Looking at the broad panorama of research and development in the economy, we see that the great preponderance of the work is done by a very small number of firms.

Looking at the bottom of page 17, I note that in 1959—and that is the last year for which really good detailed information is available—the 406 companies with 5,000 or more employees, 3 percent of the total number of firms with R. & D. programs, accounted for 86 percent of aggregate R. & D. activity.

Senator BUSH. That is 5,000 or more employees per company, is it not?

Dr. BARBER. That is correct, Senator.

You will find not only that the performance is rather highly concentrated, as that figure indicates, but if you will turn to page 18, while the 100 corporations with the largest R. & D. programs accounted for 81 percent of aggregate research and development, these same firms accounted for only about 41 percent of total sales within their respective industrial categories.

In other words, you have a situation in which there is a significant degree of concentration, anyway, but in which, in the performance of research and development, the concentration is far more accentuated than it is generally.

Now let me turn to the role that the Federal Government plays in this picture.

Senator BUSH. Is that bad, or good?

Dr. BARBER. I do not wish to draw a judgment on it. I am only reporting it and raising the point. But I do think it interesting when you find that a smaller number of companies do a larger percentage of the work in this area than they have of sales or production.

Let me go back here and point to this statement of the former Attorney General, Herbert Brownell, who, in reviewing this problem and commenting on it in 1956, said, and this is on page 15 of my statement:

> 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.

In other words, I think we are looking at a situation whose long-run consequences, while now not clear, can be very serious.

To return to the role of the Federal Government, I have noted that in the period 1960–61, the Federal Government put up about two-thirds of all funds spent for research and development in the United States.

Of that amount, the preponderance came from the Department of Defense. If you will look at the budget for the fiscal year 1963, as submitted by the President, you find that anticipated expenditures of $12.4 billion are reported, up from $10.2 billion in the prior year.

Of this $12.4 billion, about 58 percent stems from the Department of Defense, another 19 percent from NASA, and 11 percent from the AEC.