http://www.geology.19thcenturyscience.org/books/1913-Henderson-Fitness/README.htm

CH_4, very closely resembles normal butane, $CH_3 \cdot CH_2 \cdot CH_2 \cdot CH_3$; and again propionic acid, $CH_3 \cdot CH_2 \cdot COOH$, and heptylic acid, $CH_3 \cdot CH_2 \cdot CH_2 \cdot CH_2 \cdot CH_2 \cdot CH_2 \cdot COOH$, are very much alike.

Quite different is the case when any other radical accumulates in the molecule. For instance, propyl alcohol, $CH_3 \cdot CH_2 \cdot CH_2 \cdot OH$, which closely resembles ordinary alcohol, $CH_3 \cdot CH_2OH$, is very different in its behavior from glycerine, $CH_2OH \cdot CHOH \cdot CH_2OH$, and similarly, acetic acid, $CH_3 \cdot COOH$, differs materially in properties from oxalic acid $COOH \cdot COOH$. Even more marked are the differences when a radical accumulates upon a single carbon atom. In successive stages of oxidation ethane, $CH_3 \cdot CH_3$, yields alcohol, $CH_3 \cdot CH_2OH$, aldehyde, $CH_3 \cdot CH(OH)_2$, which by a secondary transformation goes over into the more stable form $CH_3 \cdot CHO$, and acetic acid, $CH_3 \cdot C(OH)_3$, which similarly becomes $CH_3 \cdot COOH$. These changes correspond to the conversion of ethane, that is monomethyl methane, into dimethyl methane, trimethyl and tetramethyl methane: —

$$CH_3 - CH_3 \rightarrow CH_3 \cdot CH_2 \cdot CH_3 \rightarrow$$

$$\begin{matrix} CH_3 \\ CH_3 \end{matrix}\!\!>\!CH - CH_3 \rightarrow \begin{matrix} CH_3 \\ CH_3 \end{matrix}\!\!>\!C\!<\!\!\begin{matrix} CH_3 \\ CH_3. \end{matrix}$$