the farther we go back. But on the other hand, there is in recent decades much invention unpublished (and unpatented), because military, and the scientists and engineers are giving more of their time to invention than we have taken account of, and have more of subprofessional helpers. All in all, our indices seem significant and reliable within a wide probable error, and present a striking contrast with the downward course of patenting. The precipitous decline in proportion of inventions patented should never be forgotten in any discussion of the patent system and its substitutes. But we must not think that the patent *system* has declined so fast as the count of patents, since we have mentioned that the modern patents are of better quality and wider scope than the earlier ones (¶ 116).

[110] The shrinkage in this proportion would probably be still more marked if from our graph of patents to Americans (chart 1) we eliminated those that are not truly part of the patent system, as will be explained a little later (¶ 128). For such little-functioning patents, to the Government, universities etc., have probably formed a growing share of the granted patents, since 1880.

[111] One further reflection, between our preceding attempts to measure and verify the great decline in the patent/invention ratio, and our following attempt to *explain* it. Likely our difficulty in measuring invention across modern time, which no one before has seriously attempted, except by much briefer treatment of similar data, is due to the fact that neither this writer nor anyone else knows just what is meant by "invention." To measure a thing, whether by counting or otherwise, we must first delimit and define the thing to be measured or counted. Walker in his treatise on patents gave 45 pages to defining the word "invent," while the Supreme Court has said it cannot be defined.[123] Perhaps from being a sociologist, the author would say that the only definition of the word is the social or lexicographer's one of commonest respected usage. In short we are trying to measure we can't say just what.

[112] Nevertheless there is *something* very real and that we all understand alike today about that word *invent*; Machlup agrees.[124] As in our previous partial definition (ft. N *104*, p. 33), it is something that always embodies physics and/or chemistry, and practical utility, and that is the very opposite of resting content with old technology, and that has changed and grown enormously with time. Modern man makes more inventions each day than Neanderthal man made in 100,000 years. We can be sure of that, we can prove it by statistics, such statistics as we have been compiling, from reliable, sufficiently objective sources, embracing millions of cases. The various bases of our statistics—the nature of a doctoral degree, an abstracted article, a counted engineer, a stabilized dollars' worth of research—have been sufficiently constant in their respective definitions, since 1880 or the later date when each index started, so that their properly averaged result must be significant, and indicates a rise of inventing if not 105-fold, at least somewhere in that neighborhood. Since patents to Americans have risen only to 3.1-fold, it stands proved that the ratio of patents to American invention have fallen far, even if we cannot say just how much.[125]

[113] After all, we are not trying to measure invention absolutely, to say how much of it was produced in a certain year, but only how one year's production compared with another's.