In gas chromatography, peak maxima of the members of the simplest homologous series, the n-paraffins, provide fixed points on a special ‘tape measure’ which change with experimental conditions. Using regularity of retention data for these homologues (linearity of the logarithms with carbon number) the distance between two maxima can be subdivided into 100 parts giving a scale on which the ‘retention index’ of any other substance can be read. At the peak maximum of the n-paraffin, xane, the scale is 100 x. The SCI® indicates that this paper has been cited in over 660 publications since 1961.)