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New Eye for the Navy; The Origin of Radar at the Naval Research Laboratory

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design the majority of the ships we build, and perhaps the aircraft, weapons, and sensors as well, to similar criteria.

Live Oaking is a well written, interesting examination of an odd corner of American naval and maritime history. It is also an extremely attractive book. Altogether it is worth the attention of those who like ships, who like naval history, and who like good books.

FRANK UHLIG, JR.
Naval War College Review

Allison, David Kite. *New Eye for the Navy: The Origin of Radar at the Naval Research Laboratory*. Washington: Naval Research Laboratory, 1981. 228pp. \$13

D.K. Allison states that the goal of his book on the origins of radar at the Naval Research Laboratory is not to study the "things" invented through research but the "people" who did the inventing. He treats that somewhat archaic goal flexibly, however, arguing that in the history of contemporary technology the focus must be on institutions rather than individual tinkerers or isolated geniuses. Thus, the book is more the biography of a research laboratory than a study of the men who staffed it.

To be sure, Allison gives us sketches of the principal actors, but the sketches never provide real characterizations of the personalities involved or meaningful insights into their motivations. The civilian scientists and engineers are mostly midwestern farm boys devoted to public service and adept at resolving technical puzzles. The naval officers are graduates of Annapolis, dedicated to national defense and determined to maintain the perquisites of whatever office they happen to be holding at the moment. Perhaps that is a realistic picture, but if we are to discuss the "people" rather than the "things" some

effort to make the various figures distinguishable from one another would be appropriate.

The NRL itself, however, is treated with all the affectionate care that could be expected of a first-rate administrative historian. Its lineage is traced back into the nineteenth century through one of the best brief analyses of the impact of scientific technology on American industry available. The Laboratory's parentage in the creation of a scientific navy with its improved educational facilities and increased awareness of the need to modernize the fleet is carefully detailed. Thomas Edison's role as midwife to the NRL's birth after the labor pains of World War I is fully described. But Allison's real interest is one the adolescent experiences that transformed the infant Laboratory into a mature and significant member of the Navy family.

Allison's decision to concentrate on radar was a shrewd choice. Narrating its invention allows him to introduce all the popular themes expected in a history of science. It was, for instance, "accident" that led A. Hoyt Taylor and Leo C. Young, in 1924, to discover that radio beams could locate distant ships. Ironically, they almost immediately abandoned this line of research. When they returned to it, in 1934, they misdirected their search by using continuous waves. Serendipity came to the rescue, however, when research in "key clicks" and sonar led to the choice of pulse waves. Allison also discusses the problem of simultaneous discovery, which he treats in a discussion of work done by the British, RCA, and others. Finally, Allison opens a healthy historiographical dispute with earlier historians, for Allison denies the generally accepted influence of ionospheric studies on the NRL's invention of radar. These are classic themes in the history of science,

presented here on a detailed, factual level that is rarely available.

The importance of radar makes its study effective for the discussion of administrative history as well. Its invention, abandonment, and rediscovery neatly track the early life of the Laboratory, as its rapid development accounts for the NRL's survival and growth. The original Laboratory, with its four buildings, miniscule staff, and \$100,000 budget, lived a hand-to-mouth existence for a decade. Subject to external pressures over which NRL had almost no control, it fought first to survive and then to promote its unique identity.

The bureaucratic warfare throughout these years is one of the most exciting parts of Allison's story. He described with zest the NRL's gallery of defenders and enemies, such as Capt. Stanford Hooper, who haunts these pages like a dark nemesis. The axial theme of these bureaucratic struggles was the dispute over the NRL's position in the Navy. Was it to be a specialized testing facility, utterly dependent on the bureaus and artfully stifled by entrenched tradition from the start? Or, was the NRL really to be a research laboratory, where scientific studies would stimulate revolutionary progress throughout the Navy as a whole? Every weapon in the bureaucratic warrior's arsenal was used by both sides in these struggles, including appeals to public opinion and Congress and the use of subterfuge and deception.

But in the end radar carried the day, ensuring that the NRL would survive and "Engineering Research" would be part of its activities. It was radar—a true invention based on advanced technical knowledge and applicable to almost every aspect of the fleet's military operations—that established NRL's prestige and demonstrated the efficacy of "research." As war drew nearer, after

1934, it was increasingly hard to disparage the significance of radar and the program which had developed it. Naval officers would still claim that research should be carried out by industries and universities. But the arguments were no longer able to threaten either the survival of NRL or the propriety of its research orientation.

In telling this tale Allison has combined scholarship, a good understanding of technical problems, a sensitivity to the importance of people, politics and economics in technological developments, and a nice ability to organize diverse materials. He has written a fine book that recommends itself without qualification to students of history and engineering administrators.

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Gansler, Jacques S. *The Defense Industry*.
Cambridge, Mass.: MIT Press, 1980.
346pp. \$9.95

Gansler's book rivals in importance the scholarly series on weapons acquisition produced in the early sixties by M.J. Peck and F.M. Scherer. Like the works of Peck and Scherer, the book is certainly not light reading. The author mixes applicable economic theory with more practical treatment of the difficulties in this unique industry. From the analysis, he evolves a very comprehensive and general set of policy recommendations applying to the industry in general and to more specific segments that dominate a large share of the defense resource transformation process. His recommendations are extensive, complex and, most importantly, often interrelated. The book is richly supported by statistical data and trend information that will delight future researchers. The data, while valuable in establishing trends, is somewhat outdated, probably as a result of