The Challenge of Change

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THE CHALLENGE OF CHANGE

"Commencement Day," Douglas Knight once said, "is the Holy Day of our year." We celebrate a "rite of passage" from one state of being to another.

I say we because this day has a special significance for all who have come together here. For you students it truly represents commencement. For your parents it brings mixed feelings of pride, hope, and contentment. For the faculty there is a feeling of accomplishment and enjoyment, and in some cases, a sigh of relief.

For myself, and for several of my colleagues, this occasion marks our retirement. This fact is of little importance to you, but I cannot resist repeating an academic joke. When Dr. Christian Gauss retired from Princeton University, a former student sent him a telegram that read, "Congratulations on your new emeritus rank! This new honor that has come to you is long overdue." Why not? We who are about to retire ought to accept the inevitable in that spirit. And in answer to those of our friends who query, "What now?", we might reply: "Please read Aristotle on the meaning of the word leisure." To Aristotle, leisure was the necessary condition for the free man.

When President Tarr asked if I would be willing to speak, he suggested that I might distill something from my twenty-eight years of teaching at Lawrence that would be of value and interest to you. After some hesitation I accepted, and I still have some doubts about the wisdom of my decision.

After all, I am well over thirty years of age, and your generation claims that no one over thirty is to be trusted. As a physicist I am not wholly trusted by the faculty, for I have been told indirectly by my humanist friends in Main Hall that scientists take a naive, almost childlike view of life and experience. Moreover, the words of Henry

Commencement Address given by W. Paul Gilbert, Philetus E. Sawyer Professor of Physics at Lawrence University, on Sunday, June 12, 1966
David Thoreau, a beloved mentor of mine, sounded a clear warning. "Age," said Thoreau, "is no better, hardly so well qualified for an instructor as youth, for it has not profited so much as it has lost. One may doubt if the wisest man has learned anything of absolute value by living. Practically, the old have no very important advice to give the young, their own experience has been so partial, and their lives have been such miserable failures."

But I am in danger of protesting too much. I have learned many lessons during my sojourn at Lawrence, but probably the most difficult has been the necessity for accepting change and devising ways to meet it. I have found that change cannot be effectively met by conservatism, nor by professionalism, nor by adopting revolutionary tactics and methods. The wisdom that helps you to adapt to change comes slowly through a balanced development of the individual; and that, I believe, is the main fruit of a liberal education. The purpose of a liberal education, such as both you and I have received at Lawrence, is to enable us to meet and accept the challenge of change. I cannot promise that this liberal education will make you happy. It will contribute depth, richness, and direction to your life. The real purpose of a liberal education in a rapidly changing world is to help you, as former President Pusey once said, "neither to conform nor to destroy, but to want to, and to know how to, transform and fulfill."

It is comforting to remember that there is nothing new about the idea that times are changing. Nicholas Murray Butler, former President of Columbia University, used to insist that in the Garden of Eden, Adam paused to say, "Eve, we are living in a period of transition."

Twenty-five hundred years ago the Greek philosopher Heraclitus wisely observed that, "We do and we do not step in the same river twice." Heraclitus was perceptive enough to recognize that in the constantly changing flux of events, there are elements of permanence. Today we are inclined to forget half of what Heraclitus said. We worship change, while all that is stable and traditional is regarded with disdain and suspicion.

Fifteen hundred years ago, in Book XXII of the City of God, St. Augustine exclaims at length over the many changes taking place in the arts, crafts, and industries of his day. So modern are his remarks, they might also fit into today's news editorial.

Thus history reminds us that change and innovation are not new. Man, creator and innovator, tool-maker and dreamer, is himself responsible. His ingenuity and inventiveness, planned or accidental, have always been instruments of social change.

But some signs of our times indicate that man may, in the end, prove to be too clever for his own good. The position of modern man parallels the ancient figure of Daedalus, the mythical artist and craftsman who built the labyrinth in Crete for King Minos, and was then imprisoned in it with his son Icarus. They escaped by wings that Daedalus had made, flew too near the sun that melted the wax used in fashioning the wings, and they fell into the sea. The image of Daedalus has always been strangely modern, standing at the intersection of old dreams and new nightmares. He is remembered for his cunning and for the invention of devices no one could understand. He mastered knowledge of the natural order, of technological possibilities, of magic itself. Yet he lacked a certain wisdom, as his fate reminds us.

The image of Daedalus is the image of the scientists, and—in a large sense—of mankind. Modern man indeed has wings. He has become a prosthetic God, and, as Alfred North Whitehead wrote in 1925, "The prophecy of Francis Bacon has now been fulfilled; man, who at times dreamt of himself as a little lower than the angels, has submitted to become the servant and the minister of nature. It still remains to be seen whether the same actor can play both parts."

No, change is not new. What is new in our times is the rapidity of change. As Whitehead foresaw, "Professionalism—together with science and technology—has produced a self-evolving system that cannot be stopped." It is the result of what Whitehead called the greatest invention of all times, the invention of the method of invention. Most recently this method is being applied to education. As a result, education, as well as science and technology, has become an instrument of change. Small wonder, then, that all that is traditional can be called
into question at many encampments at Gardner Dam.

The importance of change lies in its effect upon the quality of the individual human life. I am tempted to illustrate this point from my own experience, but I fear that it might have little meaning for you. It is usually impossible to recreate for a younger generation the quality of an earlier time. The first twenty-one years of my life were spent on a farm in central Ohio, in a rural, 19th century culture. I doubt that you would find much that would appeal to you in that environment, yet I cherish a stout satisfaction in many experiences that are largely denied to your generation.

I attended a liberal arts college—Oberlin—which then retained semblances of the ivory tower. Knowledge was its own reward, the attitudes distinctly humanistic. Education was for life—a means of transmitting the best that men have thought and done. As always in the liberal arts, the emphasis was upon the development of the individual and the advantages and pleasures of knowing.

Looking back upon my earlier struggles with learning, all seems to have centered about the idea that I was being educated for life—a life that would be much the same as the life my father and grandfather knew. An awareness that this was no longer possible did not filter through to me, or to many others, until after World War II.

In 1937, the year I came to Lawrence, former President Wriston wrote a book on the nature of the liberal college in which he devoted a chapter to aspects of stability and change. He maintained then that change is more apparent than real, more in substance than in spirit. He wrote,

We should stop to remind ourselves that speed of movement does not necessarily indicate significant change. Some friends of mine go duckhunting three hundred miles from home by airplane. It is true that it is wonderful that they can fly three hundred miles in an afternoon, but the substance of their occupation is still duckhunting, which our forefathers did in a brief trip from home at a slower pace. A good deal of the speed of the modern world is not representative of fundamental change. We still [only] go duckhunting.

In substance I must agree with President Wriston. We can now fly two thousand miles in an afternoon to go duckhunting, but I cannot agree that the change is not fundamental. There has been a disconcerting change in the quality of the experience. Something has been irretrievably lost. That something has to do with the individual human life, whose fundamental patterns, mental and spiritual, cannot be changed so rapidly. Under the cloak of outward acceptance, the substance of our lives will struggle to remain unchanged until growth and time alter the human mind and heart. Perhaps it is only the new, the young generation that can really adapt and accept the changes that so disturb the present. As Max Planck, the physicist who first proposed the idea of quanta of light energy, once said, “Old ideas do not die, the people who hold them die.”

But I hope you will forgive this bit of nostalgia. The point I wished to make is that I have travelled a long way to reach the “Great Society,” and I do not always find myself completely happy there.

If I were to pass judgment on my generation, I would say that we have shown what man can do. In the future, a decent survival will require more than that. Wisdom demands that your generation also consider more carefully what man should do. You will have to weigh what is possible against what is desirable.

We are determined to get to the moon—but why? When President Kennedy looked for a good reason to justify this expensive mission, the best he could come up with was, “Because it is there.” Now we know there are other reasons, but I am inclined to ask: How far and to what expense is the “because it is there” philosophy justified?

On the biological frontier, we seem about to realize genetic control, to modify personality, to extend human life by organ transplants. When the day comes when we can prolong life with spare parts, alter personality to our chosen model, induce religious experience, remedy defects in inheritance, who will decide when life should end, and for whom? Who will specify the personality blueprints? Which religious body shall induce the religious experience, and for whom?
Who is to make these decisions? Not one man certainly. No group of professionals with narrow and selfish interests. Such decisions must be made by an enlightened, just, and humane society, led by men of exceptional dedication and insight. Whitehead perceived the problem and suggested the answer. “The problem is not how to produce great men, but how to produce great societies. The truly great society will put up the men for the occasions.”

The challenge of change can be met only by an informed society with leadership of a high order. How many of you graduates think of providing leadership? Are you thinking only of graduate school and professional training? Will professional training equip you for leadership? John Gardner, whom you know as Director of the Department of Health, Education and Welfare, expresses doubts. He says that in graduate or professional school you will be powerfully indoctrinated in a set of attitudes appropriate to scholars, scientists, and professional men, and this is all to the good. You will learn to identify yourself strongly with your calling and its ideals. You will come to know what a good scholar, scientist, or professional man is really like. 

But this road has its dangers. It does not necessarily create the leaders needed by society. It trains men to perform purely professional tasks in a superior way, but entry into what most of us would regard as the leadership roles in the society as a whole is discouraged. The road to professionalism leads to a point where everyone wants to educate the technical expert who advises the leader, or the intellectual who stands off and criticizes the leader, but no one wants to educate the leader himself.

Well—you may ask—what sort of leadership is needed? Gardner’s answer is moral leadership. “Leaders worthy of the name will strive to contribute to the continuing definition and articulation of the most cherished values of society.

“So much of our energy has been devoted to tending the machinery of our complex society that we have neglected this element in leadership. I am using the word moral,” says Gardner, “to refer to the shared values that must undergird any functioning society. The thing that makes a number of individuals a society rather than a population or a crowd is the presence of shared attitudes, habits and values, a shared conception of the enterprise of which all are a part, shared views of why it is worth while for the enterprise to continue and to flourish. Leaders can help in bringing that about.

“Leaders have a significant role in creating the state of mind that is the society. They can serve as symbols of the moral unity of the society. They can express the values that hold the society together. Most important, they can conceive and articulate goals that lift people out of their petty preoccupations, carry them above the conflicts that tear a society apart, and unite them in the pursuit of objectives worthy of their best efforts.”

Not long ago I received a letter from a former Lawrence physics major who is now Director of Systems Design for Aerospace Corporation. Commenting upon the value of the education he received at Lawrence, he wrote, “... the most important natural resource in the world today is the individual who can sort out all the countless trivia flowing by and sense and control the underlying pattern; one who can, if only locally, decrease physical or semantic entropy.”

A few moments ago, I affirmed my belief in the importance of a liberal education in preparing the individual to meet change, and I would now add, to accept and meet the challenges of leadership. Why do I believe this? Let me create a model of the liberal arts graduate. The model, you will remember, has been a favorite device of the scientist since the time of Galileo.

After four years in the liberal arts college, the individual has learned how to learn, how to think by himself and for himself. He has learned how to ask questions, but is not the skeptic who does nothing but ask questions. He knows that there are very few pat answers, and he is aware of the value of the dialogue. He has his own convictions, but he arrives at them by having the nerve to ask the dangerous questions.

Our Bachelor of Arts has achieved perspective, some knowledge of the limits and the extent of each major intellectual enterprise, some vision of his whole intellectual and spiritual inheritance. He will know
that to ignore history is to be condemned to repeat its mistakes, and he will sense that a balanced approach to life and its problems is most likely to be gained out of a study of past thought and experience.

This ideal graduate possesses open-mindedness, a quality that helps him to choose his way ahead calmly as he faces problems posed by the present and the future. A trained intelligence enables him to meet new situations without panic and without becoming the fanatic or the revolutionary.

Our model graduate is prepared to make a meaningful commitment. He will know that it is impossible to proceed in all cases on a steady diet of suspended judgments. He understands that endless reflection that never issues in decision and action tends to be the occupational disease of the scholar. He would agree that our greatest cultural need today is for reflective commitment, and he would appreciate the saying of Kierkegaard, "It is the knot in the thread which keeps our intellectual sewing from unravelling."

These qualities, then, I consider essential to our model candidate for the liberal arts degree—the agile mind, perspective, open-mindedness, and willingness for commitment. It is an ideal to be met with or realized, like Plato's ideal state, only in heaven. As teachers, we can only hope that you will measure up well against it.

But your striving is not yet over; it is only beginning. As you uncommon young people go on to your self-appointed tasks, you will be under constant pressure from three cults, the cults of creativity, innovation, and self-renewal. Among the high priests you will recognize Admiral Rickover, James Bryant Conant, and John Gardner. Their call is to leadership and continued excellence. Their aim is to create a self-evolving system in education that will keep the gifted and capable person on his toes for the rest of his life. I now assert that your liberal arts background has helped to prepare you to meet the challenge and the pressures of these demands of creativity, change, and self-renewal.

Yet I believe that the present preoccupation with these concepts needs to be re-examined. Creativity, in the popular sense, has become more than a word; it has become an incantation. People think of it as a kind of psychic wonder drug, powerful and presumably painless. Everyone wants a prescription. John Gardner, who is certainly one of our most enthusiastic exponents of excellence and purposeful innovation, has this to say:

"It is one of our national vices to corrupt and vulgarize any word or idea that seems to have significance or relevance or freshness. And so we have done with the word creativity. But that should not lead us to neglect the idea behind the word. Granted that much of the current interest in the subject is shallow. Still it is more than a fad. It is part of a growing resistance to the tyranny of the formula, a new respect for individuality, a dawning recognition of the potentialities of the liberated mind."

Now your training in the liberal arts has shown you that true creativity requires mastery of the medium in which the work is to be done. You will know that the process is often not responsive to conscious efforts to initiate or control it, and you will be reminded of what some would-be innovators are inclined to forget; true creativity can never be assured of popularity, and our affection is generally reserved for innovators long dead.

In our preoccupation with change, we have lost perspective. In promoting and adapting to change, we must not neglect continuity. To quote John Gardner once more, "Mesmerized as we are by the idea of change, we must guard against the notion that continuity is a negligible—if not reprehensible—factor in human history. It is a vitally important ingredient in the life of individuals, organizations and societies. Particularly important to a society's continuity are its long-term purposes and values. These purposes and values also evolve in the long run; but by being relatively durable, they enable a society to absorb change without losing its distinctive character and style. They do much to determine the direction of change. They insure that a society will not be buffeted in all directions by every wind that blows."

The liberal view can keep us from forgetting the role of continuity or of confusing it with stability. Continuity, as every student of physics knows, does not mean to remain the same. It means to
change smoothly in time and space while preserving stability. We have a neat simile in the bicycle rider. Standing still, he falls over. Once in motion he has stability, thanks to laws of inertia and gravitation.

Change with continuity is the warp and woof of our lives. The scientist, busily at work in the laboratory, may discover a new thing that will upset the whole of society—unintentionally, of course. He is the very personification of change. Yet he functions effectively because of certain deeply established continuities in his life. As a scientist he is living out a tradition several centuries old in its modern incarnation, thousands of years old in its deeper roots. Every move he makes reflects attitudes, habits of mind, and skills that were years in the making. He is part of an enduring tradition and a firmly established system; but it is a system that provides for its own continuous renewal. To the liberally educated person this is fairly obvious. He sees the scientist as “man in motion.” The only stability possible to use is stability in motion. To perceive the enduring values within the flux of events is the challenge of change.

To speak of self-renewal at a time like this seems unfair. Yet most commencement speakers seem to be obligated to remind their audience that commencement is only a beginning. We must, as John Gardner insists, require that you keep on growing and not go to seed. It is an excellent theme, says Gardner, yet a high proportion of the young people who hear these speeches pay no heed, and by the time they are middle-aged they are completely mummified. Even some of the people who make the speeches are mummified. But I have little fear that this will happen to you Lawrence graduates, for you have been well taught that we all need to be periodically renaissanced. In my experience, staving off the process of mummification is far from easy. I have been fortunate enough to have had several concentrated adventures in self-renewal. I have tried to progress from the simple world of electrons, protons, and photons to the complex world of quasars, lasers, quarks, and the eight-fold way. It is a steep road, and I fear that in all cases I have only gotten part way up. The Queen’s reply to Alice in Through the Looking Glass describes my situation:

“Well, in our country,” said Alice,... “you’d generally get to somewhere else—if you ran very fast for a long time as we’ve been doing.”

“A slow sort of country!” said the Queen. “Now, here, you see, it takes all the running you can do, to keep in the same place. If you want to get somewhere else, you must run as least twice as fast as that!”

The most effective and rewarding experience in self-renewal that I have had has been the privilege of teaching in Freshman Studies and Sophomore Studies. In Freshman Studies I learned what it means to read a book. If you have noticed that my remarks have been liberally sprinkled with quotations from Whitehead and Thoreau, I would like you to know that it was through Freshman Studies that I became familiar with the thought of these men. And to be fair I should mention Plato, Kierkegaard, Freud, Dostoevsky, and many others. I admit once again that I have received most of my liberal education at Lawrence.

Mummification will happen to you only if you cultivate non-self-renewal stubbornly. Opportunities for self-renewal are now vastly greater than they have been during the major portion of my professional career. Moreover, in our time, society is far less likely to allow you to hide your talents, and to be more critical of how well you run your affairs. No matter whether you become a teacher, a business administrator, a politician, or a farmer, I believe that building a safe little nest for yourself, where you can feel that this is my school, my business, my party, my farm, will become increasingly difficult or impossible. Outside pressure from above or below, from your immediate community, or from Washington, or even from Moscow or Peking, will intervene. You are going to be required to be sensitive to change and to progress. As one public official has expressed it, “We are living in an age of public accountability.” This accountability now affects institutions and individuals at all levels. The monolithic Ford Foundation examines the color of the projects it supports; the scientist who is recipient of a research grant is responsible to society for carrying through his planned project; the school superintendent is watched by the PTA; the teacher lies under the magnifying glass. The noble university, until recently so completely occupied with the discovery and transmission of knowledge, must now concern itself
with the spreading of knowledge in the form of action programs, such as poverty programs, the Peace Corps, and others. In a few moments you will receive your degree and be admitted to its rights, privileges, and obligations. Lawrence expects you to meet those obligations.

One thing more, an all-important aid in self-renewal is the commitment, the pursuit of something in depth and with energy and conviction. This has been so well expressed by Douglas Knight that I quote him here. He once said, in a Matriculation Day address to Lawrence students and faculty,

I hope each of you here at college finds at least one person, one insight, one conviction so compelling that you are forced to break your heart over it. You will be dwarfed by such encounters, you will be appalled by your ineffectualities, but you will come to exist.

The power of the commitment in forming, molding, and giving meaning, continuity, and stability to our individual lives has its analogy in the power of the central gravitational force to produce and maintain order and stability in the ceaselessly moving members of the solar system.

In concluding, let me assure you that I am not just repeating noises that commonly radiate from commencement platforms. I really believe what I have said. My faith in the liberal arts education now leads me to commit myself—on the commencement of retirement—to the task of helping to establish a new liberal arts college located some five thousand miles from Lawrence.

In what I have said this afternoon, I have not wanted to paint the future black. Let us say farewell to each other in a mood of hope and confidence. I disagree with the Mexican villager who sped the departing traveller by saying, "May you go with God, and may nothing new happen to you." For, paradoxically, change and uncertainty, that seem to make life difficult, are often sources of hope for the future—and they certainly make life more interesting. May God speed you, but remember the words of Dag Hammarskjöld: "Life demands from you the strength you possess. Only one feat is possible—not to have run away."