ROYAL SOCIETY OF CANADA.

distinguished two ways of trying, or testing the assumptions by experiment. I shall not enlarge on these further than to say that the better way, the sharper test, involved comparing experiments in which the initial concentrations of the chemicals were varied, while the other . relied altogether on the results of a series of analyses of the same solution at different intervals of time. The first of these methods was used by van't Hoff in his book, the other, exclusively, by his successors, for twelve years.

To resume, then, there are shown in this table four ways of determining the relation between the rate of a chemical reaction and the concentrations. Systematic exploration, Harcourt and Esson, 1866; a hybrid method. 1878; and the method of guess and try, with two ways of trying, of which the better was used by van't Hoff in 1884, and the other was in general use between 1884 and 1895.

	Method.	Definition.	Used by
1.	Systematic Exploration- Harcourt & Esson's	a, B, C, D,T	H and E, 1866
2.	Hybrid	a, b, C, D,T	Hood, 1878
	Guess and Try	a, b, c, d,T	
3.	(a) varying initial cone's		van't Hoff, 1884
4.	(b) varying time only		General, 1885-1895
5.	The logical extreme	a, b, e, d,t	Not employed

I should like to put all this in a diagram; that will make it look more like physical elemistry. The only trouble is what co-ordinates to use. The dates will do for the abscissæ, that's obvious, and I will put Harcourt and Esson high up, because the method they employed was the one best adapted for the purposes of discovery, and Hood a little further down, and then van't Hoff, with the method of varied initial concentrations, and then all the chemists from 1885 to 1895. So that the abscissæ **are** chronological, and the ordinates psychological.

I would not like to give the impression that van't Hoff, for instance, used a method that was unsuitable for the purpose he had in hand. He had a definite object, and his method enabled him to attain it. In Hood's case, too, there was a special reason—not a very good one, perhaps that kept him from using method number one; and he too got all he wanted with number two. But the fact is plain, that as time went on,

248