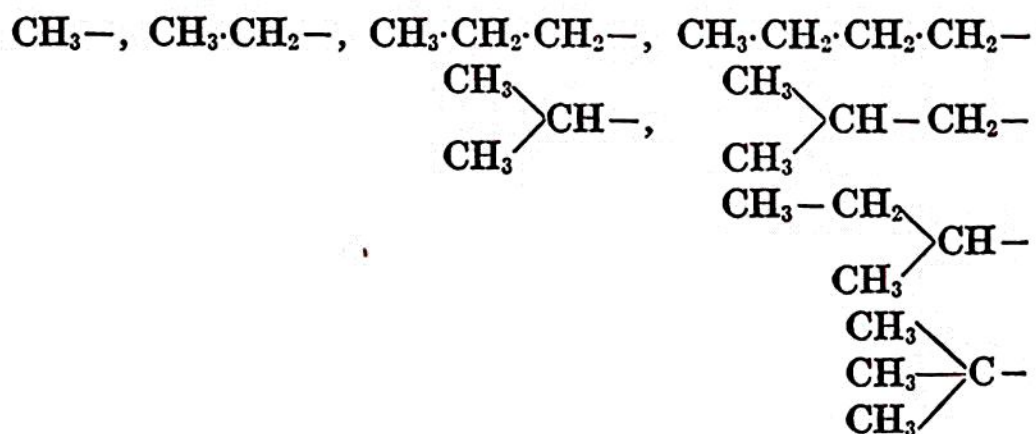From them other series may be derived by making a substitution in the molecule. Thus the substitution of a hydroxyl radical for a single hydrogen atom leads from the paraffine hydrocarbons, C_nH_{2n+2}, to the alcohols $C_nH_{2n+1}OH$; the substitution of a carboxyl radical $-COOH$, for the methyl group $-CH_3$, leads from the paraffine hydrocarbons $C_nH_{2n+1}\cdot CH_3$ to the acids $C_nH_{2n+1}\cdot COOH$.

Moreover, the classes of compounds thus defined chemically fulfill the logical requirements of a class. They are collections of well-characterized and very similar individual things which differ greatly, and in well-marked manner, from all other things. In other words, growing complexity of the molecule, when it consists only in increase in complexity of the simple radical comprised of carbon and hydrogen, of the formula C_nH_{2n+1},

$$CH_3-,\ CH_3\cdot CH_2-,\ CH_3\cdot CH_2\cdot CH_2-,\ CH_3\cdot CH_2\cdot CH_2\cdot CH_2-$$

$$\begin{array}{c} CH_3 \\ {>}CH-, \\ CH_3 \end{array} \qquad \begin{array}{c} CH_3 \\ {>}CH-CH_2- \\ CH_3 \end{array}$$

$$\begin{array}{c} CH_3-CH_2 \\ {>}CH- \\ CH_3 \end{array}$$

$$\begin{array}{c} CH_3 \\ CH_3->C- \\ CH_3 \end{array}$$

has very little effect upon the properties of the molecule. Thus the compound methane,