

VINCENT G. SIGILLITO

GUEST EDITOR'S INTRODUCTION

It is no surprise that APL is a consumer of educational resources. Not as well known is that APL is also a major resource for scientific and technical education. Some programs—for example, the Associate Staff Training Program and the coaching seminars for supervisors—have been directed toward the Laboratory's internal needs for continued staff training. Some activities have begun as internal programs but have been opened to the public interested in science and technology; the APL Colloquium is an illustration of such an activity. One program initiated to provide graduate-level training for the staff was opened, from its inception, to the surrounding technical community, and led to the master's degree programs in applied mathematics, applied physics, computer science, electrical engineering, and technical management. This issue of the *Digest* is primarily about these programs: their history, their philosophy, and their future.

Although most of the articles give a comprehensive view of the larger programs, they cannot convey the breadth of APL's educational activities. The broad scope of these endeavors is covered by Carl Bostrom, Director of APL, in the first article, which serves as an overview of this issue.

Steven Muller, President of The Johns Hopkins University, has contributed a thoughtful article on university autonomy. He presents the case for university autonomy *vis-à-vis* civil authority and discusses how universities have successfully maintained their autonomy over the more than 900 years of their existence in Western society. Dr. Muller observes that this autonomy is now threatened by the constant need for funds to support scientific research. Paradoxically, that need has grown from the universities' freedom to follow lines of inquiry that, but for their hard-won autonomy, might have been forbidden by the civil authorities.

In the next article, Paul Edwards, former Director of Education and Training and now retired, recalls early developments in both the internal education and training programs and the master's degree programs at APL.

In their article on the APL Education Center, Samuel Koslov, Director of the APL Education Center, and James Teesdale, Supervisor of the Education and Training Group and Assistant Director of the Center, summarize the development of the APL degree programs and the facilities for these programs; they discuss the philosophy of the programs, explain the composition of the student body, and provide comments on the day-to-day

operations. In addition to the degree programs, they also describe several innovative nondegree programs.

The next two articles discuss the major internal education and training programs. Vincent Messer and James Teesdale document the need for internal programs that aid in maintaining the technical competence of the staff. Marcene Edelman, David Rosenstock, and Vincent Messer then discuss specific programs.

Ernest Gray and Albert Stone provide a history of the APL Colloquium. The Colloquium is run so smoothly and has become such an integral part of our environment that one tends to overlook what a remarkable series it is; each week of the academic year, for over 40 years, it has provided high-quality lectures of wide scientific interest.

The article by Theodore Poehler, Director of the Milton S. Eisenhower Research Center, discusses how APL participates in Johns Hopkins graduate programs. Laboratory-supported programs have provided an environment for graduate thesis research, facilitated joint research efforts, and enabled APL staff members to spend time teaching and conducting research on the Homewood Campus.

David VandeLinde, Dean of the G. W. C. Whiting School of Engineering, discusses the importance of part-time graduate engineering education and introduces the five master's degree programs begun at APL and now associated with the School of Engineering. This large, quality program, together with the Whiting School's smaller Homewood programs, makes Johns Hopkins the largest provider of part-time graduate training in engineering in the country. Through these programs, the University plays a major role in the education of practicing graduate scientists and engineers in the Baltimore-Washington area.

Articles on the five programs follow: Applied Mathematics (Robert Rich and James Stadter); Applied Physics (Kishin Moorjani); Computer Science (Vincent Sigillito); Electrical Engineering (Marion Edwards); and Technical Management (Alexander Kossiakoff and Robert Thompson). The article on the Technical Management Program is preceded by Alexander Kossiakoff's history of the development of that unique program.

In his introduction to the master's degree programs offered at APL, David VandeLinde mentions the challenge that the School of Engineering faces as it begins part-time graduate training in engineering at the new

Hopkins facility in Maryland's Montgomery County. Based on the paradigm developed at APL, master's degree programs in computer science, electrical engineering, and technical management were begun in 1986. The new classroom building opened in the fall of 1988, and courses in all five degree programs are now being offered. In the concluding article, Edgar Roulhac, Assistant Provost of the University and Director of the Montgomery County Center, describes the history of and future plans for this new Hopkins Center.

THE AUTHOR



VINCENT G. SIGILLITO received a B.S. degree in chemical engineering (1958), and M.A. (1962) and Ph.D. (1965) degrees in mathematics from the University of Maryland. He joined APL in 1958 and is supervisor of the Mathematics and Information Science Group in the Milton S. Eisenhower Research Center. Dr. Sigillito is also chairman of the Computer Science Program Committee of the G.W.C. Whiting School of Engineering's Continuing Professional Programs and has served as interim Associate Dean of the Continuing Professional Programs.