potassium iodide, half the sulphuric acid, and half the water were cooled in one flask, while the arsenic acid with the remaining sulphuric acid and water were cooled in the other. The two parts were mixed to start the reaction which, therefore, took place with the separation of tri-iodion and gave a measurement of the reverse rate. In Table 22, all three constituents were mixed with only sufficient water to keep all in solution while the balance of the water was cooled in a second flask. A quick reaction immediately took place between the three constituents, so that by the time all were at 0° C, almost all the arsenic acid had been reduced to arsenious acid. On mixing with the remaining water, a reaction took place with the disappearance of tri-iodion and gave a measurement of the direct rate. So that these four experiments gave a measurement of each rate with each set of reagents and also a measurement of the equilibrium from each side with each set of reagents. The reactions were very slow, lasting almost a week. To avoid as far as possible the oxidizing action of the air, the solutions were kept in 100 cc glass-stoppered bottles, and 25 cc were taken for each titration. The sodium thiosulphate solution changed