



PERSPECTIVE...

Who Can't Afford Basic Research?

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INADEQUATE SUPPORT of fundamental research is a threat to applied research. Research of this type has been tending to outstrip fundamental research, especially since the great German research organizations were destroyed in Hitler's attempt to conquer the world. We should remember that during the first 45 years of Nobel prizes in physics, chemistry, and medicine, only 24 were awarded to the U. S., while Europe received 123. Germany alone was awarded 36. And German scientists were responsible for the discovery of the basic potentialities of atomic fission.

We in America have long been a nation of inventors, but only in recent years have started to become a nation of scientists. We are gradually learning that progress in *applied* research draws continually upon a reservoir of *basic* knowledge. This reservoir, so largely supplied in the past from Europe, must now be largely maintained by what is done in America.

To provide the basic scientific knowledge on which technology rests fundamental research in the universities must be supported by industry, by private philanthropists, and in part by the Government itself.

Support by all three is essential, to make certain that no one influence will dominate, and that the necessary freedom will prevail.

If this support is in the form of fellowships, it should be provided without any strings on the research the students do. As we have seen in so many other cases, scientists must be free to explore. On the frontiers of knowledge, in the realms of the unknown, there are no guideposts or road signs. My experience indicates that the most effective direction of basic research must come primarily from the men who are doing the work. Any attempt at centralized control will merely quench the spark of originality, which flourishes only in an atmosphere of freedom.

But can business afford to support work which is abstract, which does not have immediate practical uses, and which does not lead to a product that can be packaged and sold at a profit?

Can business afford it? The real question is: Can business afford *not* to support such work? Certainly without it we will lose the seed corn from which applied research grows. (*Excerpted from an address before the 127th Meeting of the AMERICAN CHEMICAL SOCIETY, Cincinnati, Ohio, April 2, 1955*)