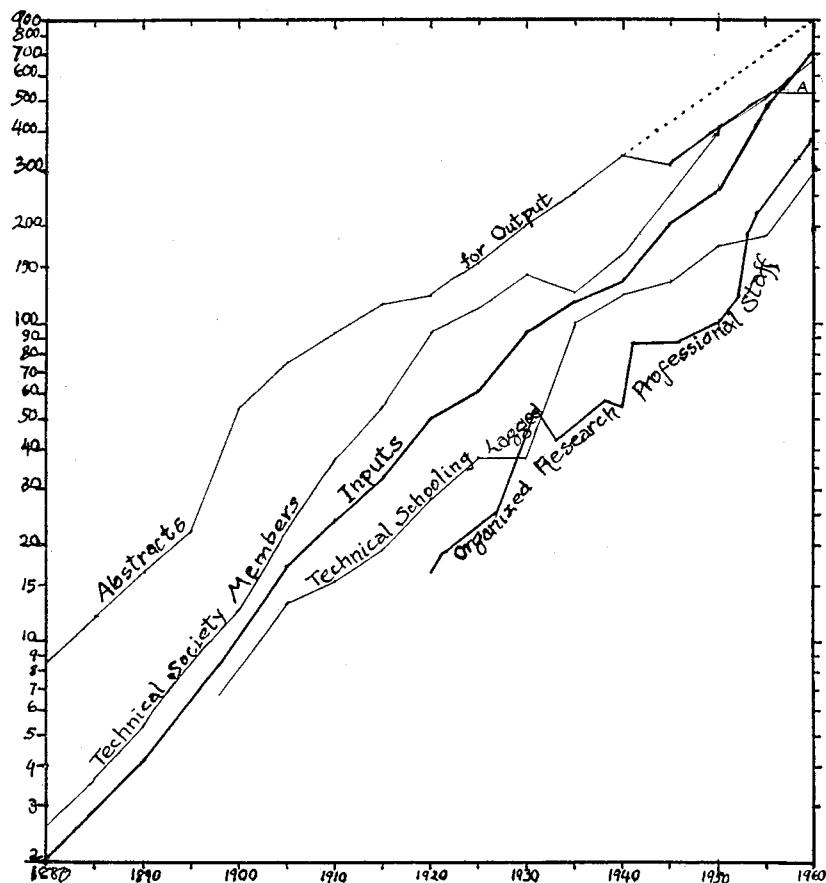


CHART 4

CLASS SUBTOTALS AND INDICES OF INVENTIVE INPUTS AND OUTPUT, 1880-1960



change in each of our graphs may be figured from the margins, or by comparing the various slopes with the Scale of Slopes in chart 2.⁶⁴ Melman uses similar data as a measure of invention, versus patents, observing that the country's scientists and engineers rose to 1.8-fold per decade since 1900, and the research ones to 3.2-fold per decade in 1941-54.⁶⁵

[60] For another means of measuring invention, this time by its *output*, instead of by the input, of efforts to invent, suppose we try again to count inventions and pertinent discoveries. We shall not depend on the judgment of a dozen or so of our own contemporaries looking back over the 83 years past, but on the assessments of hundreds

⁶⁴ Our charts were all drawn on identical and familiar ratio-chart paper, which plots time normally, and the vertical quantities by their logarithms, so that the same change of height, or the same slope, always represents the same proportional change or rate of change, wherever it occurs on any chart. Absolute magnitudes may also be read off from the margins, with the decimal point and the definition of the unit obtained by consulting the citational note where each index is first mentioned; this note quotes in its last words the initial or the final quantity.