Random Samples:

Softball Science

Orthopedist - cum - softballer David Janda treats a lot of fellow weekend warriors for sprained or torn knee ligaments and other softball injuries. When he found that 71% of these injuries were caused by sliding into bases, he decided to do something about it.

Janda and associates at the University of Michigan ran a 2-year prospective study of whether using breakaway bases (the kind that come loose when hit hard) could reduce the number and severity of base-sliding injuries [*JAMA* **259**, 1848 (1988)].

The breakaway bases Janda and associates used consist of two parts. The top, which looks like an ordinary stationary base, is attached with rubber grommets to a rubber mat set flush with the infield surface. The top detaches when hit with 700 foot-pounds of force. A stationary base needs more than 3000 foot-pounds of force to dislodge it.

Six hundred and thirty-three games were played on breakaway-base fields and 627 on standard stationary-base fields over two seasons. A total of 45 sliding injuries occurred on the stationary-base fields, but only two occurred on the breakaway-base fields. Total medical charges for the 45 were more than $55,000 (an average $1,223 per injury), while the two totaled about $700 ($350). Games were not noticeably delayed, and umpires reported no difficulty in making safe versus out calls.

Given that there are an estimated 32 million softball players nationwide playing some 23 million games a year, the Centers for Disease Control figures that the national medical bill for sliding injuries hovers near $2 billion, and that breakaway bases could cut that figure by 99%.

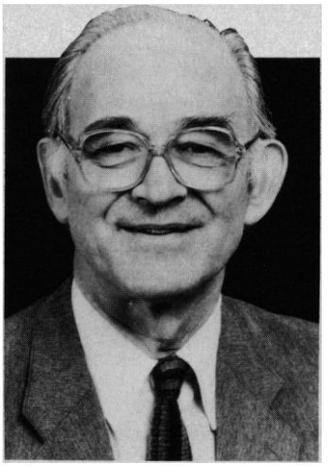
But there are limits even to cutting-edge softball science. Janda points out that bad base running or too much beer during the game won't help your sliding form.

The Winter of '42

Meteorologist Bert Bolin will never forget the Scandinavian winter of 1942.

"I remember the 25th of January 1942 very well," Bolin said, speaking from a telephone booth in balmy Los Angeles last month. "It was −32°C with a half gale storm blowing. You'd be out for 2 minutes and your face would freeze."

It was also the year the 17-year-old Swede learned that winter could do more than nip a schoolboy's nose. He saw how the cold and storms of the north could stall, and ultimately defeat, the Nazi armies in Russia—marking a turning point in the war. "I followed the events



Bert Bolin

of the war without really knowing what war was all about," he remembers.

The winter of 1942 kindled in Bolin a lifelong interest in climate and its effects on human life. He went on to become a meteorologist and helped lay the groundwork for modern computerized weather forecasting. His research on the potential dangers posed by greenhouse gases such as carbon dioxide was groundbreaking. Last month he was honored with the 1988 Tyler Prize for Environmental Achievement for his work on global climate change.

Today, his primary concern is with the human impact on climate. "To confront honestly the CO_2 problem means assessing our energy policies. How much coal, oil, and gas can we continue to burn in light of the mounting evidence of negative atmospheric effects? . . . Some believe we can just hide in the bushes and count on nuclear energy to solve everything. I don't."

The Winner Was . . .

Physicist Robert Wild has some good friends in scientific circles in the Philippines. So he wasn't too surprised in April to find himself the recipient of a Most Outstanding Achievement Award from the Philippines Physics Society.

He was a bit surprised that it was dated 1986.

Seems the society voted Wild the award for his "meritorious contribution to the improvement of physics and physics education in the Philippines." But society president Gerardo C. Maxino never mailed the certificate. "I think he just plain forgot to send it [in 1986]," said Wild, professor of physics at the University of California, Riverside. He notes that political unrest in the Philippines may have contributed to the delay.

Wild spent 10 months in the Philippines in 1980–1981 as a Fulbright lecturer helping physics teachers develop classroom experiments and lecturing at universities. He's also sent an estimated 15 tons of used science texts to the islands.

But Filipino science teachers and students probably remember him best for his dramatic illustrations of everyday physics. For example, he likes to demonstrate inertia by lying on a bed of nails with a tree stump on his chest. An assistant hits the stump with a sledgehammer. Wild escapes impalement because he exhales when the blow strikes, so that the stump accelerates downward. The energy from the hammer blow is spent on the stump, not Wild.

"I figured I had to do something to get their attention," Wild says. "I wanted them to see you don't need expensive machines to do physics. You can use everyday things and relate physics to their daily experience."

■ GREGORY BYRNE

Richard Thompson