



Lyle's Law of Locality

to people who have never traveled in the Midwestern United States, there would seem to be no distinguishable difference between Iowa and South Dakota. They are both located in a rather blurry region lying somewhere west of Pittsburgh and east of Lake Tahoe, and they produce a lot of corn or something. And indeed, when one crosses the Big Sioux River from Sioux City, IA, into South Dakota, it appears that there is no difference. The terrain may be a little flatter, and the trees may be a little sparser, but, all in all, it looks just the same. But be not deceived. South Dakota is a big state. As you travel north and west, the flatness and the sparseness seem to increase gradually, and, then, in the middle of the state, you reach the Missouri River. There you find a discontinuity.

As I understand the geology, the Missouri River marks the farthest extent of the glaciers, some 10,000 years ago. The effect of these glaciers is profound. On the northeast side of the Missouri, the land was scraped and rearranged in such a way that the tributary rivers run from north to south, and they do so through relatively flat farm country. South and west of the great river, the land was not graded by the glaciers, and the ancient tributaries run from west to east through rugged ranches and badlands. When my family moved west, lo these many years ago, we found that not only did the land form change, so did the culture. I felt a bit out of place in my baseball cap when all about me were seas of cowboy hats. My tales of squirrel hunting didn't seem to interest the guy (or gal) who had just hung up a 200-pound mule deer. And who knew what "hung up" meant? Before we really felt comfortable, we had to learn a lot about this new culture. Thus, Lyle's Law of Locality—*Know your territory.*

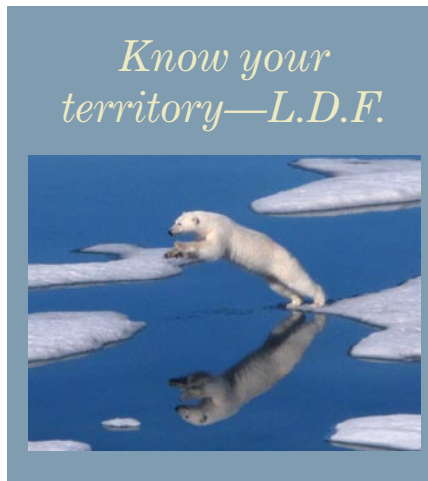
The traveling salesmen in "The Music Man" sang it well, albeit with questionable grammar. "*You gotta know the territory.*" So what territory do engineers gotta (may I say "have to") know? Several. First, no engineering work of any significance is ever done out of context. Consider the laptop computer upon which I am currently composing—the brand of which I will considerably not divulge. I am sitting on a stool at my shop workbench looking down

at the keyboard, and all is well. The keys are shiny and reflective, but I can read them (I touch type, but I cheat). The screen shows me a reflection of myself, but I can ignore it. All remains well. But I don't usually work at my workbench. I usually work at my desk where I am seated lower with respect to the keyboard. In that case, the keyboard is angled such that the screen—still reflecting my image—is reflected in the keys, and they are unreadable. The designers didn't give enough thought to the salesmen's definition of "territory." It's where you sell things. It's where your products are used, not where they are developed. In a lab, where people sit on stools and touch typists don't cheat, no problem. But out in the territory.... There it would be much better if these keys had a matte finish and the screen were non-reflective.

Another territory that everybody has to know is the place they work. Every company, every university, sometimes every division of a company, has a different culture.

In my engineering career, I have worked at five different universities and, coincidentally, five different companies. And they were all different. Their dress codes—or lack thereof—were different. Their approaches to time of arriving and time of leaving were different. Security varied from company to company and was generally stricter than at any university. It always took a while to learn the culture—to know the territory—and then to adapt to it, but doing so was an important step in becoming productive in each position. So when going to a new job, get to know the territory. See what people wear—especially the people you want to emulate. Better to dress like your boss than the company clown. Learn where the substantive discussions are held. Are they in meetings? In the lunch room? Out in the lab? Figure out how decisions are made. How much autonomy and initiative people are allowed to have. Go slow. Watch and learn.

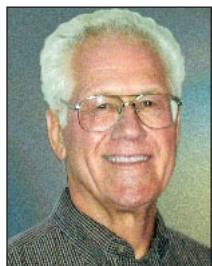
In this era of increasing globalization, we all find ourselves exposed to cultures that are widely different from our own. If you find yourself assigned, even for a short time, to work in another country, it is especially important to get to know the territory. You can do a lot
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before you go, but you will still have a lot to learn once you get there. Probably your best ally in your early days abroad will be a heightened sense of humility. That and a few words of the local language will go a long way to keeping you comfortable while you learn the local customs. A few years ago, my wife and I were in a little restaurant in Perpignan, France.



I used my few words of atrocious French to apologize for my inability to speak their language and found that the waitress spoke reasonably good English. Across the room was a trio of Americans who not only didn't try to speak a little French, they made fun of the language. Hey, I think I'll order the poison. Ho. Ho. Ho. Funny, but that

waitress forgot every word of English whenever she crossed the room. Learn your territory, folks.

Now, learning the territory doesn't necessarily mean that you adapt completely to the culture, be it that of a company, a country, or a club. If the inhabitants of the territory behave in a way that offends your ethical standards, by no means should you conform. There may or may not be opportunities to change the culture, but, if not, unto thine own self be true. In any event, first you gotta—oh, please—you have to know your territory.

—Lyle D. Feisel, Ph.D., P.E., Iowa Alpha '61

125TH ANNIVERSARY CLUB

2010 celebrates the 125th anniversary of the founding of Tau Beta Pi. To commemorate this historic occasion, a one-time recognition club has been established for



donors contributing \$125 or more in 2010. (Members of existing clubs will still be listed in those clubs.) Donors of \$125 or more will receive a striking memento acknowledging their special support during the Quasiquicentennial celebration. This limited-edition item features the Association's 125th anniversary logo

etched onto a polished 3" x 3" black marble paperweight. For more information, contact Patricia McDaniel—pat@tbp.org, 865/546-4578.

BRAIN TICKLERS

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5 A young girl is riding in a swing with chains 8 ft in length and a seat 2 ft above the ground. She wants to jump off and land as far from the swing's rest position as possible. At what angle of the swing (the angle is 0° when the chains are vertical) should she release from the seat, and how far from the point directly under the swing's rest position can she land? Treat the girl as a point mass, and assume that the highest she can pump the swing is 45° with respect to vertical.

—*Towing Icebergs, Falling Dominoes, and Other Adventures in Applied Mathematics*
by Robert B. Banks

Bonus. A football punter, standing at the middle of the 50-yard line, wishes to make a "coffin corner" kick. That is, to kick the ball out of bounds as close to the goal line as possible, but not into the end zone. If successful, the opposing team will get the ball at the yard line where it goes out of bounds; if unsuccessful, it will get the ball at the 20-yard line. Assume the ball travels in a straight line, has enough velocity to cross the sideline or goal line, and there is no run-back. If the kicker's launch angle has a normal distribution with a standard deviation of 7.5° from where he aims, at what sideline yard marker should the punter aim so that the expected value of the opposing team's starting position is minimized? What is that expected value (in yards from their goal line)? A football field, not counting the end zones, is 300 feet by 160 feet.

—Steven E. Bradley, AZ A '77

Computer Bonus. The smallest palindromic square with an even number of digits is 698,896 (the square of 836). What are the next two smallest palindromic squares with an even number of digits?

—*The Colossal Book of Mathematics* by Martin Gardner

Send your answers to any or all of the Fall Brain Ticklers to **Jim Froula, Tau Beta Pi, P.O. Box 2697, Knoxville, TN 37901-2697**, or email plain text only to BrainTicklers@tbp.org. The cutoff date for entries to the Fall column is the appearance of the Winter BENT in December. The method of solution is not necessary. We also welcome any interesting problems that might be suitable for use in the column. The Computer Bonus is not graded. Jim will forward your entries to the judges who are **H.G. McIlvried III, PA Γ '53**; **F.J. Tydeman, CA Δ '73**; **D.A. Dechman, TX A '57**; and the columnist for this issue,

—J.L. Bradshaw, PA A '82.

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