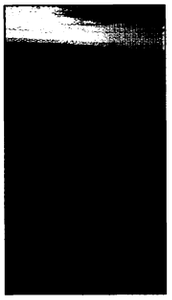
heimer's recent review of the status of understanding of the West Antarctic Ice Sheet (WAIS) and its stability (*1*). According to Kerr, "[Oppenheimer] concluded from the erratic behavior of late that its [the WAIS's] most likely fate is disintegration during the next 500 to 700 years, greatly accelerating sea-level rise beginning in the 22nd century." Kerr suggests that Oppenheimer provided one of several "alarming recent predictions." Oppenheimer discussed three possible future scenarios for the WAIS, and his assessment was that the scenario summarized by Kerr has the highest relative likelihood but, as noted by Oppenheimer, with low confidence. Oppenheimer started the discussion of possible future scenarios with the statement: "It is not possible to place high confidence in any specific prediction about the future of [the] WAIS."



Ross ice shelf: Stay awhile?

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1. M. Oppenheimer, *Nature* **393**, 325 (1998).

Learning from Others

In his article "U.S.–style universities for Germany?" (News & Comment, 19 June, p. 1826), Martin Enserink describes Germany's movement toward infusing private (partially public-supported) universities into its existing traditional higher education structure. This infusion may eventually result in institutions of higher education that operate more like those found in the United States. While the higher education system in Germany may learn from us, our system can also learn from some of Germany's present practices, especially related to teaching strategies emphasized in beginning college-level chemistry or other science courses.

For example, our recent study of teaching behaviors practiced by faculty and teaching assistants in beginning college chemistry education in the United States (*1*) concluded that more than 95% of laboratory instructional time is spent in instructors responding to students' procedural questions. Many students even believe that responding to these kinds of questions is the major role of the instructor. Thus, students spend little time reading and interpreting directions before, during, and after each 3- to 4-hour laboratory class per week. They also spend little time in drawing conclusions from the data collected and virtually no time in addressing the scientific and social significance of the laboratory findings.

We also observed and analyzed the teaching done by "overseers" during beginning college chemistry laboratories in Germany. Examples of effective practices were students spending from 20 to 25 hours per week engaged in laboratory settings planning for and carrying out real investigations. Overseers did not respond to procedural questions, and students met with them and the department chair for oral examinations on knowledge learned from the laboratory experience. On a voluntary basis, these students attended only three or four lectures each semester.

As an example of an ineffective practice, the laboratories were pretty much limited to classical qualitative analysis without the use of analytical instrumentation or computers. These "tools" are left for more advanced courses.

Our recommendation is for German institutions to not "throw out the baby with the bathwater"; that is, they should continue emphasizing active and extensive student participation in scientific investigations, but also adopt some of our more useful instructional laboratory practices.

At the same time, we in the United States need to place more emphasis on student inquiry and involvement in the instructional process. New curricula like MC2 and Modular Chemistry could take chemistry instruction in the United States in this more effective direction (*2*).

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References and Notes
1. A. Hilosky, F. Sutman, J. Schmuckler, *J. Chem. Educ.* **75**, 100 (1998).
2. These are two of the five major chemistry curriculum projects supported through the Division of Undergraduate Education of the U.S. National Science Foundation. The two projects joined efforts after initial development at the University of California, Berkeley, and Beloit College in Wisconsin.

A "Humouse" Project

In their commentary "Shotgun sequencing of the human genome" (*Science*'s Compass, 5 June, p. 1540), J. Craig Venter and his colleagues once more create a sensation by announcing that a new industrial entity is aiming to sequence the whole human genome in 3 years at a cost of $300 million, a small amount in comparison to those of other efforts.

There are two key elements to this project. First, a new generation of sequencers will be launched by Perkin-Elmer Corp., a partner in the project. Second, a global "shotgun" approach to sequencing will be attempted.