produced a cyclical term, a transformation of the capital stock variable and a new variable used to measure the influence on productivity of changes in the composition of demand.

(1) *The cyclical term.*—The central focus, as already indicated, is upon the longrun or secular relationships. On the other hand, the actual historical data contained within themselves movements related to shortrun deviations from the secular movements, including, of course, those relating to the business cycle. It was necessary, therefore, to construct some term that could be used statistically to pull out or neutralize the influence on the relationships of these shortrun and cyclical movements in the historical data.

This was done by the use of the labor inputs. Both a measure of the potential labor input (Lp) and a measure of the actual labor input each year (La) were available. The ratio obtained by dividing the actual labor input by the potential labor input, which is divorced from cyclical and other shortrun movements, yields a variable which fluctuates with the cycle and other short-term deviations. It will be noted from the description of these two basic series above that this ratio represents the actual man-hours worked each year in the whole economy divided by the potential labor input in man-hours which could have been worked if the economy had operated smoothly in line with the longrun trends in population and labor force participation. By proxy, this variable also took care of any other cyclical or shortrun fluctuations, since these were very highly correlated with the ratio of man-hours worked to the potential man-hours. This cyclical variable is indicated at the end of the previous chapter $\left[\frac{La}{Lp}\right]$, and is shown as the top line on chart IV.

(2) *The capital transformation.*—It was obvious from the beginning that the stock of capital had grown very rapidly over the last 50 years and hence its movements would be highly correlated with the growth of the potential labor force and with the time variable. (See chart IV.) It was decided to transform the capital stock variable by dividing it by the measure of potential labor input giving the term $\left[\frac{K}{Lp}\right]$. Thus, taken in combination with the term Lp in the equation, we have a formulation in which the capital stock has an effect upon output independent of increases in the potential labor input, only if it rises faster or slower than the potential labor input, so that the capital-labor ratio rises ir falls. This means that the potential labor input (Lp) measures the influence on output of the increase in available labor and the associated capital at some constant capital-labor ratio, and with the average age, or technological state of the capital stock, held constant. The capital-labor ratio $\left[\frac{K}{Lp}\right]$ measures the effects on output of a deepening of capital—of a substitution of capital for labor in production.