Welcome to the opening Convocation of the 127th year of instruction at Pomona College. On this occasion I am pleased to welcome the Class of 2017 and transfer students to our community, and to greet returning students, our faculty, and our staff. Six members of the Board of Trustees join us today, including our Board Chair Jeanne Buckley, and I’d like to thank them for coming to campus on this special day.

I call your attention to the prizes and awards listed on the back of your program, as we join together to recognize the outstanding accomplishments of our students.

The purpose of today’s Convocation is to celebrate beginnings and to join together to explore the goals of a Pomona education. This exploration will last throughout your years on campus and, I hope, throughout your lifetimes, since education does not end with the granting of a degree. As we begin the academic year and remind ourselves of the particular values of a liberal education, I’d like to share a few thoughts about education and how the brain works.

Much recent research and writing suggests that a broad liberal education, developing all the capacities and connections of the brain, is the best way to enhance your creative abilities and to prepare for a lifetime of constructive contribution to society.

A recent Stanford study appeared under the heading “This is Your Brain on Jane Austen.” It involved taking functional MRI brain scans while the subjects were engaged in reading excerpts from Austen’s *Mansfield Park*. The functional MRI monitors blood flow to different parts of the brain, and thus measures which parts are engaged during a particular activity. The study showed that many more parts of the brain were engaged than expected, and that these parts differed between close reading of the novel and pleasure reading. The investigator suggested that “each style of reading may create distinct patterns in the brain,” depending on the type of focus, and that attention to literary form is “a kind of cognitive training.”

In the same way that the Stanford study examined the activities in the brain as we engage fully with a literary text, other research focuses on visual or musical experience and the brain. For example, last fall I joined a group of Pomona College students on a field trip to the Getty Museum to hear a talk by Nobel prize-winning neuroscientist Eric Kandel, as part of an exhibition of drawings by Viennese artist Gustav Klimt. How is neuroscience connected to art of the early twentieth century? In many rich and surprising ways, as Kandel has discussed more fully in his outstanding book, *The Age of Insight*.

Kandel examines the remarkable confluence of culture and science in fin-de-siècle Vienna, exemplified in artists such as Klimt and Kokoschka, scientists such as Boltzmann, writers such as Schnitzler and Werfel, and the brilliant psychoanalyst Sigmund Freud. He shows how a common theme of understanding the unconscious and its effect on our actions links these disparate individuals, many of whom saw each other regularly in salons and coffeehouses. Kandel then turns to modern questions of neuroscience, psychology, and aesthetics, focusing on how the brain works and how we perceive art, and he draws profound conclusions about creativity that connect art, the humanities, and science in the deepest way.
I refer to Kandel's work and the Stanford experiment to illustrate the growing body of research that, I believe, underscores the profound value of a liberal education. A striking observation from modern neuroscience is that the brains of 18 to 22 year olds (which fits most of you) are highly plastic. Sure, throughout childhood connections between synapses are made and the brain develops in response to the environment around. But changes continue to occur through the college years and beyond: reading Jane Austen can actually change your brain! Stimulating a neuron to fire frequently can cause its synapses to grow stronger, and existing pathways of connection in the brain can be developed or can waste away. Rats raised in environments with extensive and varied sensory input are found to have more highly branched networks of neurons in their brains. In the same way, in an educational environment that emphasizes multiple fields of study and creative engagement, our human brains are constantly developing as we employ them in different ways.

At the risk of venturing into pop psychology, let me say a few words about left and right-brain thinking. It is now well known that the two hemispheres of the brain have largely different functions. The left hemisphere controls words, numbers, logic, and analysis, while the right hemisphere interprets size, shape, spatial relationships, and rhythm. As Daniel Pink says in his book *A Whole New Mind*, “the left hemisphere analyzes the details; the right hemisphere synthesizes the big picture.”

Often it is said that the second half of the 20th century was an era dominated by left-brain thinking. The skills to build bridges or design computers, to get to the moon or to come up with new financial instruments, make use of linear thinking and logic. Engineering, law, and finance all are classic left-brain activities. Some pundits argue that in the future right-brain thinking – nonlinear, intuitive, visual – will dominate.

While it is entertaining to argue about parts of the brain and the roles that they play in shaping our society, ultimately the people who will be successful are those who can integrate their entire brains. While some would assign “creativity” to the right brain, I would argue that successful creative people integrate both hemispheres of their brains effectively; intuition works together with logical methods to achieve significant results. Individuals with “fully integrated” brains, or teams of individuals with different strengths, will be the best positioned to succeed.

How can a college education be designed to give us the most integrated and therefore the most effective brains possible? People can be “trained” to do anything well, just as dolphins learn amazing tricks when they are rewarded by food. I worry that the United States is headed in the direction of training rather than education, new ideas, and critical thinking. The jobs of the 21st Century are not ones that you can prepare for through narrow professional training. Certainly, there is a place for certificate programs that connect directly with particular job requirements. But those jobs may disappear or be radically changed in a short time, and the individuals who are successful in a rapidly evolving and competitive economy are those who can move from one job to another with the core skills to learn new things and respond creatively. This is just what is taught in a liberal arts education.

If we narrowly train our minds – and our brains – on repetitive, linear, and logical problems (the ones that are easiest to teach and to test), we develop certain neural connections more strongly than others. But creativity – the Aha! insights that can lead to real breakthroughs – relies on the integrative and synthesizing parts of the brain. Rote learning will do nothing to
develop these capacities. The value of a liberal education is that it can help a linear thinker to develop the ability to make leaps of insight, just as it can help a nonlinear thinker to reason critically about a complex problem. Both dimensions are important for the whole student.

As Daniel Pink says, “Back on the savannah, our cave person ancestors weren’t taking SATs or plugging numbers into spreadsheets. But they were telling stories, demonstrating empathy, and designing innovations.” Part of the new age into which we have entered thus brings us back to the earliest days of humanity and the evolution of the human brain in response to our surroundings, to our perceptions, and to challenges. College is a time to work hard and to learn about as many fields as possible, but also to explore the unexpected connections between disparate fields that can predispose the brain to inspiration throughout our lives.

These are some of the things on my mind as we begin the academic year, and as many of us here at Pomona College and across the country think about and talk about the goals of higher education, the value of a degree, and the processes of teaching and learning. There will be many opportunities for you to participate. This year is the 100th anniversary of the establishment of the Pomona College chapter of Phi Beta Kappa, and in recognition of that occasion we will have a series of discussions on the subject of the future of liberal education. Also this year the College will host a series of talks by national leaders around the theme of the humanities as the “heart” of the liberal arts. Whatever interests you bring with you, I encourage you to take part in these programs, and join in our common conversation.

Welcome to Pomona College!