

**FACULTY BULLETIN
TABLE OF CONTENTS**

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	PAGE
EDITORIAL INTRODUCTION.....	2
Peter Wegner and Peter Richardson, Editors	
The Shapes of Brown University	3
Maurice Glicksman	
Welcome to Trade School: Labor, Love and Learning at Brown	6
Kenneth Miller	
Brown Medical School's Vision for a Leading Medical Education Program... 11	
Eli Y. Adashi	
Growth and Change in Ecology and Evolutionary Biology at Brown.....	13
Douglass H. Morse	
Globalization and the Academy: Notes from Sabbatical	15
Elaine L. Bearer	
The Uses of Bohemia	19
Mary Gluck	
View from the Pasture.....	22
Herb Fried	
INFORMATION FOR CONTRIBUTORS.....	25

EDITORIAL INTRODUCTION

Peter Wegner, Editor
Peter Richardson, Coeditor

This issue includes articles on a variety of aspects of Brown's history and evolution. Brown's former Provost, Maurice Glicksman, discusses the 240-year history of Brown, with special emphasis on its recent 70-year evolution through Presidents Wriston, Keeney, Heffner, Hornig, and Swearer, and a brief reference to Ruth Simmons' current goals of academic enrichment. Ken Miller's article is a version of his September welcoming address to incoming students, focusing on the nature of learning, the choices open to students, the importance of combining science with liberal arts, and the centrality of Darwinian evolution at a time when it is being questioned by proponents of intelligent design.

Dean Eli Adashi explores the expanding role of the Medical School so that aspiring doctors can move beyond medical excellence to learn about information technology, health care, patient services, and other socially important subjects. Further biomedical questions are examined by Douglass Morse, who describes the emergence of the department of Ecology and Evolutionary Biology (EEB), from its inception in 1979 to its current interactive research with the Woods Hole Marine Biology Laboratory (MBL) and the Environmental Change Initiative (ECI). Elaine Bearer explores the impact of her sabbatical interaction with health care projects in Guatemala, Indonesia, and Singapore on globalization of healthy living standards for preventive diseases.

Mary Gluck examines the uses of the term "Bohemia", referring to a widespread contribution to society that goes beyond financial privilege to community benefits through art and social wellbeing, as expressed in operas like *La Bohème*, and plays like "*La Vie De Bohème*". Herb Fried discusses the importance of a Junior Year Abroad (JYA) in Paris and other foreign universities, and proposes an enlargement of this program so that science students can learn more about the outside world during their undergraduate years while foreign students contribute to greater globalization at Brown.

We hope that these articles will contribute to globalization of our understanding of Brown's academic enrichment activities and encourage further members to write about their ideas, contributions, and questions about Brown's expanding teaching and research programs, for future editions of the *Faculty Bulletin*. We hope to publish our next issue of the Bulletin in April or May. Our goal of receiving your contributions by March or April provides plenty of time for you to work on them. New contributors are especially welcome.

THE SHAPES OF BROWN UNIVERSITY

**Professor Emeritus Maurice Glicksman
Division of Engineering
Former Provost**

In the over 240 years of its history, Brown has evolved from a small college in the 18th century to the university it became in the 19th century and to the outstanding small university it is today. I will focus on the past fifty years at Brown and give my personal view of the way the “rudder” has been set for determining the direction of Brown’s development, without hiding my pleasure at the current course of events. In particular I will emphasize my view that Brown has been and continues to be a university, not a college, and that the use of the term “university-college” is inappropriate. Each institution chooses its direction, and Brown long ago chose to be a university, committed to the creation, communication and preservation of knowledge.

I believe it fair to characterize the last fifty years of Brown in terms of its leaders, the presidents chosen by Brown Corporations presumably looking to carry out their visions for the future. Henry Merritt Wriston led Brown through a key period of its development, 1937 through mid-1955. His leadership and ability to raise funds to carry forward his vision are often credited for making Brown a national institution, through the expansion of dormitories for men and women and the recruitment of outstanding faculty, scholarly leaders and excellent teachers (sometimes the same individual!). He embraced the vision of a university and rather effectively set the stage for continuing the commitment to graduate education that had begun in the mid-19th century. He also used the phrase “University College” to distinguish the university that eschewed professional education from the multi-universities with professional schools.

When I came to Brown in 1969, Wriston had been followed by Barnaby Keeney, Ray Heffner and Acting President Merton Stoltz. When I interviewed Merton Stoltz during the wooing process, he laid out for me his vision of the future Brown: almost double its size in both undergraduate and graduate student bodies, and setting its sights on rivaling Harvard University. With Keeney, Heffner and then Hornig, he had championed the development of a Medical School (in its early years, the Program in Medical Education) and started the expansion of the student body by increasing the faculty size: in the two years 1968-70, Brown made tenure commitments to some one hundred faculty.

The appointment of Donald Hornig as president seemed to signal the Brown Corporation’s support for this vision. But I believe there was not a strong consensus, and the fact that fund-raising failed to support an expansion (a Campaign for the 70s failed to reach its goal) could well have been a warning signal. The Corporation sponsored a planning process that recommended capping the student expansion well below Hornig’s goals, and the Corporation endorsed that cap. One result was that the larger faculty could not be sustained financially, and Donald Hornig faced a crisis with an operating budget in substantial deficit. The cuts in programs and staff that were needed to restore fiscal balance led to a campus and a Corporation unhappy with their leadership, and a search

for a new president was undertaken in 1976, to coincide with Hornig's attainment of a balanced budget for the new administration.

In spite of the fiscal strains, the faculty and the Corporation went forward, led by President Hornig, with the development of the medical program into an MD-granting one, and eventually the Medical School. There were budgetary constraints on the MD program, but there was also substantial support from the federal and state governments to assist in its establishment. The major benefits accruing for the university and the state continue to be noted as the Medical School develops.

At this point, almost thirty years ago, Brown had to make a decision regarding its leadership and the vision it should pursue. The presidential search process was complex. It initially involved a search committee, with trustee, faculty and student membership, that recommended three finalists who came to the campus: the Corporation chose not to appoint any of these. The Chancellor then appointed a Corporation search committee and invited the faculty and students to set up advisory bodies. That process ended up with strong agreement on Howard Swearer as the new president.

I did not seek the presidency, but was asked by the Chancellor to be a "candidate" in order to preclude other Brown nominations, with the assurance that I would not be chosen! What I learned years later was that there was an internal debate going on at that time among Fellows of the Corporation about the type of president Brown should seek, and that I was the candidate some nominated in order to pursue the university-oriented development of Brown. The most influential Corporation members—and major donors—did not want to see that direction pursued, but rather wanted to see Brown as an outstanding College, and opposed my nomination. The end result was good for Brown, in that Howard Swearer turned out to be an outstanding president, able to raise considerable sums of money and supportive of the development of the university.

After the successful first campaign, the Corporation leadership tried to force a retrenchment in that development, and the president was asked to trim down programs and faculty size (in spite of a successful campaign). I was astonished and told Howard Swearer that such a retrenchment would raise such suspicions and anger that we would both be out of a job! As a compromise, I proposed setting targets for the faculty size that mandated that it would remain at its then level, with replacements for retirees or resignations being held in a pool to be used for selective development. This was not popular among faculty, but it staved off the Corporation's downsizing intention and enabled additions in key areas.

Swearer was followed by an outstanding leader in Vartan Gregorian, who had even more success in raising funds and creating a good feeling on campus of an institution on the move, with strengths that provided outstanding educational and research opportunities for undergraduates and graduate students as well.

What Brown has always emphasized is the highest quality in what it does. I believe the success of Swearer and Gregorian in raising substantial funds for endowment and

programs has given renewed confidence to the Corporation and Brown's leadership that Brown as a University can achieve the quality goals sought. President Ruth Simmons and Brown's Plan for Academic Enrichment are outstanding examples of constructive moves in that direction, and I hope that all of us will support those goals and continue the strengthening of Brown as an outstanding University. We need not emulate another; we can forge our own exemplar for others to follow.

**WELCOME TO TRADE SCHOOL:
LABOR, LOVE AND LEARNING AT BROWN**

**Professor Kenneth Miller
Department of Molecular, Cellular Biology and Biochemistry**

President Simmons, Provost Zimmer, Chancellor Langlois, Colleagues, Friends, and most of all, our new graduate, medical, and transfer students, and members of the Brown University Class of 2009:

I am honored beyond words at the chance to speak to you today. And what a day it is! To echo the words of the 118th Psalm, “This is a day the Lord has made. Let us rejoice and be glad.”

And this is indeed a day the Lord has made. But the Lord had help.

Each of us is here today for a reason. And I saw many of those reasons last week. On the day the class of 2009 moved in, I took a few minutes to stroll around campus and just watch. I looked at the minivans packed with boxes, listened to those annoying little brothers and sisters, and I looked at you, smiling with expectation, joy, and fear—but most of all I watched your parents. There is just one day a year when it’s possible to see how much is truly invested in a university and that was the day. Their faces were filled with pride, sacrifice, anticipation, and hope. You are here as individuals, but I hope you never forget that you do not stand here alone.

So, what about Brown? Well, I’ve got some news you might find disturbing. If you’ve focused the last few years of your life, your activities, your resume, your personal statement at getting into Brown, figuring that once you got into this great school you had it made, we fooled you. And we fooled you good.

If you thought this was a place that would refine you, educate you, and stamp your passport on the way to a good life in American society, we took you for a ride. Because we’re not going to do any of those things.

In fact, I’m going to say something you never expected to hear at a place like Brown: “Welcome to trade school.” You heard me right. Trade school.

Brown’s a place where you learn a craft, a skill. A trade school where you learn to work with your hands. Was that false advertising? Maybe. But Brown is a trade school. And this is a place where you will indeed learn to work with your own hands.

Brown is almost unique in being a University that has an ideology—not liberal, not conservative—not right wing or left wing—but an ideology nonetheless. The ideology of this University is that YOU make your education. At Brown an education is not something you get. Not something the University gives you. It is something you make for yourself.

If describing education as a trade sounds strange, perhaps that's because of the value I place on labor. My grandfather, in whose house I grew up, was a welder. His skill brought together the steel plates that still hold up bridges and fused the iron hulls of ships that sent the allies to victory in a great war. They made a living for generations of his family, built a home, and supported the dreams of generations that followed.

From this man, whose formal education ended in 8th grade, I learned the value of work, the beauty of a machine, the logic of construction, and the pride of craftsmanship. From this man, Albert Hamill, I learned that there is nothing nobler than to use the skill of your own hands to express what is in your mind, and from that to create something genuinely new.

All too often we make an artificial distinction between the work of the mind and the work of the hands. In reality, human knowledge is one, and it involves both. That's why I speak of education as craftsmanship, and of learning as a trade.

Brown's open curriculum is nothing less than a chance to fashion your own education—and like all chances in life, success is not guaranteed. In contrast to those universities where a common course of study is prescribed for all students, the Brown curriculum requires both wisdom and courage—the wisdom to recognize the gaps in your own knowledge, and the courage to do something about them.

Universities are special and remarkable places. They are gatherings in time and place of those who would teach each other, learn from each other, and grow together in knowledge, wisdom, and skill.

The master craftsmen who inhabit this trade school are legion. Arnold Weinstein is here to tell you about the literature of ideas; Barbara Tannenbaum will share her skills in persuasive communication; Tom Banchoff will open your minds to the 4th dimension; and James Head will help you explore the universe itself. If you give each of them the chance.

Don't shy away from opportunities like these. Don't take the easy route. And don't dismiss certain areas of learning as irrelevant for reasons of training or career. For therein lies the greatest danger of this trade school—not that you will try something, and fail—as we all do—but that in some important ways, you may not try at all—that you will leave whole areas of the shop floor untouched.

Because I am a scientist, I will take two examples from my area of that shop floor, the natural sciences—but I offer them merely as examples of what awaits you in the arts, social sciences, and humanities as well.

It's fair to say that most people consider the sciences worth studying because you can do things with them. Cure disease, build chemical compounds, clean the environment, and engineer new products. But there's a danger in regarding science in this way. Namely, the

idea that scientific knowledge is practical knowledge (which it definitely is), leads to the prejudice that science is only practical knowledge.

If one isn't going to become a physicist, there's no point in studying physics. If you're not going to med school, why bother with biochemistry? And if you're going to become a writer, an artist, an historian, or a musician, what's the point of the Krebs cycle?

Well, here's why: Science is not a body of knowledge. It's a way of looking at the world, and it gives us a perspective that a person who is not literate in science simply does not have. Because it involves, in a very special way, the nature of reality itself.

Near the end of the 19th century, a number of individuals discovered something known as the photoelectric effect. When light hits a metal surface, charged particles (electrons) are kicked out. If the light is intense, a strong electric current is produced. Since light itself is a form of energy, it makes perfectly good sense that some of the energy of sunlight is transferred to electrons in the metal.

But there was something about the photoelectric effect that didn't make sense. If you make the light dimmer and dimmer, almost to the point of total darkness, the electrical current goes down. But the electrons that do come out of the metal still come out with plenty of energy. In fact, no matter how dim the light gets, the amount of energy per electron never drops. It's as if somewhere in that dim beam of light there are sledgehammers lurking, and they those few electrons with an incredible wallop.

Exactly 100 years ago, a young man, then only 25, looked at the photoelectric effect and decided that it could be explained in a simple way. Maybe light is not the smooth, continuous, form of radiation it seems to be. Maybe light is actually composed of individual, distinct packets of energy?

In dim light, there are fewer packets. In bright light there are many packets. But each packet, each sledgehammer, still carries the same punch. The amount of energy transferred to an electron would then correspond directly to the energy in one of these packets of light, which are now called photons.

As you may know, the name of that young man was Albert Einstein, and his simple and elegant formulation of the particle nature of light won him the Nobel Prize. But it also won something else for each and every human being who cares to learn science. And that prize is nothing less than a new view of the nature of the universe.

Nature is not continuous. From atomic particles to sunlight, the elements of nature are broken into distinct, individual, quanta that make the microscopic world very, very different from the world of our everyday experience. Every person who has taken the time to learn and appreciate physics has an insight as to just how profound this transformation of human imagination has been. And sadly, those who have set science outside the realm of their own experience have cut themselves off from one of the great revolutions of human understanding.

When we turn to another science, to biology, we likewise find people who are, indeed, cutting themselves off from another revolution in human understanding. As most of you know, there is substantial evidence that our species shares a common ancestor with the great apes—the gorilla, orangutan, and chimpanzee. But can we be sure of this? Can we put that evidence to the test? Today, we can indeed.

The complete DNA sequence of one of those great apes, the chimpanzee, was published less than a week ago, and it provides us with a remarkable new opportunity to answer a question that has fascinated people of every culture, of every place and time. Where did we come from?

We human beings carry our genetic information on 23 pairs of DNA-containing chromosomes. The great ape species, on the other hand, have 24 pairs. And there's the mystery. How could we share a common ancestor with them if you and I and even President Simmons are, quite literally, missing a chromosome? Where'd it go?

Well, if one thought that our genome was “designed,” as many Americans seem to, it wouldn't have gone anywhere. If our DNA was the unique product of an intelligent designer, that fellow could simply have arranged our DNA in fewer packages than the apes, and since there is no real relationship between us and them, nothing would be missing.

But if a fellow named Charles Darwin was right, there is a relationship, a link, and the remnants of that missing chromosome have to be somewhere inside us. You can't just throw a whole chromosome away, and therefore evolution makes a testable prediction. When we lay the human and chimpanzee genomes side by side, we've got to find a human chromosome constructed by sticking two chromosomes together from that common ancestor. And if we cannot find it, evolution is wrong. Well, guess what? It's chromosome #2.

Our second chromosome was produced by the head-to-head fusion of ape chromosomes 12 and 13, and the new primate and human data show the exact point at which those two chromosomes were pasted together. No doubt about it—like a criminal at the scene of a crime, evolution left its messy fingerprints all over us—and we know where we came from. Like everything else on this planet, we evolved.

Whether you find that conclusion depressing or exhilarating, it changes the way we see our world, our existence, and our relationship to every other living thing that inhabits this planet. It's practical knowledge, to be sure, but like all true knowledge, it has the power to change, enlighten, and transform. And that is the labor, the trade that each of you has taken upon yourself as you enter Brown.... the tradecraft of personal transformation.

I attended my 35th class reunion here at Brown at the close of our last academic year. And at that gathering, one of my classmates, a student with whom I had once studied American poetry, recalled the sad and extraordinary words of Edna St. Vincent Millay:

*Thus in winter stands the lonely tree,
Nor knows what birds have vanished one by one,
Yet knows its boughs more silent than before:
I cannot say what loves have come and gone,
I only know that summer sang in me
A little while, that in me sings no more.*

Now, almost four decades after I sat on this green as a freshman at Brown, I can call back to you from my 50s, and tell you that the poet was right. Youth disappears. Beauty fades, and the summer song of one's teens and 20s will vanish.

But I can also say with a wink and a smile that learning is different.

Knowledge does not fade, it brightens. Learning does not vanish—that's what universities are for, to keep the fire of learning alive, to pass it from one generation to the next, to give human understanding an institutional immortality, an immortality that each and every one of you are now part of.

With care, and cultivation, and courage, that fire can burn in each of you for every day of your lives. In that sense, the true summer of our lives begins today, and may it sing in each of you for all of your days—and forever.

Welcome to Brown. I'll see you in class!

BROWN MEDICAL SCHOOL'S VISION FOR A LEADING MEDICAL EDUCATIONAL PROGRAM

**Eli Y. Adashi
Dean of Medicine and Biological Sciences**

If Brown Medical School is to be the best that it can be, if it is to attract truly superlative applicants, it must offer a leading-edge education that is innovative in content and the delivery thereof. We must lead rather than follow by designing an integrated, modular, contemporary, flexible curriculum that is recognizably "Brown." This is one way to secure, and indeed enhance, our well-deserved national reputation as pioneers in medical education. Anything less is simply not good enough. These changes will be the fruit of our collective creativity and intellectual firepower, supported by the full range of all that contemporary information technology has to offer. Tomorrow's physician must be IT-savvy, committed to lifelong learning, scientifically and clinically enlightened, familiar with complementary healing traditions, patient and service-centered, and knowledgeable about the US health care system. We likewise believe that tomorrow's physician must serve as an ambassador and agent for change in the health care quality and patient safety movements.

Now is the time for Brown Medical School to begin to plan and institute major changes in its curriculum. We are at a juncture where we can and must commit the intellectual and monetary resources necessary to better our educational enterprise. This derives in part from the possibility of a fundamental change in the relationship between Brown Medical School and its teaching hospital partners. In addition, the Plan for Academic Enrichment is expanding the faculty and the scope of biomedical and public health research. And plans are under way to increase the size of the medical school class, even as the phasing out of the Brown/Dartmouth Program and the reinitiation of the standard admission route are changing the composition of the student body.

The foundation upon which we will build our new curriculum is made up of the components that have consistently contributed to the uniqueness and quality of Brown Medical School: the PLME paradigm, the competency-based underpinnings of MD2000, and the Community Health Clerkship.

Through the forthcoming curricular redesign we aim to create a renewed and intensified feeling of pride in Brown Medical School; a sense of meaningful contribution to medical education with hospital-, community-, and campus-based faculty; students who are instilled with the notions of social responsibility, dedication to human service, and professionalism; students who are passionate about the acquisition of knowledge and who exemplify professionalism in medicine; students who are broadly educated while embracing the challenges brought forth by increasing biomedical knowledge and technology; students who contribute to the medical care of all people in the global community as well as to the advancement of medical knowledge.

To achieve the level of excellence described above, we will identify a core group of leaders in medical education to drive the planning and implementation processes. We will also undertake to integrate pre-clinical education with flexible yet comprehensive clinical education, thereby meeting the needs of students who want to pursue careers ranging from primary care to public policy, from management to activism and advocacy to basic

biomedical research. We must energize our students and imbue them with confidence that the Medical School is meeting their needs and goals, and we must do everything to assure the success of all of our students.

I look forward with confidence to this adventure and to a medical school that will take its rightful place among the best in the nation.

GROWTH AND CHANGE IN ECOLOGY AND EVOLUTIONARY BIOLOGY AT BROWN

**Professor Emeritus Douglass H. Morse
Department of Ecology and Evolutionary Biology**

Members of the Department of Ecology and Evolutionary Biology (EEB) have seen striking changes in both teaching and research over the existence of the department and its predecessor, the Section of Population Biology and Genetics. When I came to Brown in the fall of 1979, we had no graduate program, and only a small group of people remained who had been part of a by then largely disbanded group of population geneticists. When Brown made the decision, largely in response to student interest, to emphasize ecology, it used a newly endowed chair, the Hermon Carey Bumpus* Professorship, generously funded by Dr. Bumpus' sons, to hire a senior faculty member who would be charged with developing this program. I was the fortunate recipient, chosen no doubt for my experience in running a large graduate program at another school from a relatively early point in my career.

We initially hired faculty in the areas of population and community ecology, keeping a careful eye on how we could make maximum use of the positions provided us, which came largely from retirements and vacancies. (At that time Brown was not in the business of growing its faculty by 20%!) These positions allowed us to start our graduate program. We admitted our first graduate student in 1982 and graduated our first Ph. D. in 1986. Undergraduate needs for courses in evolutionary biology and animal behavior, along with commitments of the section to the basic genetics course, subsequently allowed us to add evolutionary biologists to our group and consequently to broaden the scope of our graduate program.

In the mid-1980s, our Section merged with the Section of Morphology, which had previously been largely involved with teaching the course in Human Morphology (gross anatomy), Biomed 181, to medical students. As the senior member of that group, George Erickson, was soon due to retire, we put forth the rather radical proposition to the then Dean of Medicine, David Greer, that in order to make maximum use of the three teaching positions assigned to that intensive course, and in the spirit of Brown's interdisciplinary focus, it would be wise to hire instructors with the ability and motivation to contribute to an established group—namely ours! This, plus the fact that by the 1980s human gross anatomy was not a cutting-edge research area, permitted us to argue that in order to provide excellent instruction for the medical students it would make the best sense to hire faculty working on the evolutionary morphology of other vertebrates. Quite to our amazement, Dave readily bought into the idea, which signaled the start of our nationally recognized strength in evolutionary morphology. Thus, we expanded our research into comparative functional morphology, the evolution of gait, paleobiology, and the like. Interests in evolutionary morphology broadly overlap with those of other EEB faculty, providing excellent opportunities for interdisciplinary work.

Meanwhile our ecological focus grew and expanded, developing a strong presence in the study of marine communities, including the rocky intertidal zone, salt marshes, and the

subtidal zone. Ecology at Brown also expanded to form an evolutionary interface, merging with work done by our evolutionary biologists. Our research programs in all of these areas have become truly international, with fieldwork carried out around the world and collaborations in several Latin American and European countries.

We are proud of our role in producing scientists of the next generation through mentoring at the undergraduate, graduate, and postdoctoral levels. A substantial number of our Honors undergraduates publish papers in the major journals of their field that emanate from their theses. They regularly matriculate to the leading graduate programs, a substantial percentage bringing prestigious national fellowships with them. Our graduate students have also been extremely successful in securing faculty positions in leading universities and colleges, including the University of Pennsylvania, University of North Carolina, University of Florida, University of Texas, and Swarthmore College.

When the Division of Biology and Medicine reorganized in 1993, our status was upgraded to that of a Department within the Program in Biology. This change facilitated our efforts to establish an independent image both at Brown and in our field. In the process we were given greater control of our curriculum, hiring, and budgets—and more paper-pushing as well!

Recently, two exciting events have expanded our scope yet further. The Environmental Change Initiative (ECI), one of President Simmons' first Academic Enrichment Initiatives, is a joint venture with several other groups on campus. The ECI aims to address major problems that lie at the interface of science and policy. EEB members work on relevant topics such as the consequences of sea level rise for coastal ecosystems, effects of climate change on biological diversity, and the impact of invasive species upon natural communities. Brown has also forged a collaboration with the Marine Biological Laboratory at Woods Hole. We have been among the greatest beneficiaries of this relationship through our interactions with the MBL's Ecosystems Center and Bay Paul Center for Comparative Molecular Biology and Evolution. Fourteen MBL faculty now have appointments in EEB and are beginning to offer courses as part of the Brown curriculum. In turn, Brown faculty and students have enhanced opportunities to forge joint research programs with MBL faculty and enjoy access to excellent facilities that are not available on the Brown campus. We have commenced a joint Brown-MBL graduate program, and the second group of students arrived this fall. Clearly these are important and exciting times for EEB.

*Hermon Carey Bumpus was a Brown graduate, class of 1884, and subsequently became Brown's first professor of biology (1890-1900) before moving on to lead the American Museum of Natural History through an unprecedented period of growth and heightened prestige. Later, as a consequence of unparalleled lifetime service, he became Brown's first fellow emeritus.

GLOBALIZATION AND THE ACADEMY: NOTES FROM SABBATICAL

Professor Elaine L. Bearer
Department of Pathology and Laboratory Medicine

"Classes cancelled" reads the front page of the Brown Daily Herald last week. In the article, students lament courses left orphaned by faculty on leave.

Are we professors on leave more often than previously? If so, why are we traveling so much? Here am I, just returned this semester from a leave that involved both steady focused research at another US institution and periodic travel that took me around the world. This experience inspired me at all levels. But this year of research away and travels to foreign places also awakened me to a process sweeping the world right now—globalization. Internet and the relative ease of traveling great distances are bringing distant collaborators together at unprecedented rates in science and medicine as well as in the economic and commercial ways we more often hear about in news media.

At the California Institute of Technology, where I spent most of the year, seminar speakers from around the world were common and faculty were away as much or more than on campus. Each discipline seemed to have its own web of intricate connections that connected people from different countries, languages, and economic-political circumstances. What they had in common was a passion for thinking, for discovery, for analysis, for understanding.

In addition to my scientific benchwork at Caltech and Brown, I was also fortunate to travel both within the States—from Woods Hole, Boston, and Washington, DC to San Francisco and Los Angeles—and beyond—places as distant as Guatemala and Indonesia, as well as Finland, Germany, Singapore and Japan. My classes were not cancelled, though. Because they are team-taught by a group of experts recruited over many years, it was relatively easy for another member of the team to cover for me and direct the course during this sabbatical.

While in Guatemala and Bali, my interest was healthcare; in other places the goal was scientific collaboration. All my visits were filled with the exchange of ideas, the meeting of minds on topics of mutual interest. Everywhere I learned new things as well as taught what I already knew to others—students, faculty, physicians, and lay people. These travels inspired a sense of community between me, Brown, the USA and foreign colleagues practicing medicine or investigating disease in distant lands. These travels built relationships for me with other scientists interested in similar problems but using different tools and different thought processes to understand them. Differences inspired comparisons. Comparisons revealed details I might not otherwise notice.

Here are some examples: In March I went to Guatemala where I have been involved in a small rural health-care project for many years. With me were two Brown medical students as well as a kindergarten teacher from Germany and a chemist from Los

Angeles. As a team, we listened to and coached Guatemalan physicians, priests, nurse practitioners and village leaders about health care. What were their main concerns? How could we assist them? Their concerns were mostly the health consequences of poverty—lack of clean water, adequate food and shelter, education and access to health care. Most of the illnesses we saw would be preventable with adequate infrastructure—nutrition, sewage treatment, and housing. What is the best way to assist them? One answer is with education, vaccination, and preventative antibiotics to decrease the infectious disease burden. Already the government program to treat with Ivermectin every six months has made a significant inroad on the infection rate of onchocerciasis, the "black-fly disease" also known as "river blindness." The infectious agent was discovered in Guatemala near the villages we serve in the 1950s, but the disease has only recently received support for eradication, some through the Carter Center, Gates Foundation, Merck, and the Lions Club. Periodic treatment with ivermectin is decreasing the disease burden and thus the reservoir of infective organisms. In our clinic at Quixaya, the village where the infective organism was discovered, we saw less disease. By serving as a support team for local and visiting doctors, our 13-year presence in this remote region of Guatemala facilitates efforts such as these aimed at disease prevention. Students from Brown have participated in this project every year. The three who worked with me during this sabbatical year set the stage for future preventive strategies, in women's reproductive health through establishment of connections to the native midwives, through developing a deeper understanding and communications with local herbal healers, and through networking with Western-style health professionals in neighboring communities. This communications network between diverse ethnic groups (local indigenous Maya speaking three different idioms, Spanish settler-ladinos, and volunteer healthcare workers from around the world), which explores perceptions of health, causes of disease, prevention and treatment – this process occurring over more than 13 years in our Guatemala project is globalization.

Interdisciplinary collaborations have contributed to the comparative success of the U.S. healthcare system in terms of access to care, quality of care available, rate of development of new technologies and pharmaceuticals, and investigation into the pathogenic basis of disease states. Collaborations have been forged between providers (hospitals, HMOs, physicians), commercial interests (pharmaceutical and insurance companies), government and academia. It seems time to share with less advantaged countries not only this knowledge-base and technology but also experience in the art of cross-cultural and interdisciplinary collaboration toward the process of healthcare education, provision of services both preventative and therapeutic, and investigation into disease mechanisms, diagnosis and therapy. The Guatemala project has continually raised questions to all those who serve there, students and faculty alike, on how to bring U.S.-style healthcare advantages into a different culture in a culturally and economically responsible manner.

Some months later a trip to Bali, Indonesia prompted me to draw other comparisons. Bali has some similarities to Guatemala—tropical climate, volcanoes, a rural population with language and religion different from governmental rulers. Yet Bali seems to have solved some of the issues evident in Guatemala. Although I did not serve in any clinical

settings in Bali, my observations on differences are the following: Overpopulation with its attendant health impact is not so severe. The populace is better educated—Education is required for six years in Bali. Both public and private toilets were everywhere in Bali. Even when there was no running water, there was a clean porcelain toilet with a basin of water and scooper to flush. Even in the humblest home, there was a place for hand washing. Not so in Guatemala, where there are few toilets, and not even latrines for many households. Latrines are ugly, smelly cement commodes placed over shallow muddy pits, with no water to flush or for hand washing. In one plantation in Guatemala, there were only a few latrines for 250 families, and these were kept locked with a padlock to which only a favored few had the key. Some villages have only one faucet bringing water for all to share. The latrines have high cement stools, impossible for a child to use. No wonder the rate of childhood mortality from diarrheal disease is so high in Guatemala. But why is there such a difference between Guatemala and Bali? Governmental policies, infrastructure, religion, popular beliefs, wealth and its distribution? Can cross-cultural fertilization help reveal the basis for these disparities and provide ideas for solutions?

The biggest surprise for me was Singapore. How did a small island nation, established by the British as a port of trade less than two hundred years ago, become such a powerhouse for science and technology, with clean streets, clean water, good educational system and air conditioning everywhere? The ecumenical and international group of scientists at the A-star Institutes where I gave a talk gives some clues as to the power of diversity and education in Singapore's current success. In comparing these three places – Guatemala, Indonesia and Bali – one cannot help but also wonder how the values of the different colonial powers – Spanish, Dutch and British – influenced their current status.

Then, the "Academy," as one of the pillars of human society, must it play a role in globalization? How best can the Academy transcend disciplines and national borders? How well do we, the traveling sabbatical professors, weave this worldly fabric? Just as the historians, linguists and priests of the middle ages brought science back to life through their "discovery" of the Greeks, humanists and scientists alike today are inextricably linked by their common pursuit of knowledge and by knowledge itself whose grand sweep cuts across all boundaries to surprise us with connections and insights. We academics not only disseminate knowledge but also develop through practice the process of thought, concept development, problem solving, and creative genius. This craft we also teach, by example or by design.

A mentor and friend, Bruce Alberts, past President of the U.S. National Academy of Sciences (NAS), once recommended Bronowski's book Science and Human Values to me. Bronowski makes the case that acquisition of the scientific thought process throughout society would improve justice and equality across socioeconomic groups and ethnic divides. As part of Bruce's NAS presidency, he initiated science education policies and organized the first International Science Academy. The role of these programs was to promote systematic and conscious thought process within the U.S. and around the world, from student to professor levels. Nadia Boulanger, the great French teacher of music and another of my own mentors, would have concurred. Her diverse student group included many nationalities. She taught that the mental practice of consciously attending to what

we hear and how we think was the way to acquire the ability and tools to articulate our creations.

This leaves many unanswered questions about the role of academia in globalization. Some of these are: What activities will the Academy perform in the process towards globalization? How will these be supported? Will this new role reciprocally affect the Academy and if so, in what way? How can Brown participate fully in academic globalization? Would offering more interdisciplinary team-taught courses facilitate Brown faculty involvement in foreign academic development without compromising course offerings at Brown? Academic enrichment will bring scholars to Brown at all levels, from many nations. How will we share our local scholars freely with the world?

THE USES OF BOHEMIA

**Professor Mary Gluck
Department of History**

In our politically anxious times, the idea of bohemia may appear frivolous or a mere diversion from more serious concerns. Alternately, it may be regarded as a source of cultural renewal and radical pragmatism in today's risk society. What is indisputable is that interest in the phenomenon is on the rise. During the past five years, dozens of popular books have appeared on the subject; perhaps the best-known are David Brook's Bobos in Paradise: The New Upper Class and How They Got There and Ann Powers' Weird Like Us: My Bohemian America. How can we explain our preoccupation with a cultural stereotype that is invariably relegated to the past and yet refuses to remain there? Is it simply an expression of nostalgia and escapism, or is there a more serious cultural purpose to be discovered here?

To raise these questions is to undermine our apparent ease with the concept of bohemia, which turns out to be more elusive than its popular representations would suggest. Bohemia first came to the attention of wide audiences through a musical melodrama about artists' lives in the Latin Quarter, performed in Paris in 1849. "*La Vie de Bohème*," as the play was called, became an instant hit, the talk of the town, and eventually, the source of one of the most enduring myths of modernity: that of the impoverished, care-free artist who challenges the conventions of a philistine society through his avant-garde art and outrageous behavior. In the course of the nineteenth and twentieth centuries, the bohemian myth was to find countless incarnations, from Puccini's 1896 opera *La Bohème* to Jonathan Larson's 1996 Broadway hit, *Rent*. Despite the different settings and circumstances, the essential formula for these bohemian stories is remarkably constant. It is based on the irreducible conflict between rebellious artist and conformist bourgeois; between the values of youth, idealism, self-expression and imagination and those of age, hypocrisy, self-denial and moralism.

The myth of bohemia represented, to some extent, the response of artists and intellectuals to the commercialization of cultural life in the early nineteenth century. Faced with the pressures of an inhospitable capitalist market, cultural producers created a glamorous parable of the artist's life that was also a highly salable public commodity. Bohemia, however, was more than an act of self-promotion or a form of professional legitimization. It was also a radical challenge to existing social conditions, a creative search for new cultural forms, and an ongoing experimentation with novel personal identities and ways of life. At its most abstract, bohemia laid claim to the right to define the meaning of modernity as an unprecedented condition of change and contingency.

Bohemia's challenge is still with us today and, in fact, gives access to possibly the central conflict of modern society. This conflict could perhaps best be described in terms of two radically incompatible definitions of what it means to be a modern self and to live in a modern society. On the one hand is the idea, originally associated with the bourgeoisie, that modernity is synonymous with the objective structures of institutions like the liberal

state and the capitalist market, as well as with the abstract classificatory systems of science. On the other hand is the notion, first espoused by bohemian artists, that the essence of modernity is to be found in experience and immersion within the changing, dynamic, unpredictable qualities of contemporary life, especially as lived in the large cities. This conflict between the “system world” and the “life world”, to use a sociological term, was to become a central theme of cultural critics from the middle of the nineteenth century on. The French poet Charles Baudelaire personified it in the late-1850s as the implacable hatred of two strong men, Science and Poetry, who encounter each other on a narrow path where only one can pass.

Baudelaire failed to mention, though he well knew, that in the collision course between Science and Poetry, it was always the latter that gave way to the former. Indeed, it is important to stress that the fundamental dualism of modernity, expressed through such binaries as “bourgeois and bohemian”, “the system world and the life world” (there are others as well), constitute radically unequal pairings in which the second category is invariably subordinated to the first. Yet the persistence of the bohemian idea in the face of the overwhelming power of institutions and the undiminished prestige of the scientific philosophy provides inescapable proof that the two elements of modernity cannot exist without each other. The dependence of bohemia on its bourgeois other is self-evident, since bohemia is incapable of providing organization and stability for its mobile and fleeting perceptions of modern life. But the opposite is equally true, since institutions cannot do without the dynamic creativity and radical pragmatism of bohemia.

We have just witnessed the spectacular failure of the institutional world to respond with flexibility, humanity and effectiveness to the challenges of hurricane Katrina. This failure, however, is simply a dramatic amplification of a deeper process of erosion that had been undermining the vitality of our society for decades. As our institutions grow in size and complexity, they invariably adopt bureaucratic and centralized forms of organization in the name of progress and efficiency. Yet the unavoidable consequence of this process is that their connection with the lived experience and genuine needs of their constituencies weaken and ossify. Bureaucratic organization, as embodied in the centralizing institutions of the state, big business, the education system, health care or the culture industry, cannot adapt rapidly and creatively to the changing demands of modernity. They may offer the illusion of stability, but they are in fact a source of danger, since they are governed by dominant power relations rather than the lived realities of social experience.

It is perhaps for these complex reasons that the appeal of bohemia has once again become compelling for our culture. Bohemia may be the subordinated form of modernity, yet its instinct for form and style, its penchant for creativity and innovation, and its recognition of change and contingency make it an essential, if unacknowledged, partner of dominant culture. Each age has to discover its own form of bohemia and no doubt this applies to ours as well. If the concept is to become meaningful once more, it will have to be expanded from an exclusive association with the experimental arts to include a whole range of social and intellectual phenomena from science and technology to the practice of everyday life. Moreover, this new, expanded version of bohemia cannot be restricted to a

handful of privileged metropolitan centers such as Paris, London, Berlin, or New York, but will have to apply to different cultures, places and times which have contained different versions of modernity. The bohemia of the future requires an explicitly interdisciplinary and multicultural perspective that is still waiting for definition.

VIEW FROM THE PASTURE

**Professor Emeritus Herb Fried
Department of Physics**

After 36 years as a Brown Professor of Physics, the author of these lines retired some five years ago, and continues an active research program at Brown. Forty-one is a modest prime number, and after that many years one may look both backwards and forwards, and that is the theme of these few paragraphs. The views expressed herein are mine alone; but they are informed by 41 years of service, in good times and bad, under administrations competent and those less so, under administrators honest and those whose words evaporated under the harsh light of reality.

One very important change in this author's outlook came four years ago, when he was invited to serve as a trustee of the small, private American University of Paris (AUP). Prior to that time, he had spent hours waiting for an audience with Deans, Provosts, or Presidents, at both Brown and AUP, hoping to put before them one or another plan for a new program to increase the international exposure of our math and science undergrads at Brown, and to bring desired scientific visitors from abroad to Brown. And in all those years, only one program, the Brown/CNRS Visitors Program, was accepted some eight years ago by the then-Brown administrators forming the so-called Academic Council, and was extended three years later to serve a dozen Brown departments. But, after becoming an AUP Trustee, this Professor's outlook changed completely. No longer were Deans and Presidents simply objects of respect; rather, they become real people, to be hired and fired, and occasionally to be shown sympathy rather than awe. It was a sea-change in his point of view that has influenced all the author's subsequent actions.

Having said this, I must immediately add that the rule, (Never Trust an Administrator!) learned over the years by almost every senior faculty member is definitely not relevant to Brown's current President. She is, by far, the best President seen by me in all of those 41 years, a warm, capable, and intelligent person, with a fine sense of humor and proportion; and the Corporation – in consultation (for once!) with a Faculty Committee – did itself proud in selecting her. She has done more to improve Brown in the past three years than any previous President accomplished in triple the time; and she will remake Brown's future. Her choice of Provost was carefully and properly researched, and his choices of VPs and Deans have been acceptable.

The lack of emphasis by this administration on basic research in "core" scientific subjects is, however, of some anxiety to many faculty. Interdisciplinary studies, especially those which suggest the possibility of large NSF and NIH Grants, are surely of interest; but an ingenious, new idea that could, for example, bring about controlled nuclear fusion would be of far greater importance. One should not forget the historical fact that "curiosity-driven" research has had a far greater impact on our lives than the search for "practical" solutions to present problems. It is true that Federal research monies swing in the direction of finding solutions to practical and serious current problems; but one new and

ingenious idea in basic science could bring far more and longer-lasting support to the University.

This Emeritus continues to believe that there are unmet needs and possibilities for a Junior-Year-Abroad (JYA) program for our math and science students who do not have the language skills to participate in Brown's excellent total-immersion programs in Paris, Bologna, and Tübingen. [Perhaps it might be remarked that, while serving as Director in France of Brown's Office of International Programs (OIP), 1986-92, this author had the partial responsibility for writing most of our accords with the Parisian universities to which we now send our many JYR students.] These are fine programs and should not be touched; but they do nothing for the majority of math and science students who enter Brown with no thought of foreign-language preparation and who, a semester or two later, find themselves excluded from the possibility of a JYA in any of the three cities mentioned above.

Extensions of our current OIP programs to include Brown undergrads who do not have sufficient language preparation to sit cheek-by-jowl with other European students are certainly possible, and should be tried; but here the author has and continues to run up against the obstruction of lower-level administrators at Brown. Why should they bother trying out something new that means more work for them and might not even succeed? Why? Because – to speak bluntly – it is perhaps more important for math and science students to get a taste of international life than for students of the arts and humanities. It is members of the former group who, at some time in their careers, may be asked to design new weapons of destruction, not members of the latter; and then every bit of international understanding can be of immense value. It is members of the former group who will have the ability and opportunity to take part in international collaborations for the clear benefit of mankind, such as the new ITER collaboration to construct a working fusion reactor, which will be built and begin operation in France during the next decade.

JYA programs that are beneficial to our math and science students can be devised that allow those interested to follow, in proper sequence, their major and minor (theoretical) studies, and with quality instruction equal to that which they receive at Brown. In fact, such programs could be offered abroad by Brown to interested students of other colleges and universities, thereby filling a nationwide need, and at the same time opening and developing a new financial resource for Brown. No other university in the country offers such a JYA Program, wherein a few interested math and science juniors from each school would each year come, e.g., to Paris and there receive Brown-level, quality instruction, along with on-the-job language training and the concomitant absorption of a new culture. A program of this form can be created and operated to the benefit of Brown and math and science undergrads everywhere; and all that is required is the cooperation of a handful of Brown deans. A positive word from them from our President could accomplish wonders.

To close on a happy note: We retired Professors, who continue to perform research and oversee graduate students at Brown, and who occasionally teach when needed by our departments, have an almost ideal existence. Our financial needs are fairly well taken care of by TIAA/CREF, and only age and infirmity can bring to an end the studies in

which we find so much value and pleasure. In brief, an active retirement at Brown is perhaps the most perfect form of professorial life...and after five happy years, this author's only regret is that it cannot last forever.

FACULTY BULLETIN
INFORMATION FOR CONTRIBUTORS

GUIDELINES FOR SUBMITTING ARTICLES:

We hope to receive articles for the Spring 2006 issue of the *Faculty Bulletin*
by:

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Text should be submitted electronically via e-mail attachment to:

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Essays should be approximately 1,000 words (two to three pages). If space permits, longer papers will be considered.

Articles and/or questions should be directed to:

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