WHEN AN IDEA PREVAILS:

The unsuccessful invasion of Iraq by the U.S. is 4 years old this month. My protest is at the end of this column, rather than on the street.

But to warm you up, I call attention to a successful invasion of American turf about 13,000 years ago by the so-called Clovis complex. Based on a recent paper in the Feb. 23 Science, Clovis technology spread because it was a good idea, not necessarily because it was hand-carried by an expanding population.

The hallmark signature of Clovis is a large, thin spear point that was flaked at the base to strengthen its attachment to a shaft. Such points are commonly found with butchered remains of American elephants (mammoth and mastodon). The recent archaeological study by Michael Waters and Thomas Stafford applied one of the most modern analytical technologies -- radiocarbon dating using accelerator mass spectrometry -- to examine the exact timing of the oldest widespread technology in the Americas. Using 85 radiocarbon dates from 30 sites spread from central Alaska to southern Chile, they concluded that Clovis technology appeared no earlier than 13,250 years ago, and disappeared no later than 12,800. This yields a span of 450 years. A less conservative but more likely age range is 13,125 to 12,925 years ago, a 200-year span.

The authors propose two hypotheses for the wildfire spread of the technology. Clovis could have emerged as a "eureka" moment somewhere in the Americas, then spread rapidly north, south, east or west. Alternatively, it could have been introduced to the Americas from unglaciated central Alaska through the so-called ice-free corridor dividing the Laurentide Ice Sheet to the east (which also covered New England) and the Cordilleran Ice Sheet to the west.

From the southern exit of the corridor, the Clovis signature tool could have been refined from an antecedent Alaskan core-and-blade industry before spreading rapidly. This second hypothesis is supported (but not proved) by a dramatic improvement in corridor conditions just before the technological explosion. Clovis quickly evolved into something else, perhaps because the last mammoth steak had been barbecued.

I do not open with Iraq as bait in order to switch to Clovis for fun. There really is a connection between these two invasions, at least in my mind.

Clovis illustrates a modern truth -- that it's hard to keep a good technology down. Maintaining a socially conservative community - - for example orthodox sects of Judaism, Christianity and Islam -- in a rapidly changing society requires the construction of a cultural fence impervious to some technology. The Amish provide a good example. Maintaining a socially conservative way of life while openly embracing technological change is all but impossible because behaviors and objects strongly influence each other. The birth control pill provides a good example. Hence, fundamentalist versions of the three great Western religions must work hard to enforce their different Bronze Age rules in the Age of Bioinformatics. Top-down authority is the applied, often with dangerous consequences.

The American invasion of Iraq was a physical invasion, not an ideological one. Of the five motives offered, the only one that makes sense to me is a pre-emptive strike to suppress terrorism. Retaliating for the 9/11 attacks (in the wrong place), clearing the ground to search for weapons of mass destruction (that aren't there), protecting access to foreign supplies of petroleum, and strutting military stuff do not.
I was appalled by the genocide and human rights violations Saddam Hussein used to enforce his modern secular dictatorship. I am angered that religious fundamentalism sanctions the cruelty of the 9/11 terrorist attacks. But two wrongs -- one for and one against modernism -- do not make a right. My own government chose to ignore the rest of the world, which it shocked and awed with arrogance. Because of that blunder, the cradle of civilization is a smoldering disaster, and my children will spend their adult lives in a world with rising anti-American sentiment.

I do not argue that American ways are best. What I argue is that they be spread as ideas, rather than by force.