



# Perspective

## The Alliance of the Scientist and Engineer

EARL P. STEVENSON, *President, Arthur D. Little, Inc.*

**T**HE NEW WORKING ALLIANCE between the scientist and the engineer has found one of its finest and most fruitful expressions in the development of scientific tools. A trip through our postwar laboratories—industrial, government, or university—cannot fail to impress upon anyone the greatly increased dependence of investigation upon instruments. The newer instruments of physical research were previously cobbled and put together in a makeshift way. There is now very much in evidence apparatus that has been highly engineered, with meticulous attention to details of design, making for reliability in measurements and for use by other than the most highly skilled scientist. *Fortune* magazine in its December 1952 issue notes that there are today about 30 United States firms turning out a dozen or more laboratory mechanisms that cost over \$10,000. Supplying our research laboratories with engineered scientific tools has become big business. The *Fortune* article notes four of these as being in the forefront of this new era: x-ray diffraction equipment, the mass spectrometer, the ultracentrifuge, and the Collins helium cryostat. These instruments are playing a most important role in the new methodology of engineering research, of which they themselves are the product, as the tools of both the scientist and the engineer; they speak the language of both, which is numbers.

With improved communication, all barriers are breaking down. Creative technology is today largely dependent for its achievements upon a hybrid, the scientist-engineer. Which talent of this dual personality comes first in title depends on whether the individual is at a given time oriented toward the “think” or the “thing.”

In this new era of creative technology, the engineer has become increasingly dependent upon the scientist, whose progress he no longer follows at a distance, but with the intimacy of the next-door neighbor. At the frontier of every art, the engineer is restricted by lack of understanding, data, or material. He may clearly perceive the direction in which improvements may be achieved or revolutionary developments accomplished, but before he can pioneer, the scientist must explore and achieve understanding. The scientist, in turn, is increasingly dependent upon the engineer for the design and construction of essential tools and for the challenge to push forward the frontiers of knowledge. This interdependence is significant for the future of both scientific discoveries and engineering progress.

*(Excerpted from “Creative Technology,” Scientific Monthly, April 1953, with permission of the publisher, American Association for the Advancement of Science.)*