

University of Chicago

500th Convocation Address

On Laying Siege to Problems

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“That’s a *damn* interesting substance,” gasped a graduate student in physics as he heard our friend describe the substance in his project: “The self-diffusion of liquid sodium.” During late afternoons in 1954 this friend’s brother and I would drop in to his laboratory, briefly there to find ourselves surrounded by white-coat clad scientists. They sartorially shamed the two of us, who wore sport coats with the *de rigueur* worn leather elbow patches that helped us pass as philosophy and theology graduate students. From what little I could decipher from the conversations and scientific papers back then, liquid sodium in this experiment was a “damn interesting substance.”

Both as a graduate student and, later, faculty member, I observed that at this university most colleagues in the various disciplines, be they scientific, humanistic, or in the professions, regarded what they were doing as dealing with “damn interesting substances,” even if their specialties dealt not with material but categorical substances, *à la* Aristotle. Capturing their spirit was the confession of Nobel prize-winner Charles B. Huggins, the

hyper-disciplined contributor to what we now profit from in chemotherapy. Huggins once reminisced how on the day of his and his colleagues' breakthrough discovery, "We knew for sure that we had learned how to treat advanced prostate cancer. I was excited, nervous, happy. That night I walked home—one mile—and I had to sit down two or three times, my heart was pounding so. I thought, 'This will benefit man forever . . . A thousand years from now people will be taking this treatment of mine.'"

Through family connections I later came to own the framed piece of Chinese calligraphy, familiar to all who visited his laboratory: "*To make discoveries is man's calling.*" He had it paraphrased on a plaque for his laboratory: "*Discovery is our business.*" Not all of us could or would follow Dr. Huggins's counsels all the way, such as when he urged his colleagues: "Don't write books. Don't teach hundreds of students. Discovery is our business. Make damn good discoveries."

In the discovery business, most of us who were in the leather-patch wearing, book-writing, teaching-students sectors of this university believed that discovery can go on in all areas. Right after World War II, I once read, a team from American universities visited Göttingen, Germany. Aware of the prestige and now substantial new investments in the sciences at that university, they asked why their guide for the day made no mention of law, the social sciences, and the humanities there. Göttingen, on the forefront in science, had also been world-renowned for work in philosophy, history, and theology. The host dismissed the topic: "Oh, the philosophers and theologians? They'll never discover anything new over there."

They do discover over there and here, however, so long as they deal, for example, with the mysteries of the human subjects in the disciplines and the professions. Eugen Rosenstock-Huessy warned against kinds of reduction which would rule out the potential for discovery. He wrote about a conceptual and practical problem: “The presence of one living soul among the three million volumes of a great library offers sufficient proof against the notion that the secret of this soul is to be found by reading those three million books.” The University of Chicago has been home for scholars across the disciplines who pursue discovery by converging on problems, and I want to stress that aspect of its pulse in this 500th Convocation.

Many previous convocation speakers have addressed such convergences. Two of them reflected the efforts of a university-wide Committee on the Problems and Scope of Graduate Work, which then-president Edward H. Levi, appointed me to chair. We decided to serve in part by attempting to discern the genius of the University of Chicago. We did not attempt to describe why we were better than other universities, but we did focus on how we seemed different from many. Aware of our limits and faults, I reminded colleagues of a word of the late possum-philosopher Pogo framed on my study wall. “We have faults which we have hardly used yet.” But this committee, focusing on the celebration of problems, also considered some virtues. Whether our report had any influence or not, our numerous afternoons of meeting did have influence on us, as reflected in two earlier Convocation addresses.

In the 343rd Convocation in 1973, educational philosopher Jacob W. Getzels addressed “Problem Finding.” He spoke generically of universities as he had spoken specifically of this one: “The work of a university lies distinctively . . . in making explicit that which is yet problematical—in exploring enigmas still seeking formulation as *problems*, to say nothing of solutions.” He quoted Gertrude Stein: “Suppose no one asked a question. What would the answer be?”

In the 339th Convocation in 1972 philosopher Richard P. McKeon spoke of the need to “preserve the genius of The University of Chicago, which consists in discovering and warranting significant knowledge and in making it relevant” to the life of humans, individually and in community. The genius of a state teachers college, one colleague mentioned, had been to produce the best possible teachers for the state, while a school of welding distinctively set out to graduate the best prepared welders. Here was McKeon:

The genius of The University of Chicago, when it was founded eighty years ago consisted in a unique set of answers to [basic questions], derived from the conviction that the discovery of knowledge is inseparably related to the transmission of knowledge, that research gives substance to and is stimulated by teaching, that the parts of the university are independent, autonomous disciplines but integral parts of an interdisciplinary whole . . . The problem of where we are is whether we have continued that genius and how we shall extend it to the new circumstances and situations we shall face.

Then, in a passage quoted in the new anniversary booklet, McKeon summarized, “From the first, The University of Chicago has maintained a problem-oriented attitude in research, and it has tended to subordinate erudition and information to inquiry. . . It has tried to put its stress on problem-finding and problem-formulation, as a preliminary to problem-solution.”

Such an approach can sound problematically obsessive and grim, though that it has not been so for many is clear from the witness of colleagues like the exhilarated and exhausted Huggins on his breakthrough night of discovery. Reducing the whole being of a university to “problem-finding,” of course, could also inhibit imagination and suppress wonder in many kinds of learning and discovery. French philosopher Gabriel Marcel addressed this issue by balancing the concept of “problem” with that of “mystery.” We recall discoverer Huggins or picture the “living soul” who is unexplained by three million books read in a library. Marcel introduced a creative metaphor, that of the siege:

A problem is something which I meet, which I find complete before me, but which I can lay siege to and reduce. . . . A mystery is something in which I myself am involved, and it can therefore only be thought of as ‘a sphere where the distinction between what is in me and what is before me loses its meaning and its initial validity.’ . . . A genuine problem is subject to an appropriate technique by the exercise of which it is defined; whereas a mystery, by definition, transcends every conceivable technique. It is, no doubt, always possible (logically and psychologically) to degrade a mystery so as to turn it into a problem. But it is a fundamentally vicious

proceeding, whose springs might perhaps be discovered in a kind of corruption of the intelligence.

“Siege” first: at the university when we lay siege to a problem we haul out the figurative medieval siege instruments: the mangonels of research, the trebuchets of books, the ballistas of argument, and the cannon of publication. As for “mystery:” let theologian Gordon Kaufman point to some dimensions:

‘Mystery’ has a fundamentally intellectual character, whatever its experiential overtones. It refers to bafflement of mind more than obscurity of perception. A mystery is something we find we cannot think clearly about, cannot get our minds around, cannot manage to grasp. If we say that ‘life confronts us as mystery,’ or ‘whether life has any meaning is a mystery,’ or ‘the fact that there is something not nothing is a mystery, we are speaking about intellectual bafflement.

Such “mystery” does not obfuscate problems, render reality spooky, or help colleagues pull categorical rank on each other, but is at home in laboratories, galleries, clinics, poetry classes, seminars, chapels, lectures, and dining halls alike. In many of these settings scientists and humanists at this university, in my observation, have long transcended C. P. Snow’s imprisoning old definition of their two cultures. I could illustrate this with some recall of ways I have experienced it, as with the late Norman Nachtrieb in numerous parking-lot seminars on the way to our work, when he tried to help me get excited about the problems of the self-diffusion of that “damn interesting substance,” liquid sodium.

I think of occasional social settings wherein another Nobelist, James W. Cronin, stunned me with a light-hearted discourse on the signal my bow-ties sent out: that the wearer loved symmetry. He taught me to be happy that there was believed to be not perfect symmetry between matter and anti-matter at the moment of the Big Bang. Because matter may have been one trillionth of a part heavier than anti-matter, there is something, and not nothing. Cronin had laid siege to a problem of measurement. No doubt later research has led to different equations. Maybe matter was *two-thirds* of a trillionth heavier than anti-matter. Please do not hold him responsible for what I reproduce from memory of a dinner conversation-turned-lesson.

In any case, many scientists here have been patient, not dismissing me as one of them is said to have done a student who complained and complained that at his high-tuition school he was not getting an answer to his question, “Why is there something and not nothing?” The professor finally lost patience after the hundredth complaint, and chided him: “Even if there were *nothing*, *you’d* be complaining.”

Or this exchange on an Aspen trail with the late David Schramm, a renowned figure among those who dealt with problems of the Big Bang. Conversation started with my awed mention of an entry in *The Oxford Companion to Chess*. There it was noted that “the number of distinct 40-move games is 25×10^{115} , far greater than the estimated number of electrons in the universe (10^{79}). In the years since Schramm’s premature death the count on that number keeps growing. The latest guess/measurement I have read is that the number of possible chess games is 10 raised to the power of 10 raised to the power of 50; “that is 100 followed by a

billion billion billion billion billion billion zeroes.” In the age of the Hubble, with discovery of billions of galaxies with billions of stars each, I asked him: “Can that sentence in the encyclopedia about the number of chess moves still be true?” He scowled and “counted” for a second, and answered, “Sure, there can be that many.” I responded: “In other words, ‘infinite.’” He: “Oh, God, no! Infinite is for you over in the Divinity School. We are just talking about a very, very large number.”

It is the genius of this university to make faculty appointments, select graduate students, assess curricular accents, amass resources, reward achievements, and give attention if not always to the mystery of the infinite, then to the very large number of problems to be found and addressed in the finite. Reckoning with that reality is a way to remain faithful to the genius of the founding of this university and the intention of the large number of convocations where speakers have focused on the problems laid siege to and the mysteries which excite. The motto of this university, whose origin some have seen as a problem and whose reaches others have reverently regarded as mysteries, remains in place at this anniversary: *Crescat scientia, vita excolatur*, where knowledge increases, life is enriched.