

numbers are computed for the whole group and sub-groups. Eighteen industrial and public service bonds are included in the calculation of the index number for bonds.

**Weighting.**—The same arguments can be advanced for weighting an index number of security prices as for weighting the wholesale prices index number. Some securities are inherently more important than others in arriving at an average market value. All individual securities should not therefore count as one only in striking the average to be used as an index of change in the general stock market. Each stock should be weighted so as to wield an influence on the final result commensurate with its importance in the market. Among the methods of weighting applicable to index numbers of security prices, those of stock outstanding and shares sold furnished the greatest possibilities. The shares of each stock outstanding was finally selected as the most satisfactory system of weighting to apply to a general purpose index number. This method has the advantage that the weights have much more stability over a moderate period of years than does the number of shares sold. In many cases the number of shares sold is subject to very temporary influences, and obtaining a satisfactory average to be used as a weight for a series of years is difficult, if not impossible. The amount of stock outstanding does, of course, change, but if the period covered by the index is not too long, the change is not apt to affect the result seriously. The influence of the number of shares traded is not lost by using the stock-outstanding method of weighting, since the price of a great number of stocks at a particular point of time is in a large measure a function of the number of shares being traded in at that time. Even in the case of a stock which is closely held, the price of the few which are traded must be taken as an indication of the general value of the stock. Therefore, by using the amount of stock outstanding as a weight in the case of each individual stock, we can obtain an index of the movement of stock values in general. The use of the stock-outstanding system of weighting will tend to minimize the influence of temporary aberrations in the case of individual stocks, which, in the case of an unweighted stock index, would exaggerate the movement of the general average, but at the same time it gives a sound basis for an index of the movement of general stock values, because the market price and the shares sold are in the long run very intimately related. An index number based on stock values weighted by the number of shares sold, while valuable for some purposes such as measuring fluctuations in the value of shares actually traded on the exchanges, would not serve to measure changes in the general value of outstanding stocks whether traded in or not. The purpose which the Bureau's index number is meant to serve is the measurement of changes in the general value of outstanding stocks.

In calculating the weighted index numbers 1913 was taken as the base year. The amount of stock outstanding in that year for each individual security was taken as a weight. The average price of the security in 1913, multiplied by the weight, gives the basis upon which index numbers are calculated. These amounts are represented by 100. Prices in subsequent periods are multiplied by the same weights and the resulting amounts divided by the amount pertaining to the base year; this result multiplied by 100 gives the index number which expresses in percentage the relation to values in the base year. This method of computing index numbers is known as the aggregatic.

In the case of common stocks, in order to combine the three main groups, "banks", "service" and "industrial stocks" into a general index number, a second