

**FACULTY BULLETIN
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EDITORIAL INTRODUCTION

Peter Wegner, Editor
Peter Richardson, Coeditor

This Spring/Summer issue of the *Faculty Bulletin* begins with an article by former Provost Bill Simmons (first of three, planned) on Academic Freedom. This is indeed something we have cherished without always being clear what it meant, and likely without a sound knowledge of how it came to be an issue in the 20th Century, and Bill reminds us of the background and some modern challenges. This is followed by a brief report from the ElderBears, Brown's retirement association presided over by Lewis Lipsitt.

Rick Fleeter - like Bill Simmons, a former Brown undergrad - provides the first of four articles in this issue bearing upon our curriculum; in this article, questioning the engineering relevance in the Engineering Curriculum, with his experience as a former CEO of an aerospace company and as an adjunct faculty member as a relevant basis for his views. Joseph Pucci, of Classics, discusses his department's efforts at Outreach with a view to encouraging the best applicants to be aware of the curriculum and the faculty here. Ivo Welch describes the goals of the interdepartmental program on Commerce, Organizations and Entrepreneurship, which is very timely as some faculty will likely find interest in this among some of their Freshman advisees in the Fall, and success for the program will require widespread understanding among the Faculty of the goals and details of its program. Peter Richardson, who participated in the discussions at the time the New Curriculum was shaped and enacted, and had experience teaching at Brown before the change - and other experience at his alma mater in a very different grading system - asks if the time is ripe for a further change at Brown, in line with implementing the New Curriculum with a revised grading system in particular. Finally, Peter Wegner picks up thoughts about a lifelong interest in philosophy which began while he was an undergraduate at London University. He reflects on his current perspective after many years in the US, at Cornell as well as at Brown, focusing on Bertrand Russell's *History of Western Philosophy* and current questions about the status of philosophy and its contribution to society.

As usual, we invite Faculty members to submit their thoughts as articles, especially to inform colleagues and to liven our ongoing debates about how we do what we do, for future issues of the *Faculty Bulletin*.

AMERICAN ACADEMIC FREEDOM AND TENURE

William S. Simmons
Department of Anthropology

Life tenure for judges has kept many a poor judge on the bench but it has protected many more just judges from removal. Tenure for teachers rests on the same foundation (Henry M. Wriston 1940: 340).

This piece and two others in subsequent issues of the *Faculty Bulletin* will address concerns within and outside academia about the viability of academic freedom and academic tenure. In the first I present a brief introduction to the topic and to the original AAUP-endorsed concept of academic freedom. In the next I will outline some contemporary criticisms of and threats to academic freedom and tenure. The third will identify efforts to rethink the existing AAUP-endorsed concepts.

Although academic freedom is an old concept that varies historically and geographically, it is generally understood to mean freedom of the professor to teach and to do research in his or her area of expertise. Academic tenure is seen as a guarantor of academic freedom because it puts the instructor beyond the easy reach of administrators or governing boards. These concepts took American shape in 1915 with the American Association of University Professors' "Declaration of Principles on Academic Freedom and Academic Tenure." This 1915 Declaration of Principles provided the framework for the joint AAUP and AAC (now AAC&U) discussions that led to their present policy document, the "1940 Statement of Principles on Academic Freedom and Tenure," which was subsequently endorsed by over 170 learned societies and educational associations.

The decades-old justifications for academic freedom and tenure are being tested today by a barrage of influences. Jonathan Cole, who was provost and dean of faculties at Columbia University, claimed recently that "faculty members are witnessing once again a rising tide of anti-intellectualism and threats to academic freedom" (Cole 2005: 5). Amy Gutmann, president of the University of Pennsylvania, warns of critics of higher education who "are promoting legislation to regulate professors...[and thus] are violating the spirit of academic freedom and threatening to poison the collegial atmosphere of robust and respectful debate" (2005: B3). Lee C. Bollinger, president of Columbia University, perceives that we are now "in a time of enormous stress for colleges and universities...a notion we hold dear—academic freedom—is at the center of contentious debates on our campuses" (2005: B20). According to a survey by The Chronicle of Higher Education: "If the majority of college presidents had their way, tenure would become as obsolete as the slide rule" (Fogg 2005: A31).

In an essay entitled "The Structure of Academic Freedom," Robert Post, Professor of Law at the Yale Law School, observes that "we have no difficulty appreciating the importance of academic freedom as a shield against the retribution typically inflicted on those perceived to be disloyal. But we do not easily remember the intellectual framework that defenders of academic freedom were forced to construct in order to invent this

shield” (Post 2006: 62). Guided by Post’s essay, I turn to the historical context in which a committee of American university professors found it necessary to construct this intellectual framework.

In 1907, Charles William Eliot, President of Harvard University, commented that numerous boards of trustees of American colleges and universities “have everything to learn with regard to academic freedom....[they] exercise an arbitrary power of dismissal....[and] exclude from the teachings of the university unpopular or dangerous subjects” (Eliot 1907: 7). In the years preceding and following Eliot’s address, many faculty and some presidents feared that those who advocated economic reform or criticized the social order would be summarily dismissed. Incidents at respected institutions demonstrated that faculty could be fired at-will by trustees for expressing controversial views.

The newly-formed American Association of University Professors created the Committee on Academic Freedom and Academic Tenure and charged it with removing this landmine of employment at-will from the working conditions of their profession. The committee included thirteen distinguished professors, one of whom, Columbia economist Edwin Seligman, was chair, and another, Johns Hopkins philosopher Arthur O. Lovejoy, was his primary collaborator. The distinguished sociologist and political scientist, professor James Quayle Dealey, represented Brown University.

The committee did well. Post describes their 1915 Declaration of Principles as the “first systematic and arguably the greatest articulation of the logic and structure of academic freedom in America” (Post 2006: 64). David Rabban of the University of Texas School of Law claims that the “relative autonomy currently enjoyed by professors in many American universities rests in substantial part on public acceptance of the epistemological justification for academic freedom expressed in the 1915 Declaration” (Rabban 1998: 1388).

What was this justification? The committee defined the task practically (in terms of social function and not in terms of individual rights)--how to protect the academic calling from political retaliation by trustees under employment-at-will. The argument required clarification of three topics: 1) the basis of academic authority; 2) the nature of the academic calling; and 3) the function of the academic institution.

With regard to the basis of academic authority, the committee noted that boards of trustees usually control American institutions of learning and determine the degree of academic freedom to be allowed. Such institutions vary according to whether they are a) private or proprietary trusts or b) public trusts. A proprietary school or college is designed and endowed to propagate a specific doctrine that the donors have prescribed. Its mission is not unrestricted research but to support the opinions of those who furnish the endowment. Trustees of such institutions are accountable to the terms of the donor’s mandate and academic freedom is not an issue. Most institutions of learning are public trusts and their trustees are accountable to the public. Boards of public trusts (which would include the boards of state and private colleges and universities) “cannot be

permitted to assume the proprietary attitude and privilege [and]... have no moral right to bind the reason or the conscience of any professor. All claim to such right is waived by the appeal to the general public for contributions and for moral support in the maintenance, not of a propaganda, but of a non-partisan institution of learning” (AAUP 2001: 293; see also Lovejoy 1930).

According to the committee, the academic calling and the interest of society at large require above all else prolonged and specialized training and dedication to the search for truth without any motive other than one’s scientific conscience and a desire for the respect of fellow experts: “the proper fulfillment of the work of the professoriate requires that our universities shall be so free that no fair-minded person shall find any excuse for even a suspicion that the utterances of university teachers are shaped or restricted by the judgment...of inexpert and possibly not wholly disinterested persons outside of their ranks.” (AAUP 2001: 294). These considerations clarify the relationship between university trustees and members of university faculties—faculty are the appointees but not the employees of the trustees. A faculty member is responsible “primarily to the public itself and to the judgment of his own profession” (ibid. 295). As noted by Post, the “core principle of academic freedom may be found in this remarkable passage” (2006: 67):

the relationship of professor to trustees may be compared to that between judges of the federal courts and the executive who appoints them. University teachers should be understood to be, with respect to the conclusions reached and expressed by them, no more subject to the control of the trustees than are judges subject to the control of the president, with respect to their decisions; while of course, for the same reason, trustees are no more to be held responsible for, or to be presumed to agree with, the opinions or utterances of professors, than the president can be assumed to approve of all the legal reasonings of the courts (AAUP 2001: 295).

Academic institutions have three functions--research, teaching, and service, all of which attest to the necessity of academic freedom. With respect to research the committee noted that in natural science, social science, philosophy and religion, “the first condition of progress is complete and unlimited freedom to pursue inquiry and publish its results. Such freedom is the breath in the nostrils of all scientific activity” (AAUP 2001: 295). Regarding teaching they claimed that to be effective, students must perceive that faculty are expressing themselves fully, frankly, and courageously and are not a repressed or intimidated class or spokespersons for extra-mural interests. Similarly, society requires the intellectual integrity that academic freedom provides in the training of experts for public service:

the scholar must be absolutely free not only to pursue his investigations but to declare the results of his researches, no matter where they may lead him or to what extent they may come into conflict with accepted opinion. To be of use to the legislator or the administrator, he must enjoy their complete confidence in the disinterestedness of his conclusions (ibid. 296).

Judgments of scholarly merit and the power of determining when individual faculty members have departed “from the requirements of the scientific spirit and method” should be vested in bodies “composed of members of the academic profession.” The committee found it “unsuitable to the dignity of a great profession that the initial responsibility for the maintenance of its professional standards should not be in the hands of its own members” (ibid. 298). Thus the necessity of peer review in determinations of merit.

Faculty classroom utterances “ought always to be considered privileged communications,” that is—not for the public at large, because they “are often designed to provoke opposition or arouse debate” (ibid. 299). Thus professors should not be vulnerable to literal misinterpretations of teaching strategies.

In their extra-mural utterances, professors should not be deprived of the “political rights vouchsafed to every citizen” but are nevertheless “under a peculiar obligation to avoid hasty or unverified or exaggerated statements.” Subject to these restraints, scholars should not be barred “from giving expression to their judgments upon controversial questions” and their freedom of speech should not be limited to questions falling within their areas of professional expertise (ibid. 299).

Finally, to safeguard the freedom of inquiry, “the tenure of professorships and associate professorships...should be permanent (subject to provisions...given for removal upon charges)” (ibid. 300).

The 1915 Declaration of Principles has served well for almost a century. In their concluding paragraph the committee speculated on the future of their calling: “It is conceivable that our profession may prove unworthy of its high calling, and unfit to exercise the responsibilities that belong to it.” And they added confidently: “But it will scarcely be said as yet to have given evidence of such unfitness” (ibid. 300). This combination of professional self-reflection and confidence in the importance of their calling succinctly conveys the esprit of the authors of the Declaration of Principles.

The next article on criticisms of and threats to academic freedom and tenure will focus on recent developments including David Horowitz’ Academic Bill of Rights and its offspring, the Student Bill of Rights, controversies related to faculty and presidential utterances, and the influence of corporate and federal constraints.

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THE EMERGING ELDERBEARS

Lewis Lipsitt, Peter Richardson, Peter Wegner

The Society of ElderBears has developed a feeling of permanence, not unlike that of a four-year old attached to its parents and ready to defend its position in the family.

In its short life, the ElderBears have explored ways to make itself useful and loved. To make ourselves interesting, we have also developed a stance, projecting our presence as a significant force in the evolution of the University under whose roof we flourish and with whom we have a historical relationship. As retirees we continue to want a piece of the intellectual action of the university. Our colleagues who are senior administrator retirees retain a substantial and continuing organizational talent; and many stand ready to continue their service to the University. Finally we have members who are not yet retired but who take an abiding interest in retirement issues and wish to be part of us. We welcome all of these, and want especially to attract pre-retirees, who have yet to partake of the special benefits of the retiree -- and to discover the additional burdens they will bear once they retire.

We created the ElderBears in order to encourage an increasingly collaborative and collegial association of retirees which would provide continuing service to the University community and serve as a watchdog organization, looking out for our mature colleagues, their privileges and opportunities, and their employee benefits. We have already done some of this, and wonder why such an organization was not formed at Brown before now. Other universities have elaborate centers for retired professors, with their own space on campus, with regular lectures, art exhibits, musical events, rooms for discussion and mentoring, modest work spaces with computer equipment and other amenities for those faculty members who have had to give up their office space in their department, and a modicum of secretarial service. Yale has lavish space in an elegant building, with an emeritus director (pro bono) on campus, conveniently located and equipped for an aging population of professors who wish to participate. (A Yale alum provided a \$10,000,000 gift to the university to launch and support this facility.)

Without assigned space, and by dint of much hard work, we have launched a number of initiatives at regular meetings of the ElderBears Executive committee, which comprises about 15 retired faculty members, former administrators, and pre-retirees. We are grateful to the office of the Dean of the Faculty for helping to support these meetings, as well as sponsoring our speaker program. The Faculty Club too has been generous.

The ElderBears have had an active year with several speakers, beginning in the Fall with former Provost Maurice Glicksman's talk on "The University in the Twenty-First Century," which focused on the shifting roles of faculty, students, governors and administration in sustaining the trust of society, the protection of knowledge, and the enhancement of understanding. Our Spring speakers, who attracted thoughtful and inquisitive audiences, included biology professor Ken Miller, who spoke on "Evolution vs. Intelligent Design" and Gordon Wood, our noted historian, who provoked a lively

debate on the Constitution, delighting us with the depth of his knowledge and understanding of its political and philosophical sources. Extensive discussion periods with the speakers are the hallmark of his series, and we would encourage attendance by non-retirees at future programs.

The Elderbears' Executive Committee, conscious of its independent status, while ever loyal to Brown, has focused primarily on issues important to its current membership, largely though not exclusively comprising retired faculty and senior administrators. Yet there exists an under-served group at Brown, composed largely of regular faculty not yet retired, most of whom need much more consideration of issues relevant to the period of approaching retirement, in order to make a better transition than merely switching off the office light for the last time and promptly losing much of their connectedness to the community of scholars. While friendly faces in the Benefits Office and other departments in Human Resources do provide various types of information and links to planning services such as those furnished by TIAA/CREF and Fidelity, it seems that many not-quite-retired faculty would benefit from a broader preparation for and contribution to retirement and especially for what retirement can constructively involve.

This need for preparation stems in part from the collegial bounds that naturally evolve among a broad group of individuals, all of whom have participated in the transformation of the university during the past half-century from a regional institution with rigid separation of its men and women students, into a national and international intellectual enterprise. After a widely successful uphill drive, merely switching off the light is not enough. As one step towards developing a better retirement environment, faculty (including representatives from the ElderBears) have proposed the formation of a Faculty Committee to deal with retirement issues. We hope this initiative will be put before the Faculty and approved in the Fall.

One contributory initiative could be to publicize achievements of retired faculty and senior administration; and we are seeking to assemble records of these achievements so that Brown can report on them during this period of a major campaign, as they are likely to be of interest to many alumni who were taught by these faculty as well as by younger colleagues who are still active.

Next year we look forward to a blossoming of further activities organized by and for the ElderBears, and to the evolution of a vision of how retirees can keep their lights turned on. We hope this vision will be fueled by current faculty as well as by retirees, and that we shall become, with substantive preparation, focus and leadership - a more active participant in and contributor to the future growth of Brown University.

ENGINEERING RELEVANCE INTO THE ENGINEERING CURRICULUM

Rick Fleeter
Adjunct Associate Professor of Engineering
(Brown AB '76, PhD '81)

A paper in American Scientist about new thinking on changing colors of autumn leaves changed my thinking on the Engineering curriculum. We all learned that fall colors emerge as leaves die, and we might remember being told that as chlorophyll decreases, the leaf's underlying pigments are exposed. The logic is simple, seems to agree with a notion that a plant would conserve its resources by ceasing production of chlorophyll before leaf shedding, and compelling in its simplicity – that absent green chlorophyll, we'd expect to see the colors of the underlying leaf structure.

Logical, simple, widely accepted, apparent, and also false. As sunlight decreases, chlorophyll becomes inefficient, and the plant retools its chemical factory, its leaves, investing resources in production of colorful phytochemicals that protect the plant from disease during winter hibernation. A more compelling paradigm thus replaced my old one. Autumn's reds and yellows are analogous to the colors in apples, bell peppers, and melons, which nutritionists teach us are from molecules which protect the plant, and by extension us by consuming it, from oxidative damage and disease. And anyone who has torn a green leaf in their fingers during midsummer could easily notice – there is no bright red or golden underlying structure there. Drying a green leaf does not render it maple leaf red. How immediately and completely simple observation and rethinking displaced a solidly entrenched status quo!

The facts I observe in 25 years as a working engineer, including 18 as CEO of an aerospace company, and 10 years as adjunct faculty in the University of California system and now at Brown are no less obvious than the colors of autumn, and summer, leaves:

- the menu of coursework we provide students has become increasingly uncorrelated with the problems engineers face in their careers, with that correlation further decreasing as they mature professionally;
- at best we struggle to compete with other fields for the best students. Engineering enrollment starts low at the Freshman level, and proceeds steadily downward;
- the practice of engineering has fundamentally changed because of factors including our reliance on digital modeling and off the shelf software solutions, and because of outsourcing.

To revive a buzzword from the '60s, our curriculum has become, for most of the students we believe we are serving, irrelevant.

In the '50s, an engineer might have needed to design an oscillator, amplifier or (vacuum) diode switch. More typical contemporary electrical engineering work is to manipulate

millions of such devices, virtually ignoring how each is physically realized, focusing on the software tool enabling their configuration – say within a field programmable gate array (FPGA). The engineer has sacrificed intimacy with some fundamentals to move up the complexity hierarchy. Similarly, rarely (in fact never) did I create a spacecraft attitude control algorithm beginning with F=MA. Controls analysis, if done manually at all, leverages the abstraction of Fourier’s “S-plane” (or Z-plane in the digital implementation), and now has moved beyond even that abstractive level, working via e.g. Matlab simulation, allowing the engineer to incorporate multiple, often non-linear time-varying effects such as thermal distortions, solar photon pressure, gravity gradient effects, propulsive torques and magnetic field interactions.

Jobs in analysis, even abstract and machine-enhanced complex analysis, along with design of circuits, components, parts and structures, and digital modeling like computational fluid dynamics, are increasingly outsourced and vanishing from US industry, as have garment construction, code writing, consumer tech support and graphics including page layout for books and periodicals. Yet we spend most of our precious classroom and lab time teaching students to do jobs they will never do, and don’t aspire to do. The dangerous, but generally instructive, practice of listening to our (undergraduate student) customers will lead us to a modified curriculum with reduced emphasis on fundamentals, making room for experience with the complex problems which lead to insights and solutions that can survive in human societies.

Our students know intuitively their future is in solving larger scale, more complex problems which must admit political, economic and sociological considerations, along with the strictly technical, operating within a more global network of interactions and effects.

- In my Freshman Seminar, one student suggested a scheme he found while researching his term paper, for using zinc as part of an ionic solution in water to facilitate hydrolysis, as a potential alternative to fossil fuels. Other students wondered: even if it proved thermodynamically attractive, might we commit to his new, clean solution, only to strain the world’s zinc resources, resulting in geopolitical zinc conflicts analogous to today’s petroleum wars, while simultaneously taxing and polluting fresh water resources, already under stress to satisfy existing demands from agriculture, personal consumption and industrial processes, simultaneously driving up zinc raw materials and disposal costs to eventual parity with the cost of conventional energy alternatives.

No analyst equipped with the latest design tools, sitting at the other end of an internet connection, could help us interact our way to an evaluation of this solution, though she might provide some of the raw material for our thinking in the form of the thermodynamical and chemical behavior of hydrolysis of our aqueous zinc solution.

- At my company, which builds miniaturized spacecraft for science, defense and commercial clients, we hire engineers for work in design of circuits, structures, and software, and for thermal, structural and dynamic analysis of space vehicles. Those who:
 - best relate a problem to an existing solution or tool;

- quickly exploit that tool to a trial solution;
- apply to that process the physical judgment to avoid over-analysis and unproductive avenues of problem attack;
- possess intuition to identify likely outcomes through judgment based on experience are the leaders who architect how our work gets done.

Then there are engineers who make a difference beyond the mechanics of their own group - by finding solutions which address not just, say, a guidance problem, but an overarching architectural or mission objective. They convincingly communicate, to the rest of a diverse project team and to the client, how a novel guidance solution can address complex systems problems across a range of disciplines - power, thermal, communications, structure, and ultimately cost and risk. These individuals are the ones who will go on to architect the next generation of space systems and fundamentally redefine our business and the ways our clients use space – they, the rare few, who are building our future.

Brown works hard to attract students we and they themselves hope will lead their fields in creating the new worlds of tomorrow. We then demote them to mastering functions already outsourced to skilled workers in developing nations. My courses in grappling with the problems of introducing new technologies to the mainstream of society and commerce, and in design of complex systems, began in part at least as unabashed attempts to provide a tantalizing glimpse of the executive engineering roles many students aspire to. We hoped they would motivate students to enroll in engineering, and stick with it – to increase the population of freshman engineers and suppress defections. They have in a small way succeeded, but not only as planned. They made explicit to me that Engineering today is less about Navier-Stokes equations and Carnot cycles, and more about complex systems and the interaction of people and our societal institutions with technological solutions.

How this lesson translates into curricular change is the conversation we should be pursuing within Engineering, to engage more students more fully, to propel Engineering at Brown to a leadership position in developing society's most capable engineers, and to best prepare students for the challenges they will face over careers which may span 5 decades or more. My own experiences suggest a few possibilities:

- Analysis education not for facility but for executive level physical understanding necessary in tool selection, result interpretation and evaluation and effective management of analysts;
- Compression of fundamental engineering science (e.g. fluid mechanics, heat transfer, vibration, thermodynamics, electromagnetism...) to make room for complex systems challenges in every semester beginning freshman year;
- Case study approach to engineering to provide a rich experience base upon which engineering judgment can develop;
- Mandatory semester plus adjoining summer abroad including rotations through engineering settings in several societies and organizations;

- Elimination of all but bare minimum course prerequisites to encourage cafeteria style selection of the broadest range of topics, and to facilitate integration of engineering courses with all of the University's students and course offerings;
- Mandatory course or work (internship) experience in policy or industrial institutions engaged in matching technological solutions with societal and commercial needs and markets.

SOME THOUGHTS ON OUTREACH

Joseph Pucci
Department of Classics

With the assistance of the Admissions Office, for the past decade I have conducted an outreach to high schools across the United States and selectively in Europe. The goal of this outreach is to increase the number of applicants to the College who have a stated interest in Classics, with the ultimate aim of increasing the number of concentrators in the Department. To that end, in the fall of each academic year, prospective applicants are identified, either through initial contact with the Admissions Office or the Department of Classics, or through the normal visits Admissions makes to high schools around the country. A list of prospective students is then drawn up, with the goal of making an initial pitch for Brown—and Brown Classics. That pitch is made in the middle of October of each academic year, when I send out in the name of the Department a letter to all identified students, encouraging them to apply to Brown and educating them about the advantages of the Department. I include in this letter a list of current course offerings and my contact information.

I send out generally about 500 such letters. Some will not bear fruit. But in a normal year I will receive close to one hundred email enquiries, many of which will result in multiple subsequent email queries. In addition, roughly fifty or so students will take the initiative to visit campus. Both kinds of contact are important. The goal is to identify the best students and to ensure that they apply to Brown. Students who visit the campus are “hosted” by the Department. Their visits are many times facilitated by a member of the Classics Departmental Undergraduate Group (DUG), which has a liaison assigned especially for outreach. This person helps arrange housing for the visitor with a classics concentrator or classics-oriented pre-concentrator, while I or one of my colleagues makes sure to meet with the student and arranges for a class visit. The in-person visits are reported to the Admissions Office in the form of a letter, which can use its contents (or not) in their assessments of students.

Many of the contacts in the Fall attend to students applying early to Brown. A second wave of emails and visits occurs after the early-decision cycle is completed in December, and continues through early March, when students tend to sit back, so to speak, and wait to learn whether or not they have been admitted to Brown.

A second aspect of this outreach attends to the period after students have been admitted. For early-decision students, who agree to commit to Brown if they are admitted, the stakes are not as high from the Department’s perspective, for there is no sense in which Brown is competing for the allegiance of these students. Still, I receive from Admissions in December a list of admitted early-decision students and I contact them all, offering the Department’s congratulations. Since I have met many of these students already as visitors or via email, I always make sure these emails are personal rather than pro forma.

More important is the contact made in April with admitted students for whom we are often competing with other top-tier schools for allegiance. Once again, I email these students, recollecting visits or prior email contact as necessary, and urging these students to consider Brown, to visit again if possible, to participate in “A Day on College Hill” (ADOCH), and to be in touch as necessary.

ADOCH is a crucial component in this process, for it is often a chance for students to see Brown for the first time or to return to campus to confirm their initial feelings. Once again, the Department makes itself available to admitted students in the form of conversations, class visits, and hosting overnight stays. The Classics DUG has a liaison assigned specifically to ADOCH, too, and that person mans the Classics table at the academic fair that is the centerpiece of ADOCH. All in all, the Department has contact with several hundred students at this point in the admissions process, either through emails, visits, ADOCH, or some combination.

One final aspect of this outreach occurs long after students have made their choices. I save the contact information from all the queries and visits this outreach generates and file this bulk of materials away. But two years later, in the spring of the year in which sophomore students must declare their concentrations, I return to these notes, emails, cards, and letters. I cull from the mass of paper a list of current Brown sophomores who may well be interested in concentrating in classics and with whom I was in no little amount of contact just two years prior. Many times I have had these students now in class and many times I know already that such students will declare for classics. But a fair number of the time, students have fallen by the wayside—at least in my perspective—and the fresh contact yields often surprising results. Sometimes, the brilliant student who came to Brown has abandoned classics; but just as often the student who thought she might do classics but wasn’t sure is now thrilled to be back in touch with me, and I find her in my office the next day filling out concentration forms.

When all is said and done, we lose many students that we had hoped to have with us, but we keep a good number, too. The matriculation rate of students who have a declared interest in Classics is always above the all-college matriculation rate, and over the past decade our numbers of concentrators have increased by about 33% (going from around 50 in 1996-97 to around 75 currently). The number inches up each year. We hope to reach 100 concentrators before the next decade of our outreach is up.

We continue as a Department to attract the very best undergraduates. Part of that is the natural appeal of Brown. But I’d like to think that part of it is owed to the Department’s hard work in identifying students, encouraging them to apply, and helping to make sure they know they are welcome once they are admitted. In two of the last three years Brown has had a Rhodes Scholar and both have been classics concentrators—who were contacted as high school students under this program. I’d like to think that, along with hard work, luck and maybe a bit of coincidence, there’s some connection to be made

between the ways these students began their time at Brown and the ways it ended—in the warm attentions of a Department that cared about them before it even had to.¹

¹ Obviously an outreach of the kind I have described requires a group effort on two fronts. Brown is fortunate to have an Admissions Office of incomparable talent, energy, and collegiality, and all of its multiply-talented staff have assisted me at one point or the other over the past decade, but especially Panetha Ott. I am no less in debt to my colleagues in classics, especially Pura Nieto, who have made a Department that shines on paper appear even brighter in the experience.

A NEW CONCENTRATION: COMMERCE, ORGANIZATION, ENTREPRENEURSHIP

**Ivo Welch, Department of Economics
Academic Director of COE**

As many of you may have heard informally, Brown now has a new concentration, called *Commerce, Organizations, and Entrepreneurship* (COE), which is a joint venture of three departments, economics, sociology, and engineering. As the academic director of COE, I would like to share some of our thoughts with you. Please forgive me for being a little disjointed, but there is lots of ground to cover.

Background

Let me begin by telling you what we are not. We do not want COE to become a business school or business school substitute. We unequivocally believe that Brown should be a research university, engaged in intellectual pursuit, and not be a vocational training program. We are firm believers in the liberal arts. We actively encourage our students to take most of their courses outside COE.

So, then what are we? Our goals are both evolutionary and revolutionary.

- They are evolutionary, in that Brown already has a long tradition of courses that were defacto COE. We have offered courses on subjects as financial economics, accounting, entrepreneurship, industrial and non-profit organizations, and organizational structure. (The COE concentration replaces the business economics and PPSO concentrations.)
- They are revolutionary in that Brown is now trying to transform what used to be a hodgepodge of courses into a center of academic excellence. We want top researchers and teachers, not just a rotation of adjuncts and lecturers, to engage our students.

We believe that COE-related areas are among the most interesting social and technological phenomena today, and that research and teaching about them is highly rewarding. We want to achieve intellectual excellence at world-class levels.

Internal Success: Curriculum

We are still learning as we go. Our set of required courses is not set in stone, but for now, we are requiring COE concentrators to complete courses in math and statistics, two courses in technology and entrepreneurship, two courses in organizations, and two microeconomics courses as a common base. Thereafter, COE concentrators can pursue specializations in either economics, engineering or sociology.

But we do not want to measure our curricular success by the number of COE concentrators. Instead, we seek to offer superb COE courses that draw a large number of

students. We want to attract Brown students, who want to major in unrelated fields in the liberal arts and sciences, but who (perhaps fearful of their later job market prospects) have bounced around taking many business related courses in odd places without clear rhyme or reason. We want these students to learn about the commercial world in our COE courses, both for its own sake, and for aiding them in understanding the markets and competitive job environment that they will face after graduation. We believe it is our COE courses that can set the background to allow our students to comfortably pursue their passions *outside* of COE.

We hope COE will be intellectually open-minded. Our long-term goals are to involve many other departments in our venture. There are interesting commerce related research issues in areas outside our three initial departments---in other social sciences, in the hard science, in history, in archeology, in art and design, in languages, and so on. So, if you are a professor who wants to teach a course or engage in research that you believe has a direct commerce-related link, then please get in touch with Maria Carkovic: please see Summary for a description of her current position in the Program. (But please do not be disappointed if such our broader engagement won't happen overnight. We are still in the process of laying the basic foundations.)

Internal Success: Faculty Hiring

Our principal goal right now must be to hire world class scholars. Any COE hires will need to be approved not only by the departments themselves, but also by the COE committee. Although research stature will be our principal hiring criterion, we expect any new faculty to be engaging teachers. It is encouraging that our current COE offerings are already receiving good student reviews. More importantly, we are in the process of raising the academic rigor in our classes. But we also must beg for patience. Personnel-wise, we are stretched very thin, especially given our lofty goals. Many of our courses are not yet staffed by research scholars and some do not yet have the intellectual rigor that we are striving for.

It will not be easy for us to attract "the best" COE scholars, because the market for COE faculty is very competitive. Many of our candidates choose among simultaneous competitive offers from five to ten top universities of similar stature as Brown. (If we succeed with one out of four offers, it would be a success.)

In this context, it might surprise you to hear that our three departments have not even hired a single new scholar on a COE line yet. If you have read the Brown bulletins, you may have even noticed an unusually large number of hires in economics. (I was one of them last year.) However, the economics department remains small not only relative to student enrollments and peer institutions, but also relative to its historical size. Indeed, economics' hiring has also barely kept up with retirements and departures, so the economics department has not grown in number. But fortunately, the replacements have worked in COE's favor, because some of our new economics replacement faculty--such as myself and Ross Levine--have COE interests as part of their core research agenda. Sociology and engineering are similarly stretched to put together their COE course

offerings, and are in great need to hire at least one senior COE-related scholar to shepherd their respective key COE courses and research agendas.

PS: I want to note surreptitiously that economics has not been as successful and imperialistic in garnering resources, as campus-wide rumor has it. I figure this is a good spot.

External Success

It is true that we have a large number of dedicated Brown alumni that are attracted by our new venture, and who (we hope) will contribute to it, but we will not allow the tail to wag the dog. Our principal goal is academic excellence and excitement, not fund-raising.

But there is one important external aspect, perhaps seemingly mundane, that I believe we must not overlook (and I am now speaking for myself): I believe COE is crucial for Brown's long-term prosperity. Brown competes for the best students against Harvard, Yale, and Princeton. In turn, when our Brown students receive their degrees, they are competing against graduates of these institutions. And these institutions have all begun to aggressively hire faculty, and institute courses and programs into their undergraduate liberal arts education that will allow their undergraduates to know enough about external commerce to succeed. I believe that the presence of good COE courses is important for us to compete in the future for attracting first-rate applicants and recruiters---for Brown to remain a first-tier university.

Summary

This year, we made our first steps. We have hired Maria Carkovic as our new COE director. Maria not only earned her Ph.D. in economics from UCLA and published in top-rated economics journals, but she was also the top teacher at the Carlson School at the University of Minnesota. She is a scholar and a gentle-wo-man. We are very excited to have her here. She is the main executive in charge of COE and will hopefully bring order to chaos. If you have any questions, Maria or I will try to help.

Let me close with the observation that our Brown students are every bit as good as those at Yale, Harvard, and Princeton, and that there is no reason why our COE offerings and departments cannot be just as good. With support from our president, our provost, and our colleagues (both inside and outside of COE), we hope to make COE a beacon of academic excellence that will benefit our institution.

CURRICULA AND GRADING SYSTEMS: TIME FOR ANOTHER CHANGE?

Peter D. Richardson

**Division of Engineering and Department of Molecular Pharmacology,
Physiology and Biotechnology**

Part of the late-1960s idealism behind the New Curriculum at Brown was a desire to stimulate more intellectual exploration by undergraduates, while still having them each fulfill some specific concentration. The grading system was simplified from A B C D E F, with every grade recorded on the transcript (and for a while with an arcane system of pluses and minuses which could cancel each other out and had to be achieved with at least a certain net number to alter the GPA), to A B C NC, with NC's being retained only on the internal transcripts, and the additional opportunity of S grades which had to be at least equivalent to a C. Additionally, phys-ed and swimming requirements were dropped, as was the requirement of studying a foreign language. The intent was to encourage some intellectual exploration, with the promise of failures in those courses not tarnishing the transcript. Worry less about grades, focus more on intellectual content. But no mission statement was included, although the temptation existed. One day a passage from Alfred North Whitehead was voted in; in the next day of debate it was voted out again. The New Curriculum is, however, more than 30 years old.

An entirely different approach to diminishing grade-anxiety was an aspect of my undergraduate experience, which in my opinion was way ahead of the New Curriculum at Brown before that curriculum was ever devised. For example, while we students were encouraged to broaden our studies outside our selected majors, no attempt was made to examine our performance in such studies. For that matter, we did not register for courses as students do here at Brown and elsewhere: we registered for year-end exams, in blocks. If there was laboratory work associated with the exam subjects, or design projects, that work had to be completed satisfactorily before we could sit for the exams; and there were no "Incompletes" available. The exams were administered in series, day by day at the end of the academic year, starting with two three-hour exams on a Friday, then two more on the following Monday, two more on the following Tuesday and so on until all the topics for that year were completed. No aids, such as books or notes, could be brought to the exams, and only simple calculation aids. Obviously one had to be prepared for all the annual exams before any began. The exams were not set and graded just by our instructors; outside examiners were also involved. There were no make-up exams. None of our work, including that for the labs, was graded by graduate students, let alone undergraduates more senior to us.

Those of us that passed all the exams for one year did not receive any notice of individual grades; we just received a printed list of the names of all in our cohort who had passed: the "Pass List". We were told that students who failed were individually notified of the subjects in which they had failed, or if they had failed to pass with a sufficiently high average, which was set higher than the minimum for any single course to be passed. In the final year, there was a variation from this pattern: we were told that for half the credit

in two of the three terms we had to complete a minimum of six courses, and if we took more we could be examined in them all and our six best would be counted. Along the way, some students simply had to repeat a whole year, and it was not uncommon: in the group of 44 matriculants I joined in my concentration as a Fresher, I recall 13 of us graduated together without repeating a year. The message there was that satisfactory performance on each year's work was an essential prerequisite for the following year, and the course content did indeed require that. At the very end we would be notified in print of the overall grade we had accomplished, the Pass List having our names divided into two classes of honors, or a pass degree. The List was received some weeks after the Final Exams. There were no grade-point averages. There were no transcripts, either; we each received a form letter from the Head of Department of our major which outlined our program of studies, including course topics and a list of electives, and stated that we had satisfied the examiners. There was no way, on a course-by-course basis, to grub for grades, and by the time you found your honors/pass rank it was all over.

Brown students may shudder at the thought of such a system. It certainly lacked any hand-holding or en-route encouragement on a week-by-week, month-by-month or even season-by-season basis. So what was the implied message about knowing if you were studying effectively? Basically, that each student had to develop individually a sense of when they understood each part of the body of knowledge needed, and could retain it to year's end for the exams well enough to apply it. This passed a lot of responsibility on to the students. It required self discipline; and there was help. One could go to the bookstore and buy copies of previous years' final exams, on which to practice. Weekly problem sets were distributed in the sciences, usually with numerical answers given at the end of each problem. Tutorial sessions were regularly available, mostly with the course instructors, a few courses with graduate students to help (I did that for three years as a graduate student, having been given the lowest teaching rank of Demonstrator), where details in tackling the current problems could be discussed. No homework was collected and graded (except in mathematics), and no worked solutions to the problems that had been distributed were provided. Textbooks were not assigned for courses; because we "read" the subject for our concentration, we were expected to use the well-stocked library - where there was an excellent librarian. There was also a national library nearby, where I could find the rarer foreign-language journals when I needed them.

The focus was on learning the subject. We could not "shop" for courses just because syllabus or the instructors seemed attractive to us; we learned how to study well from all. We needed to, and in the process learned better how to distinguish substance from style. And despite our ultimate competitive roles in exams, this encouraged much cooperation between students in week-by-week study. In view of the rate at which students might be required to repeat a year, it seemed prudent to study very thoroughly and practice solving problems, and all the while ponder the responsibility of knowing the subject matter well enough. The successful clearly went beyond the minimum required.

The employers interested in hiring us knew all that, and they also knew the academic differentiation in the degrees was coarse-grained but it did not bother them. We got interviews and tempting offers. While I have not kept up with all the other 12 in my

graduating group, I know one ended up as Chairman of Rolls-Royce gas turbines, another developed computer-assisted design for Parsons steam turbines and became head of their steam turbine Division before striking out on his own, and so on. This form of curriculum and grading system would not, however, be a system to imitate in many details now.

In our situation here at Brown, now decades after the New Curriculum began, and despite the existence of transcripts and course grades, the phenomenon of grade inflation has brought us to a point where one can't tell the really good from the middling good from the records - Dean Armstrong points out that more than 60 per cent of undergraduates receive A's as course grades. Prospective employers and graduate schools have possibly more difficulty in sorting out the best from the rest even compared with my graduation situation. Graduate schools can ask for GRE scores, which give a ranking in the class of all taking it. But that is simply and discreetly a way of largely ignoring the high grades won at Brown. There are anecdotal reports that some students drop courses just because they fear to get "only" a B. I listen to my Meiklejohn offering advice to freshmen with emphasis on maximizing enjoyment of the university experience, good for quick gratification now, and not on developing a coherent body of knowledge and understanding - which has its own satisfaction but takes longer to attain. We need to retain good aspects of the New Curriculum, but make some structural revisions too.

Former students stop by from time to time, as for many faculty, and not once has a student thanked me for a grade. The thanks have been about the content, and about learning qualities such as perseverance and thoroughness. In reflecting on my own university teachers, I appreciate the careful construction of the curriculum - those annual gateway exams were meaningful - and the encouragement in moving into various subjects. I don't know what grades I received in the annual exams, and it does not matter; what it helped me be capable of is what mattered.

Somehow, sometime, the system at Brown has to change. Adding pluses to grade letters is too close to sprinkling jimmies on ice cream, the base flavor remains the same. And minuses are just a smaller serving. If anything, the pluses-and-minuses proposal would make the situation worse. We are paying too much attention to grades as we go along anyway, pluses and minuses only add steps for angst, and we lose track of the search for knowledge and substantial understanding. Maybe this is Brown's opportunity to distinguish itself again, by developing a system that takes away grade pressure while stimulating intellectual enquiry and enhancing personal responsibility.

To promote discussion, I suggest one possibility might be to make the current type of course transcripts entirely internal, and show in which rank-quintile of those passing a course where each student placed. The top 20 per cent of students, based on cumulative rank-quintile count, would receive summa cum laude, the next 20 per cent magna cum laude, and the next 20 per cent cum laude. The Honors research projects system would be accessible to students with standing usually in the top two quintiles in courses in their major when at least half of the courses required in their major had been taken. All students would take in addition Final Major Examinations in their final year, set jointly

by faculty members in the Departments or Programs of the students' majors and embracing material covered in all courses taken in the respective Majors. Passing grades for these would be recorded on externally-available transcripts as A's, B's or C's as at present (including no required distribution between letter grades, and thereby rewarding students who retain cumulative knowledge well and flourish as they complete their studies), as would a list of courses taken and passed, without separate grades for each. Students needing the equivalent of interim transcripts before their programs of study are complete could have a letter-form statement of their cumulative quintile rank, to that point, of courses required for their major, and for courses overall, and a list of courses taken and passed. Letters of recommendation from faculty could highlight attributes found in individual students.

Any new system will have its drawbacks, and would require much debate and adjustment before adoption. I would like to see the debate begin soon, and flourish.

PRINCIPLES OF WESTERN PHILOSOPHY

Peter Wegner
Department of Computer Science

During my undergraduate years at Imperial College, London University, which I attended in the early 1950s along with Peter Richardson, I majored in mathematics and organized a philosophical lecture program where well known philosophers like Popper, Haldane, and Joad presented public lectures. Fifty years later on retirement, I am revisiting my philosophical interests and rereading Bertrand Russell's *History of Western Philosophy*, which is still widely liked almost 60 years after it was first published in the late 1940s. I encourage both old and young faculty to return to the study of historical and philosophical writings as a basis for adapting to our changing scientific, social, and political environment.

Bertrand Russell was a mathematician, publishing *Principia Mathematica* with his Cambridge colleague Whitehead around 1915, being jailed for political objections to the first World War and strongly criticizing western policies after the second World War. His "*History of Western Philosophy*" provided a historical and philosophical account of the growth and substance of Western Society at a time when its ideas and principles were being questioned. I will explore both the substance of his analysis, and my change of viewpoint due in part to great recent changes in Western and international social and political standards.

Russell's 900-page book includes 300 pages of Greek philosophy, 200 pages of religious philosophy, 200 pages of renaissance and scientific viewpoints, and 200 pages of modern 18th and 19th century analysis. The Greeks contributed mathematical principles of Pythagoras, political idea of Plato, and scientific contributions of Aristotle and Euclid, that were bypassed by religious beliefs for 1500 years until they were reestablished in a new form by the continental rationalism of Descartes, Leibniz, and Kant, and the British empiricism of Locke, Berkeley, and Hume. The modern section includes Rousseau who contributed to the French Revolution, Hegel and Nietzsche who contributed to the rise of German fascism, and Marx who spawned the rise of communism. Russell's book terminates with Bergson's French views, William James' US outlook, and the Austrian contribution of 1920s Logical Positivism. It excludes later modern philosophers like Popper and Wittgenstein even though Russell understood and partially contributed to their analysis.

One difference between my early appreciation of philosophy and my current ambiguous view is the degree to which my judgments of leading philosophers like Rene Descartes and Emmanuel Kant has deteriorated. Descartes contributed greatly to the analysis of geometry but his analysis of truth as a form of human thought by viewing "I think therefore I am (Cogito ergo sum)" as a starting point for substantive truth is flawed, and has led to incorrect political and religious assumptions about the nature of truth.

Kant's "Critique of Pure Reason" is likewise a faulty analysis of pure reason as an a priori method of understanding truth about the world. Philosophical acceptance of truth as a form of a priori human thought has led to faulty arguments about questionable political assertions about the goals of war and democracy to religious assertions about the existence of God, and to scientific and mathematical assertions about the nature of problem solving and theorem proving.

Such questionable assertions are in part related to a choice of mental rationalism over experimental empiricism as a basis for the justification of truth. The negative effect of rationalist philosophy on European politics is balanced by the positive effect of empiricist philosophy on the British Empire and on the scientific evolution of the British royal society and the Cavendish laboratory.

The conflict between rationalism and empiricism has occurred also in my personal analysis of the principles of problem solving in mathematics and computation. My model of computer science has moved away from the rationalist view that all computer problem solving can be modeled by rationalist proof to the view that problem solving requires an extension from rationalist mathematical to empiricist interactive models of computation.

Hilbert's assertion in 1900 that all mathematical theorems could be proved by logic was supported by Russell and Whitehead's *Principia Mathematica* but disproved by Godel in 1931 by showing that mathematical assertions can be undecidable. Godel's contradiction was strengthened by Turing, who showed that the halting problem and other forms of computer problem solving were undecidable, and that Hilbert's rationalist assertion about human problem solving power must be modified by a much weaker model of empiricist human weakness.

Turing's model has been denied by mathematical rationalists who wrongly asserted that all computer problem solving can be accomplished by Turing machines in spite of Turing's proof that this was not the case. This denial of Turing's empiricist assumptions by rationalist mathematicians was motivated in part by the desire of both philosophers and mathematicians to strengthen human problem solving and reasoning ability. This appears to be similar to the wrong acceptance of rationalist assumption about human reasoning by some politicians and religious believers, in spite of substantive denial of such views by empiricists.

Rationalist justification of their questionable view of truth, based on Cartesian and Cantian philosophy, continues to be strongly accepted by society in spite of very clear empiricist demonstrations that they are wrong. This writer believes that rationalist arguments about politics and religion are repeatedly accepted socially and have contributed to terrorism and other forms of judicial injustice in the interests of questionable rationalist principles. Moreover rationalism is so strongly accepted that it leads to wrong acceptance of scientific principles about global warming, problem solving, and mathematics by rejecting better empiricist solutions to these problems.

This article suggests that rejection of rationalism as a central model for principles of truth and action in favor of empiricism would contribute to making the world a better place.

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INFORMATION FOR CONTRIBUTORS

GUIDELINES FOR SUBMITTING ARTICLES:

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

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

Cheryl_Moreau@Brown.edu

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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