

## Apple Retreats to the Suburbs By Edward Tenner - Nov 29, 2013

Apple Inc.'s stunning new Campus 2 in Cupertino, California, will be one of Steve Jobs' lasting legacies when completed in 2015. For better or worse, he was thinking differently to the end, striving for geographic self-sufficiency even as many other high-technology enterprises across the country were starting to return to city life. Will this approach, and the complex that embodies it, renew Apple's culture of excellence or retard it?

Costing an estimated \$5 billion and covering 175 acres, with 2.8 million square feet of office space for 13,000 employees, the doughnut-shaped building designed by Norman Foster may be the ultimate in green architecture. But the 700 newly planted trees that will surround it are dual-use foliage. According to a planning document, Apple's goal was to achieve "the security and privacy required for the invention of new products by eliminating any public access through the site, and protecting the perimeters against trespassers." Apple rejected plans for trails around the periphery, and a Los Angeles Times reporter claimed harassment by Apple security while journalists were on what was still public property.

Apple is almost alone in its retreat from the street grid. In fact, the trend has been to shed suburban centers and migrate to academic neighborhoods in cities. Swiss pharmaceutical company Roche Holding AG is closing its Nutley, New Jersey, campus, where Valium was developed in the 1950s, and opening a center in New York that will bridge drug development and clinical practice. Pfizer Inc., Novartis AG, Amazon.com Inc. and Google Inc. are building or expanding facilities in Cambridge, near the Massachusetts Institute of Technology. New York City expects to break ground next year on a 12-acre tech-school campus on Roosevelt Island that will be run by Cornell University and the Technion-Israel Institute of Technology. Philadelphia's 50-year-old University City Science Center, near Drexel University and the University of Pennsylvania, is planning to become a world nanotechnology center. And in San Francisco, Twitter Inc. recently signed a lease for a building that encompasses more than 300,000 square feet in a seedy downtown neighborhood that local officials hope will become a similar magnet. The company's co-founder, Jack Dorsey, has arranged its interior explicitly as an urban street grid.

The pendulum's swing between urban and rural headquarters goes back to Thomas Edison himself, who moved his shop from New Jersey's industrial hub of Newark to still-isolated Menlo Park - – and then back again to East Orange, near Newark. About 1900, industry was located in cities large and small, and research

laboratories were usually not far from the factory floor. General Electric Co.'s Schenectady, New York, center was one of the first and biggest; E.I. du Pont de Nemours and Co.'s DuPont Experimental Station was and remains near the company's historic mill in an otherwise residential neighborhood of Wilmington, Delaware. In 1900, Western Electric Co., AT&T Corp.'s manufacturing subsidiary, constructed a 13-story laboratory in downtown New York; it became the headquarters of a new independent AT&T unit, Bell Telephone Laboratories Inc., in 1925. New York's concentration of corporate headquarters led the Computing Tabulating Recording Co. (later International Business Machines Corp.) to relocate research from its Endicott, New York, manufacturing complex to the city in 1922.

In chemical and pharmaceutical manufacturing, there were enough bench researchers and executives in New York by 1911 to warrant a handsome Chemists' Club building near the New York Public Library with the usual amenities -- plus a research library and even laboratory space on the top floors.

World War II may have been the high point of American urban science. The Manhattan Project's code name belied its expanse: Thousands of workers, almost all unaware of plans for a nuclear bomb, were dispersed in projects across New York's boroughs. (The Wall Street Journal recently revealed that traces of radiation can still be found around the city.) And a consortium of pharmaceutical companies, prodded by the war effort, cooperated in one of the most striking accomplishments of chemical engineering: scaling up the production of penicillin. Pfizer, which still maintains its headquarters and laboratory space in the city, opened the world's first penicillin factory in Brooklyn in 1943.

Then the trend began to reverse itself. By the early 1940s, Bell Labs was moving researchers into a new facility in Murray Hill, New Jersey. The invention of the transistor in 1947 there, along with other Nobel Prize-caliber work, suggested to other companies that exurban laboratories could help create breakthroughs of their own.

Mass postwar automobile ownership and the expansion of interstate highways and shopping centers made the landscaped suburban headquarters an attractive alternative to the city office tower -- especially for commute-weary executives who made the site decisions. RCA Corp. consolidated its research and development operations from its urban New Jersey complexes to a then-quiet stretch of U.S. 1 near Princeton University. In the 1960s and 1970s, the Finnish-born architect Eero Saarinen designed striking complexes for IBM's new Thomas J. Watson Laboratory in Yorktown Heights, New York, and for Bell Labs in Holmdel, New Jersey, both in outer suburbia.

Ironically, these very laboratories helped set in motion personal computing, mobile telephones and other innovations that forced their parent companies to adapt. Vertically integrated giants such as IBM and AT&T changed their strategies, reducing the need for in-house basic research. Many of their stars accepted university professorships; a few prospered as technical analysts in venture capital and private equity. The day of the technological citadel seemed to be over. One of Bell Labs' successors, Alcatel-Lucent, finally closed its iconic Holmdel facility in 2007.

Apple is thus betting against the industry in building a vast, self-contained headquarters in the heart of relatively open Silicon Valley. It may be right. Who needs openness when secrecy and speculation — along with exacting attention to design — have helped make your brand so universally admired? Perhaps the security, and the end of the old Apple campus's souvenir shop, will only heighten the mystique, even if the site is less impregnable in our era of cyber-espionage and superhacking. In any case, Apple sold 33.8 million iPhones in the last quarter alone. Its systematic refinement of products may be planned obsolescence, but it has breathed new life into the old Detroit formula of the annual model change.

Obsolescence: There's the rub. A structure on this scale commits a company to a philosophy over at least a generation as technology, tastes and priorities continue to shift. Alcatel-Lucent's headquarters was also designed by a superb architect to support multidisciplinary research that was the envy of the world. But the structure locked in a technical style after the world had moved on, just as AT&T completed its landmark Philip Johnson office tower in New York in 1984 — the year it finally broke up. Here's hoping Apple can remain an exception to the curse of Xanadu.