lays, old age retirement, and on many other factors. It seems doubtful that any statistical economist could so well measure and remove all these factors as to reveal more about American inventing than we know already, viz., that it is important and rapidly advancing. But for what it may be worth here, the Gross National Product is stated as growing by 40% per decade since 1929, and 60% per decade since 1939,[40] and has been said by W. C. Mitchell to be always underestimated.[41] Real income per capita increased 4-fold in 1870–1950. Brozen considers [43] that our yearly rise in productivity per man-hour in the nongovernmental sector has been 2.5%, assigned as due 1% to increased capital, ¾% to improved allocation of resources, such as turning to manufacturing instead of farming, and ¾% from better science and improved technology. This in effect assigns three-tenths of such improved productivity to invention. But allocation of resources could not be improved without invention, e.g., by improvements in the productivity of factory labor. Solo would ascribe 90% of the rise to technology.[670] We have graphed two indices of the productivity of labor on chart 1.[44]

[52] Others attempting to measure invention have drawn up long lists of great inventions, and counting those dated in each quarter-century or longer period, have sought to compare the epochs.[45] The method may serve for distant centuries, in lack of a better way, and we have tried it on our problem of 1880 to date, but with total failure. The best such published list for modern times is probably Streit's [47] of "1012 major inventions, discoveries and innovations since 1750," carefully prepared from previous lists, checked by experts, dated, and showing that 97% have been made in the countries proposed for Atlantic Union. But a count of the inventions and discoveries indicates no change in America's output since 1880, a manifest error. Trying the same on my own unpublished list [48] of 500 socially most important inventions since 1782, from all countries, a decline of a fifth was read between the periods centering at 1885 and 1914. The trouble with all such invention lists when brought down to recent times is, first, that they are highly subjective, based on certain people's impressions and memories; and it seems likely that we can understand and appreciate better the simpler inventions of bygone times, than the highly technical ones of latter days, save those in some field we may be versed in. We can view the past as historians, but recent times only as specialists. Secondly, it takes many years for inventions to be often recognized as important,[49] (¶ 330) always 20 or more years (the average, 40 or so), sometimes centuries, between the date apt to be given the invention (its first operative or commercial success), and the date when it becomes recognized by all as an important invention. The great, fundamental inventions for the future,

[41] Comparing the period 1869–78 with 1944–53, M. Abramovitz reports a rise of 13.25-fold in the net national product, 3.34-fold in population, and 3.97-fold in product per capita, making an annual growth rate of 1.9% in this last, and 3.5% in the net annual product. The rates of growth seem to be falling off somewhat. *Resource and Output Trends in the U.S. since 1870,* Occasional Paper 52 of Nat. Bur. of Ec. Research, 1956, 23 pp., esp. pp. 7, 8. Cf. also Markham, N 38.

[47] Streit, C. K.: *Freedom Against Itself,* Harper, 1954. pp. 239–72. The primary inventors and their countries are named; but the cogent argument for Atlantic Union is not helped by assertions that freedom alone has been responsible for northwestern Europe and the U.S. producing practically all the world's inventions and discoveries in modern times. It is too easy to cite exceptions, of nations unfree, yet inventive; and the *geographic,* historical and possible racial factors must not be ignored.