This expansion gives ultimately one complex number c_{nk} for every two elementary areas of size one-half. The real and imaginary parts can be interpreted as giving the amplitudes of the following two real elementary signals

$$\begin{matrix} s_c(t) \\ s_s(t) \end{matrix} = \exp - \alpha^2(t - t_0)^2 \begin{matrix} \cos \\ \sin \end{matrix} 2\pi f_0(t - t_0) \quad . \quad (1.30)$$

where $\alpha^2 = \frac{1}{2}\pi/(\Delta t)^2$. These can be called the "cosine-type" and "sine-type" elementary signals. They are illustrated in Fig. 1.9. We can use them to obtain a real expansion, allocating

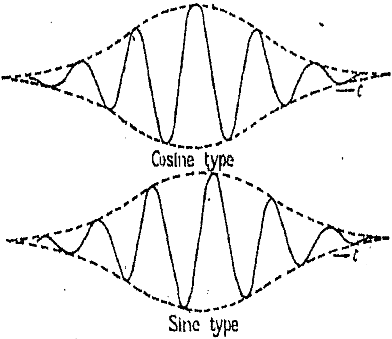

Fig. 1.9.—Real parts of elementary signal.