

## CHAPTER III

### FREQUENCY FUNCTIONS OF ONE VARIABLE

15. **Introduction.** In Chapter I we have discussed very briefly three different methods of describing frequency distributions of one variable—the purely graphic method, the method of averages and measures of dispersion, and the method of theoretical frequency functions or curves. The weakness and inadequacy of the purely graphic method lies in the fact that it fails to give a numerical description of the distribution. While the method of averages and measures of dispersion gives a numerical description in the form of a summary characterization which is likely to be useful for many statistical purposes, particularly for purposes of comparison, the method is inadequate for some purposes because (1) it does not give a characterization of the distribution in the neighborhood of each point  $x$  or in each small interval  $x$  to  $x+dx$  of the variable, (2) it does not give a functional relation between the values of the variable  $x$  and the corresponding frequencies.

To give a description of the distribution at each small interval  $x$  to  $x+dx$  and to give a functional relation between the variable  $x$  and the frequency or probability we require a third method, which may be described as the “analytical method of describing frequency distributions.” This method uses theoretical frequency functions. That is, in this method of description we attempt to characterize the given observed frequency distribution by ap-