Preserving fair access to Government research and development programs is just as important to fulfillment of national objectives as the procurement of goods themselves. Indeed it may be more important; speaking in 1956 former Attorney General Herbert Brownell pointed out that we must be deeply concerned "with the future of competitive enterprise, and it is important that its share of this (research) activity be administered to promote competition within the limits possible under the urgency and complexity of the defense program. However, although there is inadequate factual information upon which to judge the effect of Government subsidization of research, what indications that are available warn that the Government expenditures may not counter to the industry trend toward concentration, but in some degree may even reinforce it. * * * The disproportionate share of total industrial research and development in the largest firms may foreshadow a greater concentration of economic power in the future. An adequate supply of technical manpower is the first prerequisite to any research and development program. Such programs themselves are basic factors in the development and expansion of our business economy. Therefore, a present concentration of such manpower and programs means that in the future an increasing share of anticipated improved technologies and new product lines will be introduced by the industrial giants."

Moreover, R. & D. leads to the creation of new products and technologies, and invariably when the Government elects to purchase these items in quantity it returns to the developer for their manufacture. Once an organization gets its nose under the R. & D. tent, it can readily enlarge its position through further developmental activity and ultimately hold a preferred position in manufacture. And this is not necessarily confined solely to purchases by the Government, for many products developed originally for special needs have clear civilian applications. These can range from such a simple item as the new type of sunglasses with straight sidepieces developed by the American Optical Co., for the Air Force under a $367,000 contract to such large and important items as radar, jet airplane design (the Boeing 707, the first jet passenger in service, is a mere modification of the jet tanker used to fuel jet bombers in flight), penicillin and other antibiotics, blood plasma substitutes, silicon transistors, a variety of miniature electronic components, and so on through a very long list. If the smaller companies are effectively excluded from the Government R. & D. picture, the longrun implications for competition can be grave.

Over the years, valiant efforts have been made to gain a larger share of Government dollar outlays for smaller firms. Congress has created the Small Business Administration and the principal executive departments have pledged their diligence in insuring that smaller firms will be given a chance to obtain business from the Government. How successful this has been, though, remains an open question. In the fiscal year 1961, for example, the Department of Defense spent about $23 billion with business firms for work in the United States. Of this amount, small business firms received approximately 16 percent (29.6 percent in the case of Army purchases, 15.5 percent for the Navy, and 9.3 percent for the Air Force). During the first three quarters of the fiscal year 1962, small business was awarded about 16 percent of total dollar outlays by the Department of Defense and its constituent services, with most of this, as usual, concentrated in transactions of less than $10,000.

Whether this performance is good or bad is a matter which I do not wish to explore at this time. What I want to do, rather, is compare the situation in respect to military procurement generally with the specific case of research and development. Here the evidence strongly suggests that the smaller organizations have been seriously disadvantaged relative to their larger rivals and that the military services have made little serious effort to provide small companies with fair opportunities for doing the desired work.

General information on research and development

Outlays for research and development in the United States constitute one of the most dynamic forces in the economy. Between 1953 and 1961, for example, while the gross national product was rising only 43 percent, outlays for R. & D. from all sources rose by about 300 percent. Even more recently R. & D. has been accelerating at a faster rate than most other sectors of the economy; from 1957 to 1961 gross national product went up 18 percent, R. & D. outlays by about 50 percent. In 1961, the best available estimate indicates that $15 billion was spent on R. & D. This compares with a little over $14 billion in the prior year and with only $10 billion as late as 1957. Reasonably detailed data show that while