temporary counts and expert judgments of millions of items. Modern invention can only be apprehended and sized up by statistics, because it is mostly outside the experience and possibility of comprehension by any of us. Even if we are a technologist, a physicist, or a chemist, we are not all three, and further acquainted with the latest skirmishing on every far-flung frontier of invention today and for each past decade since 1880. Take a minor improvement in electronic computers—we have not heard about it, only a handful of technologists ever will, and we could not understand it, but it is an invention, one of millions being made, and it could be patented, if patenting were still in favor. *Our only way* to know and truly evaluate such inventions, is by statistics. We must trust statistical science. By the alternative, which is to trust common sense and experience, a microbe, an electron, and a galaxy are impossible—nothing is, nothing *could* be so small or so big as the scientists say those are. Indeed, even a billion of dollars or people is impossible, because we can't imagine that big a number. If we are to be scientific we must accept the commands of science—measure whatever you can, and when you have found reasoning that is inescapable, go with it no matter whither.

Other Considerations, and Conclusions on the Charts

[104] A large consideration, affecting all our indices, especially the abstracts, but also the patent count, is that a very large part of modern scientific development is for *military* purposes (as may be verified from the Funds on chart 3), and is therefore hampered in both publication and patenting. We see a probable reflection of this in that our graphs of physical, electric, and engineering abstracts—areas closely identified with military research—are slower rising, or even falling, while the chemical rise as steeply as any index.

[104.5] A matter of great social importance, which Solo has developed,[670] is that as most of our physical scientists and inventive men and facilities come to be assigned to military, space, and atomic tasks, they are drawn away from such undertakings as upbuild industry (as well as taking patents), thus accounting for the often lamented check to our economic progress. To be sure, there is a "spillover" from these arts to the civilian ones (¶ 7), but this takes years of time, as shown by the small number of patents taken for commercial purposes, when allowed on government work (¶ 521). The lag has lengthened especially since war has changed from chiefly a handling of great masses of men and familiar materials, much as in civil tasks, to the strange, exotic fields of atomic energy and space navigation. This would account for the lack of any visible correspondence between Solo's graphs of R&D, and increase of general productivity. Using a special price deflator (N 58) he figures for 1953–60 a probable slight decrease in effective R&D bought for civil industries, which upbuild the economy, while in the same years the space-military acquisitions of invention rose to 2.33-fold. If the international situation does not permit reduction of our space-military inventive effort, Solo shows means by which the spillover into civil technology can be fostered: less secrecy, more documentation, the universities' work of generalizing diversity and teaching new science, and the education of businessmen as well as scientists for this transmission. Something