which installed the National Socialists, both Jewish scientists and gentiles opposing Hitler were removed and replaced by lesser talents who were selected according to their political correctness. Relatively few Nazi professors lost their positions after the war (*1*), and some even gained chairs. For example, Otmar von Verschuer received the genetics chair at the University of Münster in 1951 (*2*). Some of the more skilled Nazi scientists, continuing to be opportunists, sought to associate themselves with the victor, and, owing to the blooming Cold War, the American government welcomed them. The remaining Nazi faculty cohort not only had little to offer their students, but tended to be intolerant of those more capable than themselves, thus crushing possible future stars of German science.

In Germany, America is often colloquially termed "the land of limitless possibilities," which perhaps reflects the endless rigidities in German life, scientific and otherwise. The quality and quantity of a German investigator's research may often be far less appreciated than obedience and "not rocking the boat." Divergent thinking, so crucial to scientific advances (*3*), is generally not rewarded.

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As the U.S. coordinator for a European Union–U.S. student exchange program in chemistry, I would like to comment on the aspect of Kahn's article about the low number of foreign students studying in Germany. In my view, a major problem in such exchanges is the German visa process. American students do not notice this problem because they can enter Germany without a visa.

In our exchanges, we attempted to send two immigrant City University of New York students to a German university. Both had permanent U.S. residence visas and passports from developing countries. The German government never issued visas for them. We then placed both students in an English university without any problems from the British immigration authorities.

The German visa applications apparently spent about 4 weeks on the desk of a local police official in the destination city and then took about 4 weeks to leave the German consulate in New York City. This happened despite personal intervention both in New York and in the destination city. Unless the process used in Germany for visa applications is revised, I would advise against sending foreign students to German universities.

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Turbulence Hits Wall

The article "A new theory of turbulence causes a stir among experts" by Barry Cipra (Research News, 17 May, p. 951) describes a then in-press paper by Grigory Barenblatt and Alexandre Chorin (*1*) that is based on what appear to be two mistakes.

First, the "law of the wall" (which describes mean velocity distribution in turbulent flows at boundaries such as wings, fan

blades, or the interior wall of a pipe) does not assert that "the fluid's average velocity in the boundary layer increases linearly with the logarithm of the distance from the boundary," as Cipra states. The law of the wall is well stated by Donald Coles (*2*): "Prandtl and von Kármán observed that the mean-velocity profile for turbulent shear flow in close proximity to a wall could be written in a form which has become known as the law of the wall; $u/u_\tau = f(yu_\tau/\nu)$ where $u_\tau = \sqrt{(\tau_w/\rho)}$." In this equation, u is the local mean velocity component parallel to the wall, τ_w is the mean wall shear stress, ρ is density, y is the distance normal to the wall, and ν is the kinematic viscosity. The law does not state what the function f is. Here u/u_τ and yu_τ/ν are the coordinates of the figure in the Research News article.

As its name implies, the law applies only "in close proximity to a wall." This means the region where the stress is effectively constant, which confines the law to the inner 10 to 15% of the boundary layer. A different law, sometimes called the law of the wake, applies to the outer 85% of the layer.

Barenblatt and Chorin also appear to misapply the law of the wall to the region far from the wall. All of those "little hooks" on the figure in the article are in the 85% of the boundary layer where the law of the wall was never meant to apply. In the constant stress region, the law of the wall fits 60 years of good data very well over an extraordinary range of Reynolds number and has proved useful in applications ranging from wing design to pesticide dispersal.

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I wish to express my disappointment that Cipra's article could appear in *Science*. It is best described as extravagant advertising of unconfirmed ideas. Howlers such as measuring the slope of the deviation function instead of that of the log law of the wall and concluding that the classical theory is in error by 65% is something even my undergraduate students would find hard to believe.

How could such claims be made and entertained before the release of the Princeton "Superpipe" data, which could be used to test the theory? If the sketch representing the Superpipe data shown in the article is accurate, then it seems to me to be the most convincing confirmation of the classical theory so far produced. A long log law is apparent, with systematic peel-offs of the deviation (or wake function), which has a shape that remains the same as it moves up the log line with increasing Reynolds number, thus confirming the Reynolds number invariance of the velocity-defect law at high Reynolds number. This picture alone would put smiles on the faces of Karman, Prandtl, Izakson, and Millikan, the founders of the classical theory.

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California Civil Rights: Stealth Clause

The description of the so-called California Civil Rights Initiative in Marcia Barinaga's article "Backlash strikes at affirmative action program" ("Maintaining diversity in science," 29 Mar., p. 1908) does not mention a "stealth clause" (section c) that drastically dilutes protection against discrimina-