

BRAC Targets Another ‘National Asset’: Army Research Office in North Carolina

by Judy DeMarco

At the June 28 BRAC hearing in Charlotte, N.C., delegations from the Carolinas and West Virginia testified, giving major attention to the great value of the Research Triangle Park in North Carolina, in which the Army Research Office (ARO) is central. The BRAC proposal is to relocate the ARO to Bethesda, Md.

Dr. Robert McMahan, Research Professor of Physics and Astronomy at the University of North Carolina, Chapel Hill, Adjunct Professor in Technology and Management at North Carolina State, and the Senior Advisor under North Carolina Governor Easley for Science and Technology, presented an overview of the situation.

“If you are not familiar,” with it, McMahan stated, “the Research Triangle Park is the largest Research Triangle Park in the world. The research triangle name comes from the three universities: Duke University, the University of North Carolina, Chapel Hill, and North Carolina State University in Raleigh. The longest axis of that triangle is about 20 to 25 miles. It’s a very small community in which three top-ten nationally ranked universities lie. And the ARO lies at the heart of this triangle. Research Triangle Park is known as a national center of technology innovations and transition.

“The ARO specifically funds Army research in over 200 academic institutions across the country. And it assesses the scientific opportunities to achieve the Army’s long-range technology vision. Specifically, it focusses over \$350 million annually on research in support of Army transformational technologies. And this research support has paid huge dividends. R.E. Smalley, who is the discoverer or inventor of the Buckminster Fuller, which is a large-scale molecule, which is the beginning of nanotechnology, [and] for which he was awarded the 1996 Nobel Prize in Chemistry, credits ARO’s basic research technology capacity with spawning his discovery. And that is just one example of critical technologies that have been developed using ARO’s capacity. In fact, ARO has provided critical funding and support for 15 Nobel Laureates, beginning with the laser of Charles Townes in 1964, and the latest with the recent three physicists who won the 2001 Nobel Prize.

“As such, Research Triangle Park is really a national asset. It is one of the few locations in the United States where you have three high-performance research universities so closely located. In fact, ARO’s location in the Research Triangle Park

was chosen as the result of a national search, looking for just this type of capability outside the Beltway, in an attempt to expand the high-technology community. Today, Research Triangle Park is full one of the nation’s foremost technology hubs. It has pioneered the organizations and institutions which have pioneered the science underlying all of the major Army technology systems. And, in fact, that [collaboration] is probably this facility’s greatest distinguishing characteristic, that the program managers at ARO are hands-on researchers, widely acknowledged for their scientific competence. Many don’t appreciate the fact that the Research Triangle Park has the Nation’s strongest innovation capacity.”

Of the top 50 metropolitan areas in the country, McMahan said, Research Triangle Park is number one in the “number of degrees granted in science and engineering as a weighted measure of the total workforce, and the amount of academic R&D, and the breadth of the R&D occurring in the area. ARO, with its close proximity to RTP, is able to maintain a strong link to this capacity and this innovative capability.”

“There are 41 Ph.D.’s in ARO, conducting joint projects with research universities in the area, act[ing] as program managers with active research in areas as diverse as polymers, microelectronics, nanocomposites, intense lasers, etc.

“Research Triangle Park is now the third largest biotechnology cluster in the United States, and ARO sits as part of this, and that will speak to the Army’s ability to integrate and identify new technologies, not only in medicine and biotechnology directly, but in materials and advanced electronics.

“I urge you to analyze carefully the role that the location of the ARO in the Research Triangle Park plays in the performance of the organization, and I think when you do, I and the citizens of the State of North Carolina are confident that you will keep the ARO where it is.”

Why Try To ‘Relocate’ Brainpower?

Rep. David Price (D-NC), from the state’s 4th District, home of the Army Research Office in Durham, testified at the BRAC Commission against the idea of relocating the ARO to Bethesda, Md.

“Co-location with North Carolina State University, Duke University, University of North Carolina at Chapel Hill, and other research organizations, gives ARO intellectual synergy, joint appointments, collaborative projects, and enhanced abil-

A U.S. Tradition: Military Work on Infrastructure

by Pam Lowry

From the earliest days of the young American Republic, the engineering capabilities of the military were viewed as crucial for developing the nation. The officers of the Continental Army, such as George Washington, Alexander Hamilton, and Henry Knox, envisioned a military school for citizen-soldiers which would teach both military and civil engineering. West Point Military Academy and the Corps of Engineers were founded in 1802, led by Jonathan Williams, a skilled scientist and grandnephew of Benjamin Franklin.

The crucial turning point for American civil and military engineering came in 1815, when West Point graduate Sylvanus Thayer was sent to France to obtain books and models for the Academy. Thayer studied the methods of France's great military and scientific École Polytechnique, and persuaded one of its engineering professors, Claudius Crozet, to come to West Point. There, under Thayer's superintendency, the curriculum was expanded to provide a heavy emphasis on spherical projections in descriptive geometry, and topographical drawing.

Until the 1820s in America, the policy of those who

claimed that the Federal government had no right to engage in internal improvements had predominated. But in 1824, under President James Monroe, the advocates of the American System of Political Economy began to take charge. That year, the Supreme Court ruled in *Gibbons v. Ogden* that the Federal government had authority over interstate commerce, including river navigation.

Consequently, Congress passed the General Survey Act, authorizing the President to conduct surveys of routes for roads and canals "of national importance, in a commercial or military point of view, or necessary for the transportation of public mail." A second act appropriated funds for improving navigation on the Ohio and Mississippi rivers, and both tasks were given to the Army Corps of Engineers.

Under President John Quincy Adams, the basis was laid for much of the infrastructure that transformed America into a developed nation. Military engineers supervised the National Road, the construction of canals and lighthouses, the surveying of the American West, river improvements, and the spread of railroads throughout the nation. In 1838, when the anti-infrastructure forces gained the upper hand and Congress forbade the Corps of Engineers from loaning their officers to private development firms, many West Pointers resigned their commissions and used their talents to continue building infrastructure.

In addition to improving transportation, the army engineers also supervised projects such as the Washington Monument, the Library of Congress, the wings and dome of the U.S. Capitol, and New York's Central Park.

ity to recruit and retain the best and brightest program managers, and the opportunity for those managers to keep an active hand in research. Why would anyone want to uproot these highly productive personal and institutional connections?"

"ARO's 114 employees have ready access to and daily interaction with world-class researchers and institutions. ARO professionals work with entrepreneurs seeking innovative applications for emerging technologies. They work with top-flight university professors and students on an astounding array of research endeavors. In fact, almost half of the research managers are involved in active research projects with universities in the area."

"Co-locating the military's premier research organization into a heavily bureaucratic environment would uproot all that. . . . It would run counter to the primary purpose of research organization, damaging the very fiber of innovation and creativity.

"Our technology advantages provide our forces huge tactical advantages. Technology is transforming the battlefield. Medical advantages, saving thousands of lives that would have, in the past, been lost. Maintaining collaboration and synergy on cutting-edge technology is the lifeblood of a re-

search organization; and research is the lifeblood of the modern military.

"So I would simply conclude by saying—pleading—don't mess with a good thing. The ARO is a premier research organization performing its mission admirably. I urge the Commission to analyze carefully the role its present location plays in that performance. If you do that, I'm confident that you will keep the ARO exactly where it is."

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