

himself an expert, but areas of agreement seem to be difficult to reach. This lack of consensus may be due in part to the "blind-men-and-the-elephant" syndrome. Each study group sees only a portion of the total laboratory system, either because of special interests or the lack of an adequate definition of just what a laboratory is.

Their important contributions to military technology and weaponry over the years also attest to the variety of activities of the Defense laboratories. These include such developments as the Sidewinder and Shrike missiles, thermal batteries, proximity fuzes, fluid amplifiers, caseless ammunition, irradiated foods and the heart pump. With respect to the more immediate needs of Southeast Asia, contributions such as antimalarial drugs, defoliants, night vision devices, the 175mm artillery system, frozen blood and antipersonnel weapons such as the "Gravel" mine have added significantly to our defense capability.

A popular notion of a laboratory is a place enclosed by four walls and populated by men and women in white coats. This is obviously a too narrow and restrictive definition. In fields such as oceanography, deep submergence, terrestrial sciences and atmospheric physics, the natural environments provide the setting for R&D environments. The broad-ranging facilities now required to carry out sophisticated research and development in support of defense and space activities have given new dimensions and properties to the term "laboratory."

In the case of the Defense laboratories, they seem to be involved in almost the entire spectrum of RDT&E activities, ranging from the more fundamental end of the spectrum, as represented by the Air Force's Cambridge Research Laboratories, through the technology-oriented organizations such as the Fort Monmouth Electronics Laboratories and, finally, encompassing such development organizations as the Naval Ordnance Test Station (NOTS) at China Lake—now the Naval Weapons Center—and the Naval Ordnance Laboratory at White Oak. However, test and evaluation centers like the Army's Dugway Proving Ground, the Navy's Patuxent River Air Test Station or the National Test Ranges are generally excluded from our definition.

Because of the heterogeneity of these organizations and their varying interrelationships, it is not easy to come up with a simple and meaningful definition. The same difficulty applies to defining the role of the Defense laboratories. Many attempts have been made to delineate the roles of these organizations and the reasons underlying the need for them.

Because technology has become the life blood of the Military Departments, laboratories in the Department of Defense are necessary for many purposes, examples of which are:

- (1) The maintenance of national competence during peacetime, as well as times of conflict, in those areas of technology peculiar to military needs;
- (2) The necessity for maintaining a continuity of effort, free from commercial pressures and directed toward the conception and evolution of advanced weapon systems;
- (3) The need for competent in-house skills that can monitor and assess the accomplishments of DoD contractors; and
- (4) The requirement of having available to the Military Service a fast-reaction capability to solve critical immediate problems that arise in connection with existing operational weapon systems, or when unexpected combat situations are encountered such as that currently existing in Southeast Asia.

BACKGROUND

During the 1960s, there has been consistent high-level emphasis within the Government on improving the effectiveness of the in-house laboratories in carrying out the roles discussed above. Many of you are quite familiar with the Bell Report, the DoD Task 97 report and the "Competition for Quality" reports of 1961 and 1962. During the years immediately following the issuance of these reports, increased attention was given to the solution of management and administrative problems that had seriously hindered the effectiveness of these organizations. Constructive progress was made, particularly with respect to working conditions, salaries, facilities, personnel administration, flexibility of funding, ease of obtaining laboratory equipment, etc.

Beginning about 1964, a consensus was developing to the effect that the in-house laboratories lacked meaningful problems, management stability and prominence, and recognition, and they also failed to impact at the highest policy levels. While administrative improvements were valuable and should be pursued diligently,