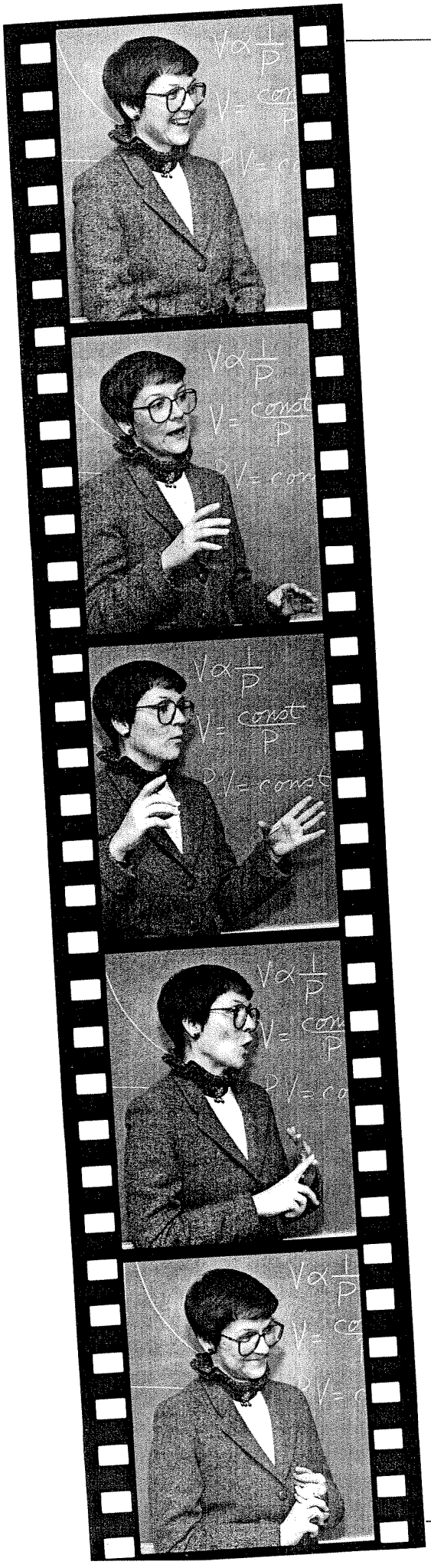

PATTI REGGIO:

Patti Reggio is the winner of the 1986-87 Distinguished Teacher Award

Interview conducted by Janis C. Epps

J: Patti, it was a great honor to have been named Kennesaw's 1986-87 Distinguished Teacher. It is clear that both your students and your colleagues consider you a great teacher, but how do you evaluate yourself as a teacher?

P: I am a good teacher. It was a talent I was born with. I think I really do have an ability to take things and break them down into simple steps so that when I teach no one is overwhelmed. I first recognized this ability when I was in college. Students in my classes used to call me and ask me to explain things to them. One of the counselors at the university began sending people to me for help. So, I did a lot of tutoring.

J: I suppose that your ability to simplify complex concepts helps break down the traditional fears that many students bring to your chemistry classroom.

P: Yes, I think you are right. I teach General Chemistry, for freshman chemistry students, but I have also taught Fundamental Chemistry for nursing students, Physical Chemistry for junior level chemistry majors and advanced Analytical Chemistry for senior level chemistry majors. Regardless of the course, however, I have always believed in creating a psychologically safe environment in the classroom. It is extremely important to me that I encourage students to ask questions. I emphasize to my students that there is no penalty for being incorrect in my classroom. Many ideas need to be explored before hitting on the best idea. I don't want their creativity to be squelched. This can happen, unfortunately, if the teacher makes the students feel uncomfortable for giving a wrong answer. So, I try to phrase questions in such a way and ask students to approach problems in such a way that no one will feel embarrassed if they are incorrect. I think that helps build confidence. Once I have freed students to make mistakes, the students discover that they really have some good ideas.

J: Do you find it difficult to create this psychologically safe environment within the confines of the typical structure of the lecture classroom? How do you handle your classroom?

P: It is a lecture and I always tell them that if they have any questions, raise their hands. The first day I tell them if a question is way off the topic and I feel that I really don't have enough class time, then I will talk to them immediately after class about it. However, most of the time the questions they ask are very pertinent to the material. I answer every question no matter how crazy it is, and I have had some really crazy questions asked. But, I try to be very accepting of whatever. There are times in a classroom when someone has asked a question and I have answered it; then two questions

A DISTINGUISHED TEACHER

later someone else asks the exact same question. Of course, other students know that question has already been answered, but I would never berate a student by saying, "I already answered that question." I really try to make it safe. I also pause after each point. I stop and say, "Okay, are there any questions?" Actually having taught the courses so many times, I know when there should be questions. I'll say, "Alright, nobody has a question?" Then I'll start seeing hands go up.

J: Did you always teach in this manner? Are there things you are doing differently now, after years of teaching, that you think are better than when you first started?

P: Yes, I have certainly grown as a teacher. But even when I was a student I used to watch the way I was being taught. There are certain people who taught me who were especially good teachers. I have tried to model what I do after them. Over the years I've learned that the more structure you give students, the better they do. This is particularly true at the freshman level. I didn't quite start out giving as much structure as I do now. For example, now I set strict deadlines for when their notebooks and reports are due — something I didn't used to do.

J: I am convinced that teaching is your first love, but I know that you are also involved in research.

P: Yes, I am interested in research and I have been able, since I have been here, to do both. I need both. I love interacting with people and I love explaining things, but I get to a point where I am drained by it.

J: Yes, I think we all do.

P: I need something mentally stimulating, because I teach general chemistry courses frequently. That means that I'm teaching the same material basically. You can spice it up a little, but essentially it's the basics. If I just did that all the time, I think I would get bored. The research is a challenge for me.

J: I understand that you are analyzing the molecular activities of THC, the active ingredient in marijuana. What is the nature of this research?

P: The compounds in marijuana belong to a class of compounds called cannabinoids. These compounds have been studied for quite a while now for their medicinal uses. They are used as anti-glaucoma drugs to lower eye pressure. They are used in conjunction with chemotherapy as antiemetics to prevent vomiting. They have also been used as analgesics for pain relief. As therapeutic agents, the problem with these compounds is their psychogenic activity. When you give these compounds to people not only do they get the desired effect, but they also get high. This side effect is considered a liability in the drug industry. So, what I have been doing first is investigating the molecular basis of the psychoactivity. What could I change in these molecules to diminish their psychoactivity? Hopefully, I will be able to design some therapeutic

agents that have reduced psychoactivity, but have enhanced analgesic properties, for example.

J: Do your students ever get involved in your research? I would imagine because you are involved in research, students might get excited and then themselves try to get involved in a research activity

P: We have a directed study program, and I have had four students who have worked with me as directed study students. Each of these students worked on my research project. I have had a SALT student, Kaylar Greer, working for a year now. My SALT grant has been renewed, so she is still working on the project. I have had two high school students that received Project Seed grants to work on the project. Each of these students has been a co-author on an abstract or a paper of mine. Several of these students have delivered papers at state or national meetings. I teach my students how to use all the equipment, how to work on the computer for a few weeks, and I give them some aspects of the

project that are pretty routine to get started. Once they have mastered these, I give them something more sophisticated to do. One of my Project Seed students, Stephanie Cox, was with me for two years. By the second year she would just walk in and I would say, "I want you to work on this" and she went to it. These students are bright. They have to be bright. But I do with them what I do with all my students — I try making the abstract concrete. If they can get the picture it is no longer an abstraction. My research project is very picture oriented. If I can get a mental picture of what is going on — then I can extrapolate to other things — take good guesses — but if all I have to work with are words on a page I am in trouble.

J: If you had to single out one aspect of your teaching which is most important to you, what would that aspect be?

P: That is a very difficult question to answer. I would have to say that it is extremely important to me that my students walk away with concepts and pictures in their minds. Chemistry can be taught by rote. Students use this equation and that equation and can learn to plug numbers into an equation and get an answer. Many times they have no feeling for what the correct answer should be. So, when I teach the freshmen I will always stop before I work a problem and say, "Now before we start, let's think about what would be a reasonable answer. Now think about it, the volume is increasing, the temperature is going up, so what will happen to the pressure?" I try to, as much as possible, give them a mental model. Anywhere a model can be used, I use it, so that they can reason their way through to the answer. I tell them that if they work a problem on a test and get an answer which they know is absurd, but don't have enough time to go back and change it, then they should write me a note on the bottom, "I know the density of this can't be less than 1 because this stuff didn't float in water. It's density has to be greater than 1." I will give them partial credit for such a statement. That's to encourage them to think about a picture. When they leave they are not going to remember the formulas, unless they use them all the time. If they have a *feeling* for the material, then *they carry the concepts wherever they go.* This is really what I push for. I do the same thing with the Junior and Seniors at a more advanced level.

J: Your approach definitely encourages thinking, which is what real education is all about. But how do your students respond when they don't get the expected outcomes?

P: It is important that my students understand that an experiment sometimes doesn't give you what you thought you were going to get. A scientist should never take the numbers and play with them. Results are results! I want them to know this because later on when they do other experiments, the results may not fit their preconceived notion, and they may be tempted to get rid of data. That data may be telling them something that no one else has ever seen before. If they discard these data, then they lose the chance to discover something new. When I teach the juniors and the seniors I always make a big point of saying, "I want you to think about what you are going to get. I want you to look at what you got. I do not want you to do anything that isn't statistically valid in rejecting data. You can't just say this point doesn't look right, I'll just knock it out." Again, I'll say I'll give you credit for what you got. If you work it up correctly and you write me a letter and you say, "I don't know. This doesn't really look right but..." I don't want to ever encourage them to be dishonest with their data. I feel that ethical training is an important part of scientific education.

J: Your day seems extremely busy.

P: I am here from 7:45 in the morning until about 6:00 p.m. When I am not teaching I am doing committee or research work. At the beginning of the quarter I was able to get some research work done. When it gets hectic toward the middle and end of the quarter I have to abandon the research work. For the last two weeks I have alternated between my teaching responsibilities and my committee work. My SALT student has been working on the research project all quarter. I have been supervising her work, but I haven't been able to do anything myself.

J: How do you see yourself in the future? Do you think you will continue to teach forever?

P: Yes, I think so. I think I would have to. What I know about myself is that I'm an extrovert. I absolutely have to be around people. I get very down if I'm walled in somewhere by myself. Teaching is a great way for me to get all the interaction I need. Now, sometimes I get too much interaction and I'm exhausted, but I think I will always need to teach.