

of carbon and hydrogen in which the number of atoms of hydrogen surpasses by more than two, those of ~~hydrogen~~, the general formula being  $C_nH_{n+2}$ , so that oils like  $C_{12}H_{26}$  and  $C_{26}H_{54}$  contain nearly the maximum quantity of hydrogen, and a body like  $C_{14}H_{28}$ , whose formation we have supposed above, could not exist, but must break up into marsh gas and some less hydrogenous oil like petroleum. *carbon*

We do not know the precise conditions which in certain strata favor the production of petroleum rather than of lignite or coal, but in the fermentation of sugar, to which we may compare the transformations of woody fibre, we find that under different conditions it may yield either alcohol and carbonic acid, or butyric and carbonic acids with hydrogen, and even in certain modified fermentations the acetic, lactic and propionic acids, and the higher alcohols, like  $C_{10}H_{12}O_2$ . These analogies furnish suggestions which may lead to a satisfactory explanation of the peculiar transformation by which, in certain sedimentary strata, organic matters have been converted into bitumen.