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Creative engagement

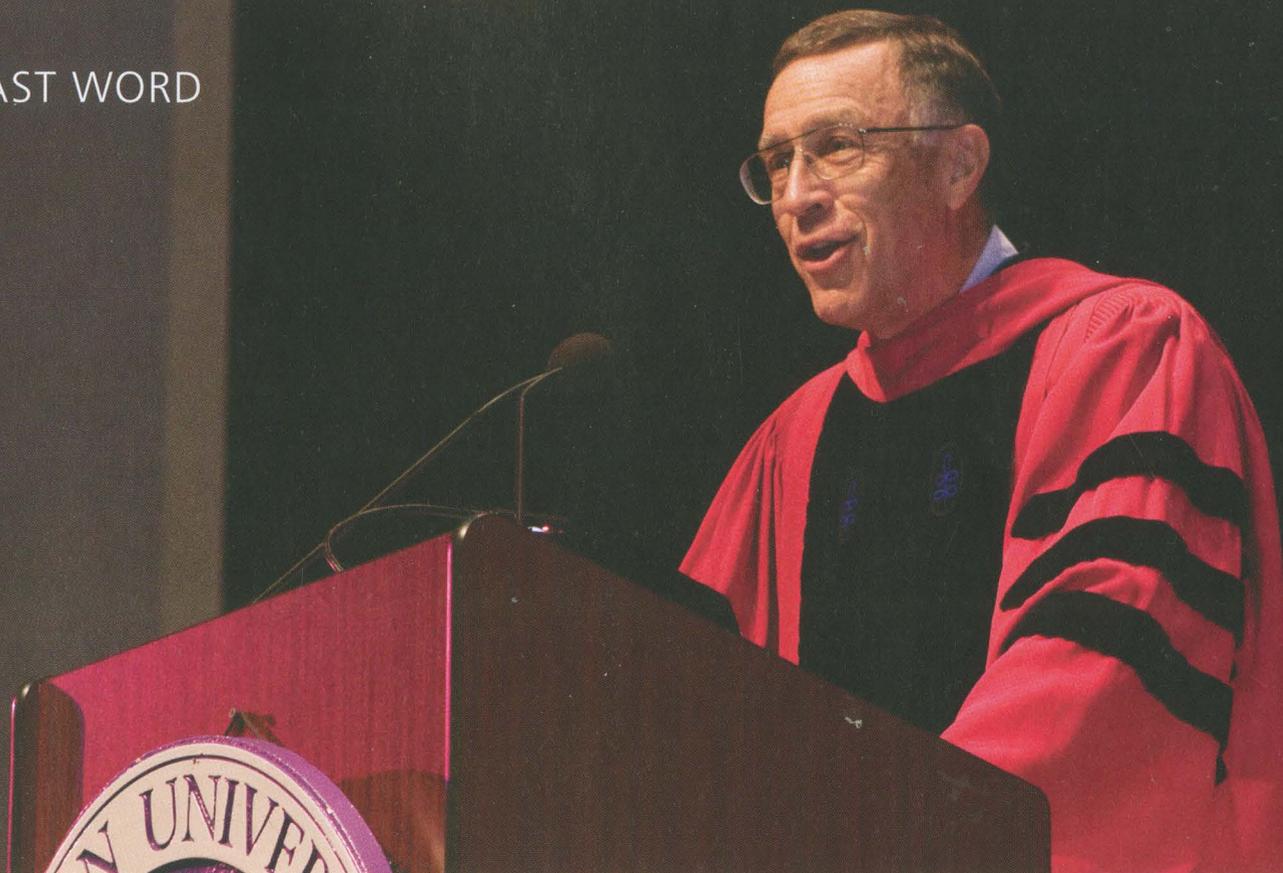
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JEREMY FLEMING

Creative engagement

The following is excerpted from an address by Tony Arrington '60, William R. Kenan, Jr., Professor Emeritus of Chemistry, at Opening Convocation September 4. His remarks to the student body helped launch the "Year of the Sciences" at Furman.

Let me give you my definition of science: It is the process by which one acquires a rational understanding of the physical world. It is not a body of knowledge; it is a process by which one becomes engaged in acquiring knowledge. The process of science gives rise to a useful, intriguing body of knowledge that can be found in textbooks and encyclopedias.

But doing science is not memorizing the periodic table or the cosine of 60 degrees. It is using the periodic table to plan the synthesis of compounds that can capture sunlight and change water into hydrogen and oxygen, or being able to figure out what the cosine of 60 degrees is if you have forgotten. Of course, engaging in science requires preparation — knowledge of ideas, concepts and principles that come from the work of others. But that is just the starting point.

In the practice of science there is no proscribed set of rules for carrying out the process, no "scientific method." Rather, there are characteristics that typify the process of science. Here are a few: curiosity, conjecture, creativity, ingenuity, experimentation, persistence, analysis, modeling, dissemination, verification, application. The process of science is,

for the most part, passed on by tutorial and master/apprentice relationships. One truly learns science by doing, not by reading about it.

It is worthwhile to compare the nature of science and the nature of education. In recent years Furman's educational program has been developed on the premise that there is a difference between learning facts and engaging in the process of acquiring new knowledge. We call this educational paradigm engaged learning.

We think of a collection of classes as the curriculum. Furman offers extracurricular activities that you enjoy. Let's call engagement in the process the ultra-curriculum — beyond the curriculum, outside the classroom. You will find in your years at Furman that the most significant intellectual growth comes from involvement in the ultra-curriculum.

Athletics provide an illustrative example. In any sport the participants do more than listen to lectures and read books about the sport. They train and practice on the field or in the gym. Athletes don't just study about sports. They participate. The test is the game, or the race.

In the arts you act, visualize, create, sing, play instruments. In the humanities you come to understand what others have understood but then incorporate this knowledge as you form your own ideas about life, responsibility, good and evil, joy and sorrow, ultimate and trivial. Science students participate in research — they do science.

Your involvement in the ultra-curriculum prepares you to play a significant role in the world. You must engage in the process creatively, critically and passionately. You may not believe me, but your creative engagement with the activities of your discipline or special interests will, in the long run, be more significant than any grades you get in courses as a result of knowing for a brief time the correct answer to a series of questions.

May you become liberated from an obsessive concern about grades and become free to participate in intellectual inquiry, creative exploration and thoughtful contemplation.