

complete. In contrast, those which are without energy change generally proceed smoothly, slowly, and without complication to a state of equilibrium in which the reaction is very incomplete.¹ Under the latter circumstances slight changes of conditions make possible a reversal of the delicately balanced process; the reaction can be made to run in either direction at will.

The absence of transformation of energy accompanying hydrolysis may be illustrated by a few typical cases chosen from the data of simple substances.

	CALORIES	PER CENT
Cane sugar	+1.9	0.2
Milk sugar	+4.3	0.3
Maltose	-3.7	0.3
Ethyl acetate	+2.0	0.3

Such measurements of heats of reaction fall well within the limits of error of the method of investigation, and there can be no doubt that in all such cases the heat of reaction is so small that it cannot be detected by the ordinary methods of measurement.²

¹ van't Hoff, "Acht Vorträge über Physikalische Chemie." Brunswick, 1902, Lecture 6.

² Stohmann, *Zeitschrift für Physikalische Chemie*, II, 29, 1888 (see also Ostwald's "Lehrbuch der Allgemeinen Che-