aspect of the chemical reactions into which carbon, hydrogen, and oxygen enter, must be now noticed.

It has been shown above that the one possible chemical process by means of which anything can be made out of the primary constituents of the environment is reduction, — the more or less complete tearing off of oxygen from carbon and hydrogen atoms in the molecules of carbon dioxide and water. As a function of the extent of the reduction the energy change involved in the process will vary. In all cases, however, the process is accompanied by large absorption of heat, as the following table of the energy absorbed per gram of the resulting substance, when reduction begins with water and carbonic acid, may indicate: —

H_2	34.5 Cal.
C	8.1
CH_4	13.3
CH_3OH	5.3
$H{\cdot}CHO$	4.2
$C_6H_{12}O_6$	3.74
CO	2.4
$H{\cdot}COOH$	1.4

Such new compounds hold their energy only so long as they persist unchanged, and