



July 2, 2006

URBAN TACTICS

City of Angles

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CALL it 29 degrees of separation. That's approximately the angle that the Manhattan street grid is rotated from the north-south axis. And it's the reason that, looking west on the first day of summer, you couldn't see the sun set down the middle of any crosstown street, but you could have on May 28 and can again on July 13.

What inspired the grid itself and provoked New York's angular revolution, whose seeds were planted almost exactly 200 years ago? What biblical injunction or solar cult impelled the city fathers to discard their compasses? Which political, economic and cultural forces unleashed "armies of street openers," as James Reuel Smith, an amateur historian, called them, whose largely uncurbed execution of the grid obliterated much of Manhattan's topography and resulted in the demolition of 40 percent of the buildings north of Houston Street?

It was on July 1, 1806, that the city hired Ferdinand R. Hassler, a Swiss immigrant who would become the first director of the federal Bureau of Standards, to produce a "correct survey and map" of the "island of New York." Just a few weeks later, Hassler pronounced himself indisposed. The Common Council itself, a predecessor of the City Council, was fed up with the obstructions to rational development that were being thrown up by politicians, businessmen and competing property owners — opposition the city fathers described as "obstacles of a serious and perplexing nature."

So city officials did what they often do when they're stymied: they passed the buck to Albany. In 1807, the State Legislature authorized a three-man commission to hire its own surveyor. It is probably apocryphal that the commissioners decided on the rectangular street grid after placing some wire mesh used for screening gravel over a map of Manhattan. But that's pretty much what they suggested four years later when they issued what was known as the Commissioners' Plan of 1811.

"To some," the officials candidly wrote, "it may be a matter of surprise that the whole island has not been laid out as a city. To others it may be a subject of merriment that the commissioners have provided space for a greater population than is collected on any spot on this side of China."

The plan provided for a reservoir, a public market and a parade ground, but few parks. Most of the streets ran river to river, rather than uptown and downtown, for several reasons: a number of rectangular blocks already had been built that way; at the time there was little reason to venture north of 14th Street; and officials assumed that maritime commerce along the two rivers would generate the most traffic.

And so, paralleling the Hudson and several existing roads, they laid out the avenues along the spine of Manhattan island (which Charles Petzold, a mathematician, calculated was rotated about 29 degrees from

true north), to allow traffic on the avenues to cross the island's entire length, instead of heading into the rivers.

Even after the grid was executed, not everyone loved the idea. Decades later, invoking the ancient Greek region famous for geometric pottery and for stupidity, Harper's magazine complained that the commissioners "clapped down a ruler and completed their Boeotian program by creating a city in which all was right angles and straight lines."

The magazine might have complained even more had city officials pursued some of the more extravagant design ideas they were contemplating. William Bridges, the city surveyor, explained that one of the commissioners' chief concerns was "whether they should confine themselves to rectilinear and rectangular streets, or whether they should adopt some of those supposed improvements, by circles, ovals and stars, which certainly embellish a plan, whatever may be their effects as to convenience and utility."

In any case, given Manhattan's uneven topography, the grid system made considerable sense. According to one translation, the name Manhattan was derived from the Algonquin word for "island of hills." One historian described the idea of imposing a democratic rationality on an unruly terrain as the most radical transformation of New York's geography since the Ice Age. Hills, salt marshes and streams were replaced by what Reuben Skye Rose-Redwood, who just earned his Ph.D. in geography and wrote his master's thesis on the grid, called a "Cartesian flatland."

Many landowners were appalled by the plan, among them Clement Clark Moore, then a professor at the General Theological Seminary. Moore, who would go on to fame as the author of "A Visit From St. Nicholas," owned a summer home in Chelsea. In 1818, after the city plowed Ninth Avenue through his property, he delivered a devastating critique of government-anointed technocrats and eminent domain.

"Nothing is to be left unmolested which does not coincide with the street commissioner's plummet and level," Moore complained, saying the commissioners "are men who would have cut down the seven hills of Rome, on which are erected her triumphant monuments of beauty and magnificence, and have thrown them into the Tyber or the Pomptine marshes."

Notwithstanding such objections or the later addition of more avenues, the rejection of a recommendation to straighten Broadway and the grand design for Central Park, the grid exists today pretty much intact. It lacks the embellishment of many circles, ovals and stars, but it's a nearly perfect place to practice taxicab geometry, in which the shortest distance between two points is rarely a straight line.

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