

Case #10: Dan Reilly

This week, Dan Reilly was not looking forward to his chemistry discussion section. As he entered the classroom, he knew what was going to happen. It was the same issue every time.

Every two weeks, Professor Sylvia O'Rourke's chemistry class had a session of what Professor O'Rourke called "challenge problems." Dan had another word for them, but he did not share his opinion – even with his interpreter, Jane McIntosh, who accompanied him to every class.

Jane had majored in English as an undergraduate and gone on to become a sign language interpreter. Although her vocabulary was extensive, chemistry was like a foreign language to her. There had been several times so far during a lecture when she had difficulty translating. She wished that the professor would talk a bit more slowly.

Jane and Dan sat down near Dan's discussion group. The TA nodded to them as they entered and said something to Jane.

As the TA began to write out the day's problem on the board, Jane's fingers began flying. "Whichever group solves today's challenge problem first will have five points of extra credit."

The group around Dan turned to each other. Mitch Cottrell took out a sheet of paper, straightened his striped collar unconsciously, and looked around at the group, ignoring Dan. "So, what do you guys think we should do?"

"I think we have to start by figuring out what poly(acetylene) is," Shania Skylar suggested, tucking a black curl behind her ear. She took out her textbook and shuffled through the pages of the chapter on polymers. "See – acetylene, there," she pointed, "but what..."

Jane didn't know signs for acetylene or poly(acetylene), so she had to spell them out. "A-c-e-t-y-l..."

"O.K.," Dan signed. He moved over so that he could see the book.

"What should the structure of poly(acetylene) be?" Mark Amery scratched his crew cut.

"I think we can tell if we check our notes and draw it out," replied Mitch. He turned towards a nearby blackboard. "Professor O'Rourke showed us how to make poly(ethylene) from ethylene... Don't you think it might be the same idea?"

Jane began spelling again. By the time she was halfway through, Mark and Mitch were arguing about the mechanism of the polymerization reaction. Soon they moved on to trying to figure out the mistake that the chemist who synthesized poly(acetylene) had made, and to devise a correct synthesis for the desired product, engaging in a lively dialogue. The TA was talking with another group.

In frustration, Dan walked back to his desk and opened his own textbook. He took out a pen and paper. Jane followed him and watched as he sat silently for a few moments. "Do you want me to keep signing?" she asked.

"Wait a minute," replied Dan. He looked closely at the textbook description of addition polymerization. Slowly and steadily he worked through the problem. The mistake and its solution became glaringly obvious.

As Dan and Jane walked back to the group, there was a commotion at the front of the room. Another group had won.