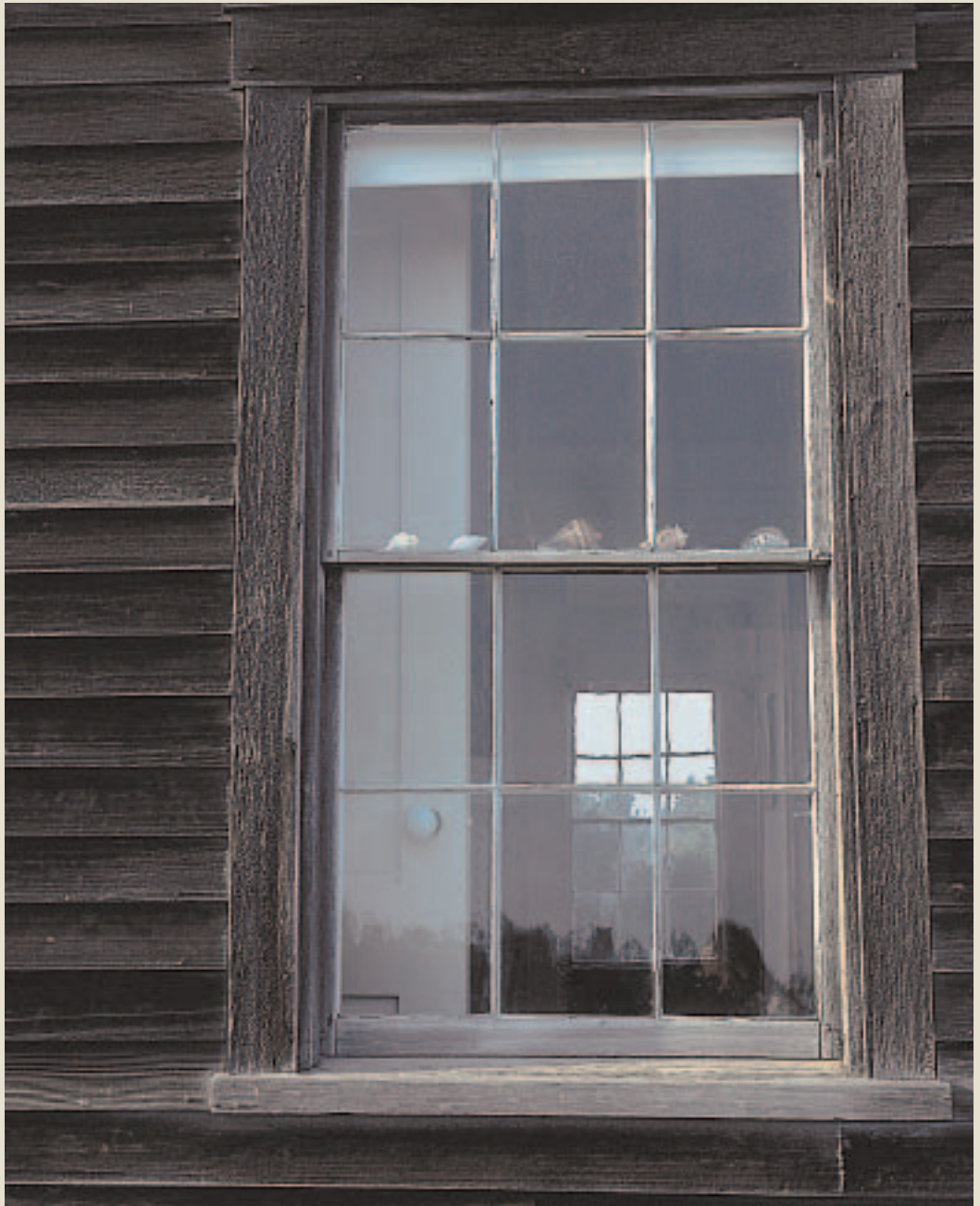


VOLUME 23 NUMBER 1 *JUNE* 2004

Bridgewater Review



BRIDGEWATER STATE COLLEGE



Oxygen

*I open Merriam Webster's,
tenth edition,
turn to I for inspiration,
find the connection;
what inspires me
to pick up my steno book,
my favorite pen,
is what pulls air into my chest,
pushes it out,
allows for the rise and fall,
the even exchange.
Inhaled words,
exhaled flow of ink,
are elements of respiration,
another way to breathe,
survival itself.*



Wisp

*In spring I take laundered sheets
Warm from the sun
To the back porch
Shake hard the billowing fabric
Over the rail and if a thread
From an edge or seam
Tries to loosen and let go
If I tug and pull it free
The wisp will float
Carried in sweeping circles
On the morning breeze
And land in a patch of grass
or wrap itself round a pine branch
Or cling to the embryonic
Pink-lobed leaves of an oak;
I like to think a sparrow
Or darting cardinal will find it
Make off with the single strand in its beak
Use the artifact of human comfort
To strengthen the walls
Or soften the lining of its nest
Fly away with the offered bit of my life
And weave it for a season into its own.*

**Margie Howe is an English major
at Bridgewater State College**

Bridgewater Review

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ON THE COVER

Window, Olson House,
by John Droege,
Professor of Art.
The Olson House in
Cushing, Maine is widely
known due to its impor-
tance in the Andrew Wyeth
painting, *Christina's World*.
Christina in the painting
was Anna Christina Olson.

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Political Science

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Sociology

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Editor's Notebook

Knocking Those Old Walls Down

by Michael KryzaneK



In 1802 Thomas Jefferson wrote a letter to the Danbury Baptist Association in response to the Association's inquiry as to why as President he had not named national days of fasting and thanksgiving as had been the case with his two predecessors, Washington and Adams. In his response Jefferson talked about the importance of a "wall of separation" between church and state. Jefferson was very conscious that he was creating the basis for antagonism and political opposition by taking his position in support of the walls of separation, but he was also convinced that the framers of the Constitution were correct not to see Congress or the President as taking any action that might be seen as favoring the establishment of religion in this country.

It is now over two hundred years since Jefferson's "walls of separation" letter and it is obvious that segments of American society are working feverishly to bring those walls down and establish religious principles as the guiding foundation of government policy and national life. While there is no effort to foster a national religion, as in the case of some Middle Eastern countries, there are, however, numerous religious denominations, interest groups and faith-based movements that have organized campaigns to pressure the Congress and the Executive to embrace religious values, principles and doctrines in ways that would transform this country into one that is less secular and more God-centered.

The list of public policy issues that have been touched by these campaigns to establish a religious foundation within the government and within the country is now quite familiar. Legislation to limit or end abortion and partial birth abortion has begun to chip away at women's reproductive rights. Judicial permission to allow vouchers for religious schools has created pockets of support for church-directed education. Government initiatives to ensure that faith-based organizations receive financial support to conduct charitable work remain in the forefront of the policy agenda. National efforts to stop same-sex marriages have been elevated to a constitutional amendment process. And seasonal challenges to court ordered removal of religious displays or pre-game prayers continue to galvanize the religious faithful.



We as a nation have come to a critical crossroads as we grapple with the issue of how much influence religion and religious beliefs should be granted in the formation of public policy? Conservative commentators lament the secularization of American society and call for a rebirth of religion in American life. They see America slowly slipping into a void without any values or belief

system. Liberals fear that by breaking down Jefferson's wall America will slide into a kind of religious conformity that will limit personal freedom. Such conformity will lead to laws that contradict the values and the beliefs of those who are not religious or whose religion is not in the current "mainstream."

If there is an answer to this quandary over what place religion should play in national life and national governance, it is in the wisdom of Thomas Jefferson. Jefferson and the framers of the Constitution were very careful about linking religion and the government. If you notice, nowhere in the Constitution does the word "God" appear, and the First Amendment cannot express any more clearly the founding fathers' concerns about religion dominating national life. Yes, religion is impor-

tant to the Founders, and yes religion was viewed as a vital part of American life. But no, religion was never intended to be the primary guidepost used to make public policy decisions or define public values.

Americans, of course, should be free to follow their religious belief in whatever manner they so choose, but the advice of Jefferson on the wall of separation between government and religion still remains worthy of respect and allegiance. Religion has always been a private matter, a matter of the heart and the soul and the spirit. As the Founders saw religion it should be practiced privately and lived privately. America is a nation that prides itself on its diversity, its respect for differences and its protections of minorities and minority opinions. When government begins to form its laws, regulations, values and priorities on the basis of one religious view or one religious denomination, then this country no longer can lay claim to be a beacon of freedom and democracy.

—Michael KryzaneK is Editor of the Bridgewater Review

Teaching and Learning in Cold Places

Ice Hockey at Bridgewater State College

by Andrew C. Holman



In the splendor of their royal blue, gold and white uniforms, the fourteen members of the Connecticut College team took the ice at Bridgewater Ice Arena in January 2004 to play a Northeast Collegiate Hockey Association (NECHA) game against the local Bridgewater State side. Their uniforms were taken from the design of the Charlestown Chiefs, the notorious fictionalized minor-pro hockey team in the classic movie “Slapshot,” the best parody of hockey culture ever produced. The humor of the likeness was not lost on the Bridgewater fans or players; happily, that was as far as the likeness went (there were no Hanson Brothers on the Connecticut College team, and none dared to assert fistic prowess). But as interesting as were the team’s colors was the word emblazoned on the uniforms’ crested front: “CLUB.” One word. That was all they needed to identify themselves to the world. One word said it all.

In U.S. college athletics, this one word evokes a variety of images and responses. Though they have been a part of campus life for almost as long as there have been American colleges, club sports are alternatively tolerated and ignored, celebrated and denigrated. “Club sports” is an omnibus term for a wide range of activity: from ultimate frisbee, the martial arts and cheerleading to competitive team and individual sports. Club sports house athletic activities that are superbly administered in some places and poorly run in others, but they do hold one attribute in common. Club sports are poor siblings to varsity athletics, the place where students and alumni across America see their identities with their institutions represented in bold and stark tones. “Bowl Week,” “March Madness,” and the “Frozen Four” bring out this sort of filiopietistic pride in clear and unobvious ways. Alternatively, club sports operate under the radar. Most club athletes, volunteers and coaches are resigned to the fact they must make do with less: low budgets, poor practice times, and limited schedules. All of this is bearable, of course, because it is balanced by an important reality: any chance to play is better than no chance at all. Athletic departments that stretch their resources to offer club sports expand opportunities for grateful students to experience the pure joy that comes with

participating in intercollegiate sport. Importantly, club sport also offers them an alternative site to engage in the real work of the university: teaching and learning.

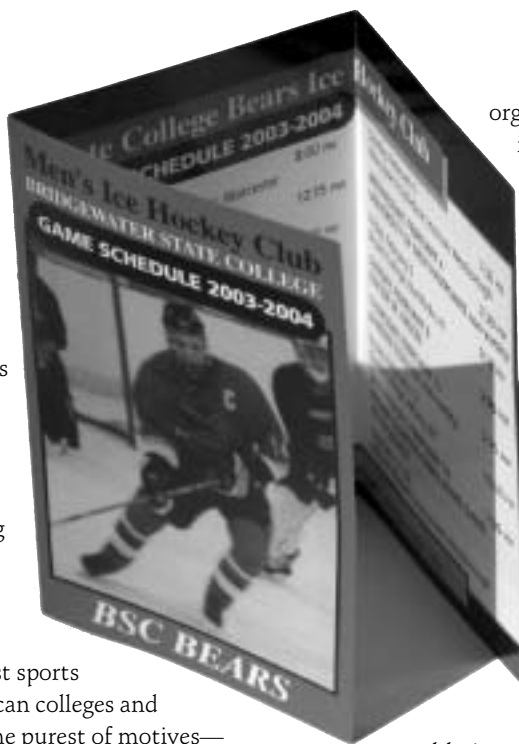
I have been a part of this culture for the past six years as the coach of the Bridgewater State College Hockey Club. It has been the best six years of my life. It has been so because coaching has taught me much more about sport than playing ever did; because administering and fundraising for a fledgling (and often losing) team has challenged my resolve and pushed me out into parts of the community I would never have gone. And it has taught me more about teaching and learning than hours of lecture preparation, grading, pedagogical workshops and seminar discussions ever could.

Today, college athletics in America faces difficult challenges, but to make that assertion is hardly to make a novel point. It is hard to argue with those commentators and critics who since the 1930s have lamented the decline of the old gentlemanly ethic of university athletics. Before Red Grange’s defection to the money of the Chicago Bears (and all of those since who have “left early”), before the push to recruit all-everything track athletes from Africa and hockey players from Canada, before the flood of commercial sponsorship, television hype, and the branding of sport, before Bobby Knight’s tantrums and recruiting “favors” at the University of Colorado—in other words, before the push to win at all costs and cash in—collegiate sport meant something different. College athletics in the age of Princeton great Hobe Baker (1911-14), John Davies tells us, “was amateur in the pure sense of playing the game *pour le sport*.” “Our primary concern” NCAA rules committee chairman Louis Keller reminded his audience in 1952, “is in a game that conforms to educational ideals and promotes such attributes as sportsmanship, cooperation, respect for authority and the like.” Since those days, university athletics has been lamentably permeated by the worst features of professional sport: greed, unwarranted adulation, violence, and cheating. The spotlight creates monsters, and perhaps because the spotlight rarely shines on club athletes, the train of abuses is commendably absent. I am convinced that club sport continues a grand tradition and reflects the original intentions for

athletic competition in America's colleges and universities. At the nation's largest colleges, varsity athletics have left the house that Harvard's Ralph Winsor and Chicago's Amos Alonzo Stagg built in the early twentieth century. Club athletes are among the remaining tenants.

The Hockey Club at Bridgewater State College began as most sports clubs begin in American colleges and universities, out of the purest of motives—grassroots student interest. In September 1998, management major Greg Rich organized twenty-five students into a hockey group, booked games and practices, and even bought uniforms. What they had neglected to do was recruit a coach and gain recognition by the College. Accomplishing the first of these was easily done. When the 6'2" Rich loomed in my doorway I assented quickly, without knowing the depth of my commitment and without consulting my wife (I have regretted both of these facts repeatedly). Given the time of year and the fact that budgets had been settled, gaining the college's approval was more challenging, but amicably resolved. Initially a self-financed body, funding the club wasn't an issue; the bigger task was to convince college officers that this club wouldn't be a passing fancy and had potential for a perennial presence. "Why can't they just play as an independent, off-campus group?" one vice president asked. To her credit and after some discussion, she seemed convinced by one simple answer: "Because they want to play for their school."

For six years, Bridgewater students have played hockey for their school and represented it in a meritorious way. Bridgewater's skaters are not professional prospects, but they are able athletes who have determined that they did not want to end their competitive sports careers at high school. For the past five years, these student athletes have competed in NECHA, a twelve-team league that includes representatives from such schools as MIT, the U.S. Coast Guard Academy, WPI, College of the Holy Cross, and Springfield College. They belong to the American Collegiate Hockey Association, a club



organization that shadows the NCAA and, like it, sponsors an annual national championship tournament. The club's twenty-game schedule involves road travel to such locales as Lyndonville VT, New Britain CT, and Albany NY. With thrice-weekly practices

that commence at 10:00

PM, the club is not for the marginally dedicated sportsman.

At home

games, few spectators other than

family and friends

attend, though occasionally

a Thursday night home

tilt will bring out a hundred or more students interested in prefixing

their end-of-the-week celebrations with an

athletic event. These athletes are rewarded for their commitment and representation of the College in only small ways, but especially in the thrill they attach to participating in competitive hockey. Arguably, they are also rewarded by the feeling that they are part of a larger tradition. Among the biggest supporters of the hockey club have been the BSC alumni who played hockey for the College when it was a varsity sport, 1970-80.

There is an interesting reciprocity here: the presence of the "Friends of BSC Hockey" informs the current team members that they are treading a well-worn path; the presence of the hockey club, I think, reminds BSC hockey alumni that even after the varsity team's demise, the college has not forgotten them.

So what is it then that hockey players at Bridgewater State College actually learn from their experience? It is presumptuous for me, one of the "instructors" in this exercise, to detail this. But I think from watching my student athletes—the ways they carry themselves, juggle their schedules, and treat one another—I can draw some fairly tenable conclusions. In one respect, club athletes learn from their sporting experience the same sorts of things as anyone engaged in competitive sport, including varsity athletes. At the risk of mimicking a recruiting spiel, I'll be brief. Even in abridged version, the list is instructive.

Teaching and learning happens on all of the fields of play at Bridgewater State, and at the many different levels of organization. Athletes at Bridgewater State learn courage, poise, confidence, trust in their teammates and

trust in their own abilities. They learn to set goals and plans with which to achieve them, and they learn about price that is paid for not following plans. They learn the merits of versatility and flexibility; of independent thinking and action; of changing aims and methods in mid-stream. They learn how to fit individual talents, tasks and tactics into a master strategy. They learn the benefit of sheer shoulder-to-the-grindstone hard work—and more. If these outcomes sound familiar to my fellow instructors at BSC, it is because they know them well. These are some of the most important attributes that we seek to instill in all of our students. They are the attributes that we detail in our own individual course outlines and they are the ones in which we strive to demonstrate achievement to our state and national accreditation bodies. Sport is no academic discipline, to be sure, but it can be a useful tool for the sorts of lessons we want to teach.

But if organized and administered well, club sports can extend the list of teachable values. These are many, but all of them are connected to identity: who students think they are, and how others see them. Club athletes at Bridgewater State learn humility, the sort of humility that comes not only with losing seasons and goals unachieved, but the humility of being a member of a team that is “just Club.” It is a phrase that gets repeated often, by varsity athletes, by opponents, by referees and by fellow students. Are you “just Club?” or “still club?": it reflects the wider notion that club athletes mean less and it reflects an expectation that some day—perhaps soon and if the team does exceptionally well—they will be able to escape that purgatory and join the ranks of the officially sanctioned, NCAA-anointed. But if by humility we mean the willingness to recognize one’s status, own it and then make it better, then humility is certainly something we should be teaching our students. Connected to this is pride. Club athletes are pushed to be proud of things of which others might not be. They are proud of their counter culture; proud to be part of an entity that is sometimes seen as tangential to the school’s formal athletic mission. And they are intensely proud of each other.

Club athletes also learn lessons about the world out there and the labels we regularly generate for others. Insularity is an unfortunate characteristic among most of our students and getting them out of southeastern Massachusetts makes this plain. The hockey club puts students “out there” as representatives of the college



Coach Holman and Club Founder Greg Rich.

and its broader reputation, unprepared for a sometimes hostile environment. These students are, after all, emblems of what *U.S. News and World Report* calls a fourth-tier regional service institution. When the club plays in Burrillville RI against Bryant College, chants of “safety school” routinely fill the air. A few years ago when we traveled to Hanover NH to play Dartmouth College, Bridgewater players were incredulous that they were taunted as “trailer trash.” Class matters, even on the rink, and what amazes me is the transformation that takes place among students when they realize this fact. Some players who as freshmen and sophomores looked forward to facing off against the “smart kids” from Harvard and MIT, UNH and Bates, begin by their junior and senior years to see them instead as “privileged.” And when officiating favors the private schools we play over us, it is hard for students to attribute that systemic pattern to any factor other than class. These are necessary lessons, but they are painful ones. My pedagogical challenge is to encourage these students to

Teaching on ice.

recognize class and to resist responding with resentment or pettiness. In my history classroom, I could never teach about the reality of social class in America with the precision or gravity that these on-ice lessons bring. And that is why we continue to go to those cold places.

Club hockey is hardly the most important thing we do at Bridgewater State College, but it may be the most important thing that I do here. In a moment of unguarded candor, I once made this statement to an academic officer at the College, whose response was a quizzical “Oh yeah?,” a ponderous look, and an uncomfortable pause. Not long afterwards, I made the same statement to my Athletic Director, whose response showed that he understood immediately what I meant. Club sports have provided me a perspective on how ubiquitous is the mission of the college and it confirms for me a belief that there are and must be a variety of sites, on and off-campus, in classrooms and on cold ice rinks, where that mission—teaching and learning—can take place. The Bridgewater State College hockey team is a club; “just club” to some. But to me that simple four-letter word, the same one emblazoned on the jerseys of the Connecticut College hockey team, is tremendously rich with meaning.

—Andrew C. Holman is Associate Professor of History and a former varsity athlete.

What's Shakin': Earthquake Research at Bridgewater

by Robert D. Cicerone



We are all very familiar with the phenomenon known as an earthquake. Whenever a catastrophic earthquake occurs in a densely populated city, we are inundated with news coverage showing scenes of destruction and human suffering. Indeed, earthquakes are among the most devastating geologic hazards. Fortunately, destructive earthquakes are relatively rare events.

A great deal of scientific and engineering study has been conducted to develop strategies to reduce the consequences of earthquakes. However, earthquakes are also important scientifically from a different perspective. Much of what scientists have learned about the internal structure of the Earth comes from the study of earthquakes.

If we look at a map showing the distribution of earthquakes in the world, it is readily apparent that earthquakes are not randomly distributed, but tend to occur in well-defined belts (see **Figure 1**). In fact, about 90% of the total amount of energy released by earthquakes occurs in the area around the Pacific Ocean. This area is also where most of the active volcanoes are located and is commonly referred to as the “Ring of Fire” by scientists. This is not a coincidence, but a manifestation of the fundamental mechanism of how the Earth works. This mechanism is known as *plate tectonics*.

Plate tectonics is a relatively recent theory in the earth sciences, having only gained widespread acceptance in the 1960s. However, the basic ideas of the theory date back to the 1600s, although they are most commonly

identified with a German meteorologist named Alfred Wegener, who proposed a theory of continental drift in the early part of the twentieth century. It wasn't until the 1960s that scientists had accumulated enough geologic evidence to support the theory.

The basic idea of plate tectonics is simple. The earth's outer layer is relatively thin (about 100 kilometers, or 40 miles thick) and is referred to as the *lithosphere*. The lithosphere is actually broken up into about 14 “plates.” A good analogy for the lithosphere would be a cracked eggshell. These plates are all moving with respect to each other, so there are places where the plates collide

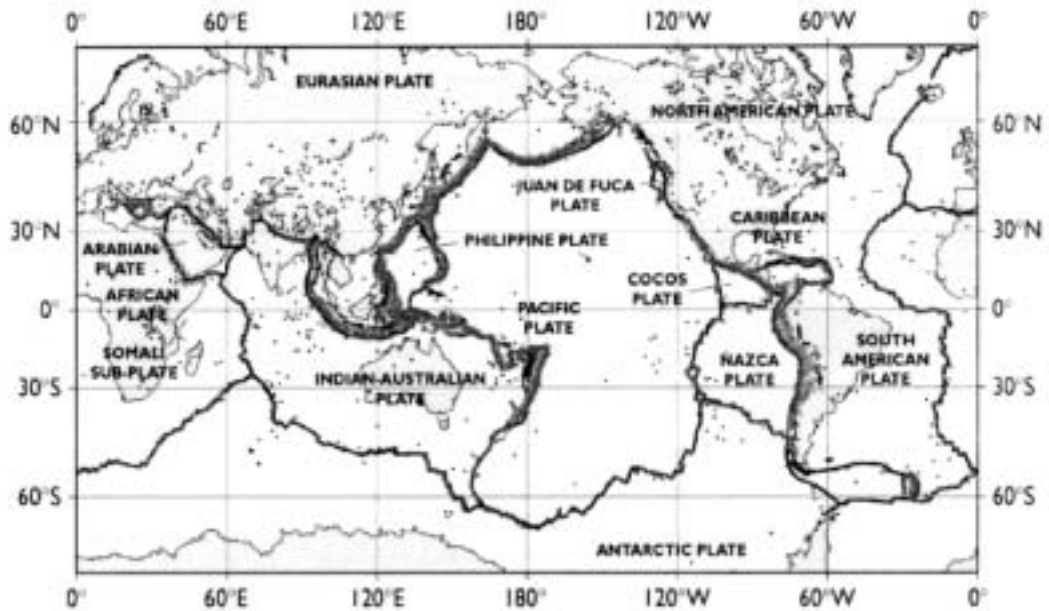


Figure 1. World Seismicity, 1963–2000. The dots represent the locations of earthquakes, and the heavy black lines represent the boundaries of the major plates. [From Understanding the Earth, 3rd edition, by Frank Press and Raymond Siever, W.H. Freeman and Company, 2001].

with each other, other places where plates move away from each other, and still other places where the plates slide past each other. It is at these plate boundaries where interesting geologic events occur.

Let's take another look at **Figure 1**. In addition to showing the locations of recent earthquake epicenters, the map also shows the boundaries between the various plates that make up the earth's lithosphere. You should notice that most of the earthquakes occur, not surprisingly, near plate boundaries (there are some earthquakes that don't occur near plate boundaries, but we'll talk about them later).

If the boundaries between plates were smooth, then the interaction between the plates would be relatively uneventful. It's the fact that the boundaries are rough and there is a lot of friction between the interacting plates that makes things interesting. As the plates try to move, the roughness of the surface between the plates and the friction that exists on the surfaces resists motion, so that strain energy builds up over time in the rocks on either side of the surface. Eventually, enough energy builds up that it either overcomes the frictional forces or causes one of these rough spots (referred to as asperities by scientists) to break. When this happens, there is a sudden movement of the plates on either side of the surface, causing a sudden release of all of this accumulated strain energy, producing the phenomenon that we call an earthquake.

Some of the energy that is released by the earthquake is converted to kinetic energy, causing the plates to move, some of the energy is actually dissipated as heat along the surface between the plates, and some is converted to waves. The waves then propagate through the earth, causing the ground to shake near the surface of the earth. This ground shaking at the surface of the earth leads to the destruction that typically accompanies a large earthquake. These waves also travel deep within the earth and re-emerge at the surface far away from the earthquake source. Scientists can record these re-emerging waves on instruments called seismometers. By measuring how long it takes these waves to travel to different points on the surface of the earth, scientists have been able to reconstruct an accurate physical model of the internal structure of the earth. In fact, the use of earthquake, or seismic, waves from artificial sources is routine in exploring for oil and gas and, more recently, has become an important technique in engineering and environmental applications where detailed knowledge of the subsurface structure of the earth is needed.

Over the past several years, I have been involved in research related to several different aspects of the earthquake hazard problem. One of the most elusive goals in earthquake hazard research is the ability to predict earthquakes on short enough time scales to provide useful information to local governments to aid in emergency measures such as evacuation.

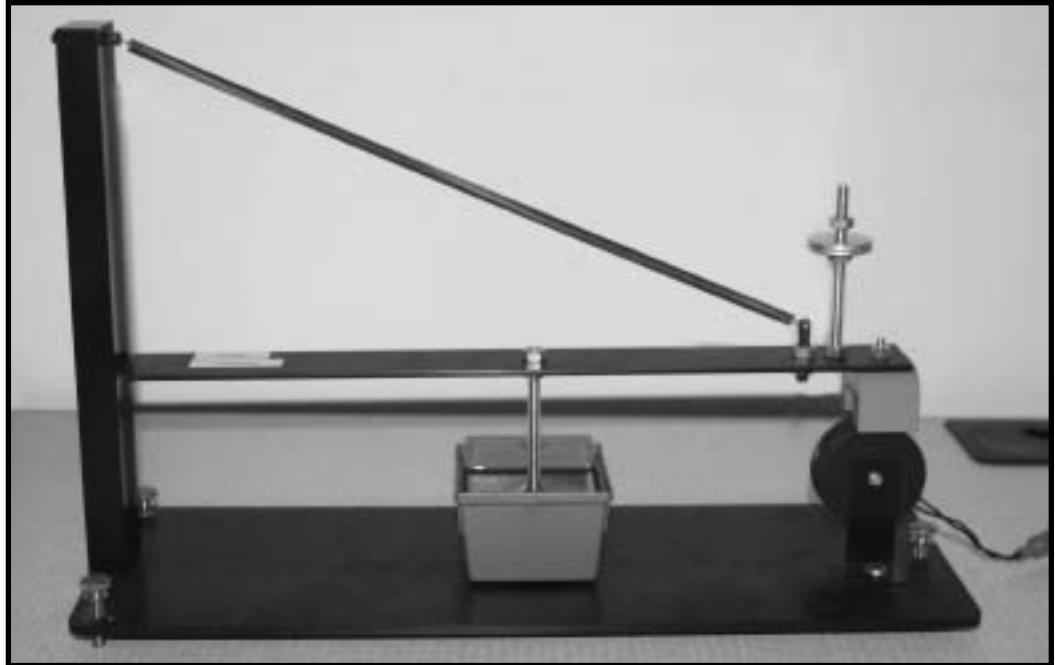
In recent years, there has been a great deal of effort invested into the study of one aspect of the earthquake-prediction problem, the study of earthquake precursors. The term *earthquake precursor* refers to any physical phenomenon that occurs prior to an earthquake that may indicate the imminent occurrence of the earthquake. This includes electromagnetic field emissions, gas emissions, change in ground water levels, localized ground deformation, and changes in seismic activity. Unfortunately, there has been no systematic study of these phenomena, and observation of earthquake precursors has been serendipitous. For example, anomalous magnetic fields were recorded prior to the 1989 Loma Prieta earthquake in northern California by a magnetic-field sensor deployed to measure electromagnetic noise generated by electric trains of the San Francisco Bay Area transit system. More recently, however, Japanese scientists are currently installing networks to study these earthquake precursors in the area of the Tokai Gap, where the next great earthquake is expected to hit and could have devastating consequences to the metropolitan Tokyo area. This is a significant advance in the systematic study of earthquake precursors.

I have been working with a colleague at Boston College, Professor John Ebel, to systematically compile observations of earthquake precursors. As part of this continuing effort here at Bridgewater, I hope to study the magnetic field precursors from the Loma Prieta earthquake with an undergraduate student, Kathleen Gonsalves, who has received a grant from the ATP Summer Undergraduate Research Program at Bridgewater. The goal of the research is to find evidence to support a model of the physical process that generates the magnetic field and to develop more detailed models of the process for this particular earthquake.

A second area of research that I have been pursuing involves a study of the mechanisms of seismic wave attenuation, with specific application to New England and surrounding areas in the United States and Canada. The term attenuation refers to the dissipation, or reduction, of the energy in seismic waves as they travel through the earth.

Figure 2. Bridgewater State College's seismic recording instrument.

The importance of a better understanding of seismic wave attenuation can best be illustrated by an example. Imagine an earthquake of a given magnitude occurring in California. The area affected by the earthquake depends on the nature of the rocks in the vicinity of the earthquake and how effective they are in dissipating the energy released by the earthquake. California is relatively young geologically and the rocks are fairly broken up, so that the energy from earthquakes dissipates rapidly.



Therefore, even though California is very active seismically, the affected area from any one earthquake is relatively limited.

In comparison, an earthquake of the same magnitude in New England or any part of the eastern or central United States would affect an area about five to ten times as large as the same earthquake in California. This is due to the fact that the rocks in the eastern and central parts of the United States are much older geologically and have had a longer time to fuse together, so that they are very efficient at transmitting seismic waves with little loss of energy. Therefore, even though earthquakes are more infrequent in the eastern and central United States, the affected area from any one earthquake can be very extensive.

I have been working with colleagues at the Earth Resources Laboratory at MIT to determine the attenuation characteristics of New England and adjacent areas using earthquakes recorded on the New England Seismic Network. New England experiences approximately ten earthquakes per year, with magnitudes usually ranging between 2 and 4. These earthquakes obviously occur away from any plate boundary and are examples of what scientists refer to as *intraplate* earthquakes. Our main objective in this study is to estimate the relative importance of two different mechanisms of attenuation. The first mechanism involves the actual dissipation of seismic energy as heat by internal friction within the rocks. The other mechanism is scattering, where the seismic energy is reflected by irregularities in

the upper part of the earth. This mechanism does not actually dissipate energy, but it is a geometric effect that redistributes energy in the earth, creating an apparent attenuation effect. Our initial results indicate that scattering is the more important mechanism in New England. In addition, the effect appears to be most prominent in the shallowest part of the earth, possibly due to either fractures in the rock or due to the topography of the surface of the earth.

Another area of research that I have been pursuing involves a study of what scientists refer to as the magnitude-frequency relationship of earthquakes. If we look at the distribution of earthquakes over time in large areas, we find that there is a relationship between how often an earthquake occurs and its magnitude, which is a measure of the size of the earthquake. Simply put, small earthquakes occur much more frequently than larger ones. In general, there is a ten-fold decrease in the frequency of occurrence of an earthquake for every unit increase in magnitude. For example, earthquakes of magnitude 6 occur ten times more often than earthquakes of magnitude 7 and one hundred times more often than earthquakes of magnitude 8. This magnitude-frequency relationship is referred to as the Gutenberg-Richter (GR) law, named after the two scientists, Beno Gutenberg and Charles Richter (the same Richter of Richter magnitude fame), who first discovered it in the 1950s. This law has been an important component of most earthquake hazard studies.

Recently, scientists have discovered that the GR law begins to break down as the area studied gets smaller. If we look at a single fault (a fracture in the earth that produces earthquakes), we see that the earthquakes occurring on that fault do not generally fit the GR law, but tend to be very similar to each other. Let's look at a specific example: the southern segment of the San Andreas Fault in California just east of Los Angeles. The last major earthquake to occur on this fault happened in 1857 and is referred to as the Fort Tejon earthquake. The estimated magnitude of this earthquake was about 8 (it occurred before seismic instrumentation had been developed). The estimated repeat time for this earthquake is between 150 and 200 years. This is the so-called "Big One" that many scientists believe is imminent in southern California.

If the GR law is valid, then the southern segment of the San Andreas Fault should have produced, in the time interval since the Fort Tejon earthquake, about ten earthquakes of magnitude 7, about one hundred earthquakes of magnitude six, about 1000 earthquakes of magnitude 5, and so on. Yet this has not happened: there has been only minor seismic activity on this segment of the fault.

This discrepancy has led scientists to propose an alternative model to describe the magnitude-frequency distribution of earthquakes called the characteristic earthquake model. This model states that earthquake-generating faults tend to produce earthquakes of about the same magnitude over a regularly-repeating interval of time. So, when applied to our example above, the southern segment of the San Andreas Fault should produce an earthquake of magnitude 8 approximately every 150 to 200 years. Many scientists advocate the characteristic earthquake model, arguing that the GR law describes not the distribution of earthquake magnitudes, but the distribution of fault sizes in the earth.

I have been working with a colleague to develop software to calculate earthquake hazard maps using both

the GR model and the characteristic-earthquake model of earthquake occurrence. We have already developed a computer simulation to generate a synthetic time history, or catalog, of earthquakes using either model assumption. We are presently developing software to use these catalogs as input to generate earthquake hazard maps. We are interested in the differences in the earthquake hazard maps that result from the different model assumptions.

Bridgewater State College has become very active in earthquake research. The college has recently applied for membership in IRIS (Incorporated Research Institutions for Seismology), a consortium of universities and government institutions undertaking research in seismology. The college has also installed an earthquake-recording instrument, or *seismometer*, in the basement of the Conant Science Building (**Figures 2 and 3**). The instrument is connected to a computer and

provides a continuous display of earthquake data in real time and is capable of recording and storing data from individual earthquakes.

Earthquakes are complex physical phenomena and, in the last century, scientists have made a great deal of progress in understanding how and why

earthquakes occur. However, there is still much that is not understood about earthquakes. The study of earthquakes has provided, and will continue to provide, a great benefit to society. It is a privilege for me to participate with Bridgewater in this fascinating endeavor.

—Robert D. Cicerone is Assistant Professor of Earth Sciences and Geography



Figure 3.

Boston Baseball Dynasties

1872–1918

by Peter de Rosa



It is one of New England's most sacred traditions: the obligatory autumn collapse of the Boston Red Sox and the subsequent calming of Calvinist impulses trembling at the brief prospect of baseball joy. The Red Sox lose, and all is right in the universe. It was not always like this. Boston dominated the baseball world in its early days, winning championships in five leagues and building three different dynasties.

DYNASTY I: THE 1870s

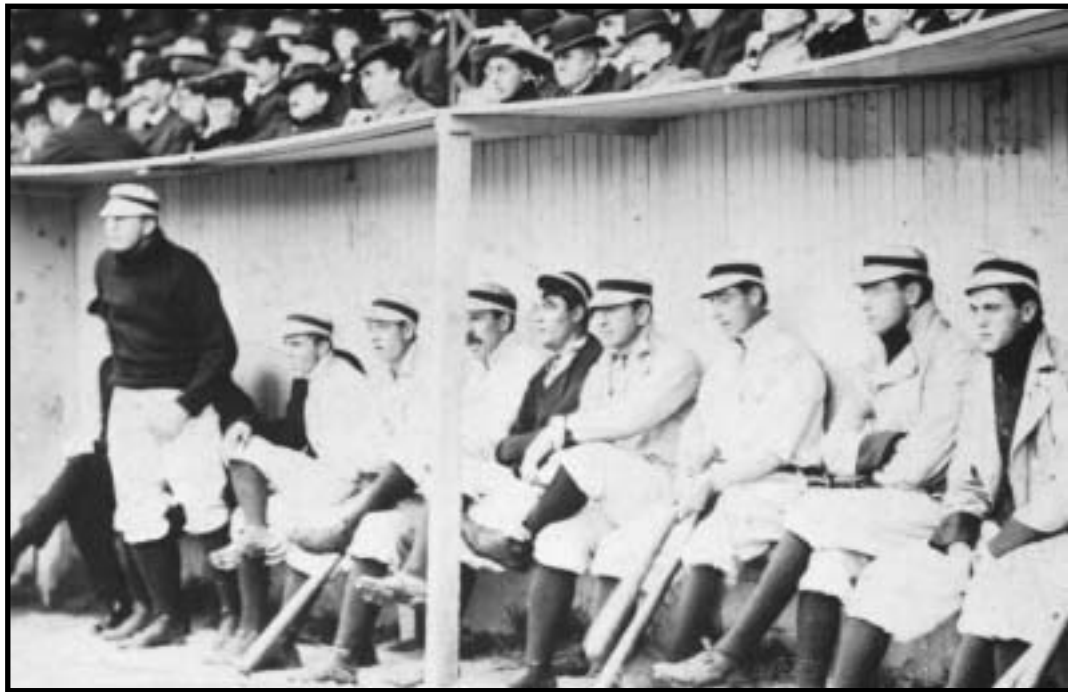
Early baseball evolved from rounders and similar English games brought to the New World by English colonists. Town Ball was the dominant form of these in New England until the New York game, modern baseball's direct ancestor, overtook it in the 1850s. Players competed through amateur clubs formed by social or occupational organizations, thus making baseball in theory a sport of gentlemen.

As the sport spread, the clubs organized the National Association of Base Ball Players in 1858 to standardize rules and competition. Clubs began skirting the rules by paying players covertly or through patronage jobs. In 1866, Harry Wright, an English cricket player, formed the Cincinnati Red Stockings and made them openly professional two years later. In 1869, his club toured nationally, going 56-0-1 and turning a grand profit of \$1.25. Cincinnati toured again in 1870, running its 1868-1870 record to 120-0-1 before losing two games. These losses hurt Wright's team as a gate attraction and his financial backers withdrew. Still, more clubs copied his model and professionalism spread quickly.

In 1871, the NABBP reconstituted itself as the National Association of Professional Base Ball Players, baseball's first professional league and one controlled by the play-

ers. Wright moved the Red Stockings to Boston and built the South End Grounds, located at what is now the Ruggles T stop. This established the present day Braves as baseball's oldest continuing franchise. Besides Wright, the team included brother George at shortstop, pitcher Al Spalding, later of sporting goods fame, and Jim O'Rourke at third.

Besides having talent, the Red Stockings employed innovative fielding and batting tactics to dominate the new league, winning four pennants with a 205-50 record in 1872-1875. Boston wrecked the league's competitive balance, and Wright did not help matters by taking his team on a tour of England and Ireland in the middle of the 1874 season. Besides the Boston problem,



Boston dugout during the 1903 World Series. Cy Young is seen standing at far left.

Courtesy of Boston Public Library Print Department.

the NA suffered from contract jumping, abysmal finances, uneven schedules, vanishing franchises, and players gambling on games.

William Hulbert, the owner of the Chicago White Stockings (today's Cubs) saved baseball by organizing the owner-controlled National League of Professional Baseball Clubs, after first raiding Boston for players. The NL standardized contracts and franchise rights, banned player gambling, and stabilized club finances. Wright took the decimated Red Stockings into the new league but missed the 1876 pennant. Despite working for cheap owners (players were ordered to go into the stands and fight fans for foul balls), Wright won pennants in 1877, helped by four Louisville players throwing games and the first of three Tommy Bond forty-win seasons, and 1878.

After winning six pennants in seven years, the dynasty ended when George Wright and O'Rourke bolted to the Providence Grays who then captured the 1879 title. Boston took another pennant in 1883, but a new dynasty would not come until the 1890s.

DYNASTY II: THE 1890s

By any definition, the 1890s were a bad decade for baseball, but a good one for Boston nonetheless. Besides the solidification of segregation, costly wars with other leagues left only the National League standing from 1892 to 1900. This twelve-team league featured competitive imbalance (the 1899 Cleveland Spiders finished 84 games out), owners with interests in more than one team (trusts were the real American pastime in the 1890s), and a pointless four-year postseason Temple Cup series that many thought was rigged.

The National Brotherhood of Professional Baseball Players, an early players union, opened the decade by launching the Players League in competition with the National League and the American Association. The ensuing labor war decimated the NL and the AA, and destroyed the PL. The PL's Boston Reds were the best team in baseball, winning the League's only pennant, and being one of the few profitable teams. It was of course excluded from the Brooklyn-Louisville World Series but it was able to move to the AA in 1891. It won that league's title too, but could not entice Boston's NL winner to play in the postseason, costing Boston a trolley series.

In all this chaos, the NL's Boston team, now called the Beaneaters, recovered its 1870s glory, winning five pennants in eight years. These teams were run by Frank Selee who had managed several minor league teams, including Easton of the New England Baseball Association. He built a powerhouse around Kid Nichols, a seven-time thirty-game winner, colorful catcher King Kelley, and outfielder Hugh Duffy. The 1891 team had

the most controversial finish despite a late season eighteen-game winning streak. The Beaneaters played four doubleheaders without the required League permission, and clinched the pennant when New York dropped five games to Boston after leaving its best players home. Boston then ignored its American Association neighbor, thereby killing the AA and leaving the National League with a baseball monopoly in an age when monopolies ruled most industries.

The new twelve-team NL used a split-season format in 1892, with the winners of each half playing a championship series. Boston won the first half easily, then coasted while the Cleveland Spiders took the second part. Boston showed its true strength in the playoff, sweeping Cleveland with a 5-0-1 record. The Beaneaters took another pennant in 1893, a year noted for changing the pitching mound's distance from home plate to 60'6". This change benefited hitters greatly. In 1894, Duffy hit .440 while his team scored 1221 runs, both records still.

Baltimore took the next three pennants but the Seleemen came back in 1897 and 1898 with the addition of third baseman Jimmy Collins and outfielder Billy Hamilton. Financially-strapped Baltimore sold off key players, relegating that team to second place. An apathetic Boston lost the 1897 Temple Cup series to Baltimore in a poorly-attended contest known mainly for Boston charging reporters admission to the park. With little to recommend it, the Temple Cup idea died once and for all. Afterwards, the Beaneaters began slipping, leaving the new Boston American League entry owning the town.

INTERLUDE: 1903

When Charles Comiskey formed the American League in 1900, his strategy involved moving teams from small markets into larger ones, eventually challenging the National League directly in five cities. In 1901, the Buffalo AL franchise moved to Boston, leaving Buffalo without a team for over a century, objectively a situation worse than eighty-six years without a championship. The new team, usually called the Americans, built the Huntington Avenue Grounds near the South End Grounds on what is now Northeastern University property.

Opening on Patriots Day in 1901, the Americans found instant success and outdrew the Beaneaters heavily. They recruited Collins as manager, thus winning over the Irish community, and raided NL teams for talent, snaring Cy Young among others. In 1903, Young, Bill Dinneen, and Tom Hughes each won at least twenty games as Boston coasted to the pennant. Owners Henry Killilea of Boston and Barney Dreyfuss of



Bill Dineen of Boston talking back to a Pittsburgh cop during the 1903 World Series. Behind him, with cap cocked at a wise-guy angle, is second baseman Hobe Ferris. Members of Boston's Royal Rooters, led by one "Nuf Ced" McGreevey, whoop it up in the background.

Courtesy of Boston Public Library Print Department.

Pittsburgh agreed to play a World Series, deciding on nine games to maximize gate receipts. The series nearly aborted when the Boston players struck for more money, finally getting a better deal just before the series opened. Killilea's woes increased when he too charged reporters admission and suffered the obligatory bad press. After the series, he sold the team to Charles Taylor of The Boston Globe who needed a job for his son John.

Pittsburgh featured Honus Wagner and Fred Clarke as its stars, and pitching led by Deacon Phillippe. It had won three straight pennants and was favored to defeat the Americans. Pittsburgh took two of the first three games in Boston, winning the third game under odd circumstances. Boston had oversold the game, leaving thousands of fans standing in the outfield before the game started. They mobbed the field until the police, using hastily-grabbed baseball bats, restored order. Most of these fans remained in the outfield throughout the game. Pittsburgh then benefited from a ground rule scoring any ball hit into these fans as a double.

Boston then rallied, winning three out of four in Pittsburgh. The clincher came in Boston as Bill Dineen won his third game of the series. Boston took a second pennant in 1904, but John McGraw refused to let his NL Giants meet the Americans afterwards. Injuries and age afflicted the Americans over the next few years and Boston fell out of contention until 1912.

DYNASTY III: THE 1910s

The third Boston dynasty began with the opening of Fenway Park, the oldest park today, which stabilized the team's finances. Now called the Red Sox, the 1912 team

won the pennant by fourteen games behind Smokey Joe Wood's 34-5 record, and outfielders Tris Speaker, Duffy Lewis, and Harry Hooper. The Sox faced the New York Giants in what is arguably the best World Series ever.

Boston went 3-1-1 in the first five games, three of them one-run decisions. Then Jim McAleers, Boston's owner, ordered manager Jake Stahl to pitch Buck O'Brien instead of Wood in Game 6. O'Brien lost. Next the Royal Rooters, John "Honey Fitz" Fitzgerald's Boston booster club, caused more trouble in Game 7. Somehow their seats had been sold to others and they rioted after finding this out. Wood's arm tightened during the delay and he lost 11-4, tying the Series at 3-3-1.

Still holding a grudge, the Rooters spent the next day marching and urging fans to boycott Game 8 in an early version of the sports talk radio mentality. They missed an incredible Boston comeback. With New York leading 2-1 in the bottom of the 10th inning, Sox shortstop Clyde Engle flied to Giant outfielder Fred Snodgrass who then dropped the ball. This went down in history as The Snodgrass Muff, and was even duly headlined in his 1974 *New York Times* obituary. Despite Snodgrass's brilliant catch on the next play, Boston rallied to win the game and the series.

Injuries hurt the Sox's 1913 and 1914 efforts, but the 1914 Miracle Braves consoled Boston. They went 68-19 to win the pennant after being 15 1/2 out in July, then swept the Philadelphia Athletics in the World Series. The Red Sox stormed back in 1915, this time relying on pitching from Rube Foster, Dutch Leonard, Babe Ruth, Ernie Shore, and Wood. Bill Carrigan's team beat the Philadelphia Phillies 4-1 in the Series even without using Ruth and Wood.

New England Teams

Team	League	Nicknames	Parks
Boston	NA	Red Stockings, 1871–82	South End Grounds
	NL	Beaneaters, 1883–1906	" (plus Congress St. and Dartmouth Grounds—1894)
		Doves, 1907–10	"
		Rustlers, 1911	"
		Braves, 1912–52	South End Grounds to 1914
		Fenway Park, 1914–15 Braves Field, 1915–52 Unofficially known as the Nationals, Red Caps, Reds, Sealemen and Triumvirs.	
Boston	AL	Somersets, 1901–2	Huntington Avenue Baseball Grounds
		Americans, 1903–7	"
		Red Sox, 1908– Braves Field 1914–15	Fenway Park after 1912
		Unofficial nicknames included Beaneaters, Collinismen, Pilgrims, Plymouth Rocks, Puritans, and Speedboys.	
Boston	UA	Unions, 1884	Union Park and Congress Street Grounds
Boston	PL	Reds, 1890	Congress Street Grounds
	AA	Reds, 1891	"
Hartford	NA	Dark Blues, 1874–75	Hartford Ball Club Grounds
	NL	Dark Blues, 1876–77 (Team played one game in Hartford in 1877 before moving to Brooklyn)	"
Middletown	NA	Mansfields, 1872	Mansfield Club Grounds
New Haven	NA	New havens, 1875	Brewster Park
Providence	NL	Grays, 1878–85	Messer Street Grounds
Springfield	NA	no team but hosted NA games as a neutral site	Springfield Track
Worcester	NL	Ruby Legs, 1880–82	Agricultural County Fair Grounds
		Unofficial nicknames included the Brown Stockings and the No-Names.	

The least likely title came the following year. Tris Speaker was traded to Cleveland after a salary dispute, and injuries ended Wood's career. Pitching again carried the team and it won the league by two games. Boston then went 4-1 against Brooklyn for a fourth Series title. The final glory came in 1918 under manager Ed Barrow in a season shortened by World War I. New owner Harry Frazee bought several players to replace ones lost to the draft, helping Boston edge out Cleveland. In the World Series, Boston triumphed over the Cubs, and both teams have been waiting ever since for a rematch.

CONCLUSION

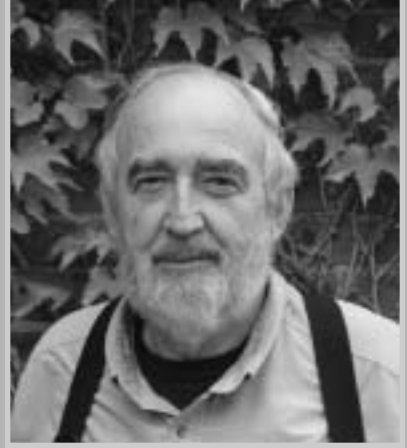
What did these teams do right? First, start with the owners. Good, if flinty, owners contributed to these teams. Even the much-reviled Frazee played a constructive role before his finances sank the team. Conversely, inept or broke owners have reigned since. Secondly, they had extremely competent field managers. The Red Stockings had Harry Wright, a seminal figure in the development of professional baseball, and the brilliant Frank Selee. While Red Sox winners had no managers in the Wright-Selee stratosphere, all could run a team well. Finally, these teams all featured strong pitching. Subsequent teams have emphasized hitting instead of pitching with predictable results. Should the combination of strong ownership, managers, and pitching reappear, a new dynasty could arise. Whether that would be a good thing is a different matter.

—Peter L. de Rosa is Visiting Lecturer of History

This article is based on a lecture entitled "When Boston Had Dynasties: Early League Championships, 1871-1918," for the Clement C. Maxwell Library at Bridgewater State College on October 28, 2003.

Photography

by John Droege



Ferns



Clockwise from Left:
*Dory, Moon,
Sturbridge*



Above:

Olson Barn

Left:

Sturbridge 3

"Photography gives me great pleasure and enjoyment, and...maybe other people may enjoy what I see, and that too would give me enjoyment."

—John Droege is Professor of Art



Discord of the Devil:

The Pueblo Revolt, the Salem Witchcraft Trials and how the Spirit World Helped Make America

by John J. Kucich



Spiritualism in America is generally said to begin in 1848 with the Rochester Rappings, when two teen-aged farm girls, Kate and Margaret Fox, claimed to have spoken with the ghost of a murdered peddler through a series of knocking noises heard throughout their small cabin. The religion they started, with its séances, trance speakers, spectral music and ouija boards, is usually regarded as a marginal movement created by and for a credulous fringe of whites. Yet spiritualism in America long precedes the first European contact, and extends far beyond the religious movement that briefly flourished in the Fox sisters' wake. Regular communication with a spirit world features prominently in Native American cultures, and Europeans and Africans brought spiritualism with them to America's shores. As important as it was to each cultural group, spiritualism also helped shape the terms by which these cultures interacted from the earliest days of contact to the present.

Spiritualism announced its presence in colonial times in spectacular fashion with two contemporaneous events almost a continent apart. The Salem Witchcraft Trials of 1692 and the Pueblo Revolt of 1680 are vivid examples of the range of spiritualist discourse present at least since the beginnings of European colonization in America. They inform American culture down to the present as moments where spirituality and politics were from the beginning inextricably intertwined and as models for how movements and beliefs cross the social boundaries that make up our nation.

PART 1: NUEVO MEXICO

By 1680, the Pueblo Indians and Spanish colonists had fought over control of the upper Rio Grande for generations. From their first contact, political conflict was mediated through religion, with the front line located between the Pueblo kivas and the churches built by Catholic missionaries. Pueblo culture survived the first century of Spanish conquest. The Franciscan friars never completely erased native religion, and by the middle of the century, mixed-race New Mexicans, or mestizos, often formed a bridge between underground native ceremonies and official Catholic ones, participating in both and subtly transforming each. Yet a Spanish crackdown on Pueblo medicine men in the 1670s showed that Spanish tolerance of Pueblo spirituality was wan-

ing, and served to unify the pueblos in resistance to Spanish cultural domination. Pueblo spiritual leaders soon sparked a rebellion. In 1680, having contacted Pueblo guardian spirits, a medicine man named Popé convinced most of the Rio Grande pueblos to join



together in revolt, killing or driving out the missionaries living in the pueblos and, after several weeks of bloody fighting, forcing the entire Spanish colony out of New Mexico. The phrase "discord of the devil," used by one of the friars to describe what Popé had unleashed, illustrates how, in the narrative battle of the Pueblo Revolt, a principal goal was to control the spiritualist terms of the conflict.

As the Pueblo Indians rebuilt their traditional sacred structures, their kivas and estufas, from the remains of Catholic missions, the Spanish commander, Antonio de Otermín, and his fellow settlers huddled in a ragged fort at El Paso, gathering supplies and courage for an attempt to reconquer New Mexico in 1681. His effort, with all its Spanish implements of war and its Catholic rhetorical armaments, drew on Pueblo spirituality as surely as his army drew on the manpower of Pueblo converts. Nothing illustrates this more clearly than the

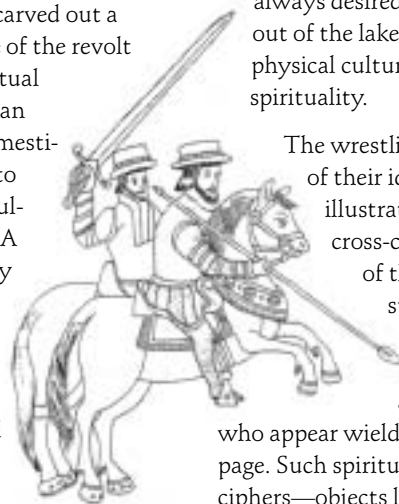
primary sources through which the Spanish piece together their narrative of the revolt, the native informants who appeared before the scribes traveling with Otermín's small army. (This testimony is collected by Charles Hackett in *Revolt of the Pueblo Indians of New Mexico and Otermín's Attempted Reconquest, 1680-1682*.) Deciding what to call these members of various pueblos takes us to the core of their import. Much of their testimony revolves around competing terms (and competing inflections of Pueblo spiritualism) for the position they occupied between Spanish and Indian cultures: "mestizo" and "coyote." Moreover, their struggle over the terms of their identity prefigures the various strategies that would be used to negotiate the cross-cultural terrain of spiritualism throughout American history.

Some members of the pueblos, no doubt aided by the Spanish scribe who recorded their tale, carved out a mestizo position, fashioning a narrative of the revolt that seamlessly marshalls Catholic spiritual rhetoric to retell the struggles of an Indian people in Old Testament terms. In this mestizo position, a colonized people accedes to the spiritualist rhetoric of a dominant culture in the interest of material survival. A member of the Tegua pueblo named only as Juan gave the first account of Popé, describing the medicine man to his Spanish inquisitors as one who "talks with the devil." Juan gave the first word, too, of the cord made from sacred maguay fiber and knotted to signify the number of days until the revolt. These two details indicate how much of Juan's testimony is shaped by Pueblo spirituality. Yet it is more deeply rooted in Christianity. According to Juan, Popé proclaimed "that the devil was very strong and much better than God" and that the Indians were to burn Catholic icons, to renounce their Christian names and marriages, to forswear the Castillian language, and to plant only maize and beans. For Juan, Popé can speak only with the devil, and native spirituality can be understood only in a "God-Satan" binary.

Other Indians, however, used spiritualism to create a "middle ground" located at the juncture of multiple cultures. Juan himself uses the term "coyote" to signify a Spanish-speaking Indian who remains allied to Pueblo culture, and a statement taken the day after Juan's demonstrates this different possibility. Pedro Naranjo, an eighty-year-old member of the Queres nation and a baptized Christian, resists the good-vs.-evil rhetoric of Catholic spiritualism. He, too, mentions that Popé "is said to have communication with the devil" while hiding in Taos, but Naranjo's devil won't remain tied to the Spanish narrative. Popé instead contacts "three figures of Indians who never came out of the estufa," and who said "they were going underground to the lake of Copala." Popé then "saw these figures emit fire from all the extremities of their bodies, and that one of them was called Caudi, another Tilini, and the other Tleume."

These three are neither devils nor gods. They are figures poised between Pueblo and Spanish spiritualisms. For Naranjo, they represent an Indian spiritualism irreducible to Spanish rhetoric, but described nevertheless in terms accessible to his Spanish audience. Here, for the first time in documents of the Spanish reconquest, is an autoethnography, an attempt by a colonized subject to engage with the colonizer's own terms. Naranjo begins here to forge a narrative tradition located between the twin positions of mestizo and coyote. Unlike Juan, Naranjo opens a space for the articulation of a Pueblo culture not reduced to Spanish terms; instead, he seeks to lead a Spanish army bent on reconquest to a recognition of Pueblo difference. In Naranjo's account, Otermín can at least begin to understand that the

Pueblo Revolt began because the Indians "had always desired to live as they had when they came out of the lake at Copala"—an expression of a physical culture inseparable from its traditional spirituality.



The wrestling of Juan and Naranjo over the terms of their identity and the nature of Popé's beliefs illustrate that spiritualism, especially in its cross-cultural manifestations, is a discourse of the borders. It makes the familiar strange, privileges those spaces, such as the mountain caves of New Mexico, farthest from the centers of power, and foregrounds figures like coyote, who appear wielding language full of parody and slippage. Such spiritualist crossings are full, too, of ciphers—objects like the maguay cord that communicate information to a select group, strengthen communal bonds among those in the know, and self-consciously exclude those who aren't. Yet such signs are anything but stable and fixed—they figure wildly, unfixing established meanings and destabilizing the political structures that surround them.

The coyote spirituality of people like Naranjo helped establish a position located between the spiritualist binary of Popé and Otermín. Juan reported that many Indians were ready to fight Otermín's forces to the death, but others were more ready to seek a middle ground. This latter group, according to Juan, argued that the Spanish "must come and gain the kingdom because they were sons of the land and had grown up with the natives." They proved correct. While Otermín had neither the force nor the diplomatic skill to break the Pueblo coalition that Popé had fashioned, a Spanish army under a more moderate governor was able to reconquer the colony a decade later. After another revolt in 1696 failed to drive out the Spanish, both Spaniards and Indians settled into an uneasy harmony out of which emerged a hybrid spirituality unique in North America. The Pueblo Revolt was unique in its effectiveness. It was less singular in its marshalling of spiritualism. While few records of European conquest preserve so strong a record of Indian spirituality, contact between European and Indian peoples in North America

would be marked by competing and hybrid spiritualities to the end of the “Indian Wars” at Wounded Knee and beyond.

Yet while the culture that emerged in New Mexico was remarkable for the durability of its spiritual synthesis, the Pueblo Revolt is merely one of the earliest episodes of cross-cultural spiritualism that would recur throughout American history. Indeed, a dozen years later and almost a continent away, Massachusetts would be embroiled in a spiritualist upheaval following hard on the heels of an Indian revolt, King Philip’s War, very nearly as successful as Popé’s. Though markedly different in its spiritualist referents and less overtly shaped by all-out intercultural warfare, the Salem Witchcraft Trials nevertheless offer striking, indeed, at times, uncanny, parallels to the spiritualist world of the Pueblo Revolt.

PART 2: SALEM

Witchcraft in Salem Village began with girls in the household of the village minister. In the winter of 1692, Elizabeth Parris, the minister’s nine-year-old daughter, Abigail Williams, the minister’s eleven-year-old niece, and two neighbors a few years older began suffering from a mysterious ailment characterized by hallucinations, trance-like states and pinching sensations. Samuel Parris soon exhausted nearby medical resources, and a neighbor, suspecting witchcraft, had Parris’ slaves, John and Tituba, bake a witchcake using the afflicted girls’ urine. According to English folklore, the cake, when fed to a dog, would reveal the name of whoever cast the spell. Though the mechanism remains unclear, the girls quickly accused three women of tormenting them in spectral form. Two, Sarah Good and Sarah Osborne, were middle-aged white women of low status, typical of the people who had been fingered for witchcraft in New England. The third was Tituba.

Where exactly to place Tituba is one of the most enduring controversies surrounding events in Massachusetts in 1692. Scholars argue with equal and opposite certainty that she is either African or Caribbean Indian when the dominant lesson of Tituba, it seems to me, is her ethnic ambiguity. Like the Indians who mingled Pueblo and Catholic elements into their testimony before Otermín’s scribes, Tituba’s intervention in the Salem Witchcraft Trials is not simply Yoruba or Arawak; it is at once both and more. Tituba’s background (she was born in the Caribbean and sold to Samuel Parris in her teens) suggest that she was familiar with both African and Native American folklore. Her testimony proves she was certainly familiar with English folklore as well. If it has proven difficult to pin one distinct identity to Tituba, it is all the more important to keep several in mind when assessing her role in Salem. Like the “native informants” of the Pueblo Revolt, Tituba’s borderline status is more significant than the term we use to identify it.



Opposite: Spanish Cavalry.
Above: Witch signing the Devil’s book.

The witchcake was baked on February 25th, 1692. On February 29th, warrants were issued for the arrest of Tituba, Sarah Osborne and Sarah Good on charges of afflicting the four girls. The accused were examined the next day. Sarah Good at first denied the charge of witchcraft, but then abruptly accused Osborne of tormenting the children. Osborne also denied the charge, but accused no one in turn. At this point, there had been corroboration of the charge of witchcraft, but only from Good, who, though she acted the part of a cross and spiteful witch before the court, had neither confessed nor provided any convincing details. Tituba was then called before the judges. (Her testimony is collected in Paul Boyer’s and Stephen Nissenbaum’s *Salem Witchcraft Papers*.) The examination is a remarkable example of a person at the very bottom of society playing a very dangerous verbal game with a powerful questioner, Judge John Hathorne:

- (H) *Titibe what evil spirit have you familiarity with*
- (T) *none*
- (H) *why do you hurt these children*
- (T) *I do not hurt them*
- (H) *who is it then*
- (T) *the devil for ought I know*
- (H) *did you never see the devil.*
- (T) *the devil came to me and bid me serve him*
- (H) *who have you seen*
- (T) *4 women sometimes hurt the children*
- (H) *who were they?*
- (T) *goode Osburn and Sarah good and I doe not know who the other were Sarah Good and Osburne would have me hurt the children but I would not shee furdre saith there was a tale man of Boston that shee did see*

And on it goes, with Tituba a half step (and only a half step) ahead of Hathorne’s questions, giving short answers to his most probing questions, then elaborating in response to his follow-up questions. Like Naranjo’s description of Popé, Tituba’s is a classic narrative of the

middle ground, taking suggestions from Hathorne and giving them back in a form familiar enough to meet his expectations and unusual enough to highlight Tituba's cultural difference. Some elements of Tituba's testimony, most notoriously the yellow bird, were picked up by accusers in good improvisational fashion; others were well within the discursive fabric of European witchcraft, from witches riding sticks to secret meetings to names in a devil's book, and appeared throughout the testimony heard before the court. Significant parts of Tituba's testimony, however, stand apart. An unusual number of animals appear in her testimony, from dogs to hogs to birds to rats to wolves, and a number of bizarre figures, like "a thing with a head like a woman with 2 leggs and wings" and "an other hairy thing it goes upright like a man," that appear nowhere else. Such elements signal a West Indian shift in the evolving narrative, an insertion of elements drawn from the heterodox spiritualism of the Caribbean into the field of English witchcraft.

Tituba's testimony, like the testimony of the Pueblo Indians before Otermín's inquest, is characteristic of the contact zone between cultures; it adopts elements of a dominant culture while infusing them with difference. Her extension of the setting to include Boston, her hint of upper-class involvement, and her vivid descriptions of imps and animal familiars made her account of witchcraft at once more believable, more alien, and more terrifying than earlier accounts of witchcraft in New England. Spiritualism within a monocultural context is often striking in its ordinariness—the discourse of New England witchcraft, for example, was typically suffused with the petty details of domesticity. The creative adaptations of cross-cultural spiritualism, however, disrupt the familiar norms and expectations. Such disruptions are, in a word, uncanny. In cross-cultural settings like Salem and New Mexico, Tituba's and Naranjo's spiritualist testimony can only be (to use the German version of the word) *unheimlich*, "un-home-like" or "un-settling," to their European listeners. What had appeared to be familiar and recognizable—Catholic spirituality or European witchcraft—to white observers was revealed, though this cross-cultural spiritualism, to be alien, hostile, and laced with the Other.



Tituba telling West Indian tales to the Salem children.

Such a potent use of spiritualism, indeed, can be seen as an act of ghostly sabotage against the colonial system. A woman as powerless as Tituba couldn't have sabotaged the system that enslaved her any more effectively. Her compelling account of occult activity unleashed the political unconscious of Puritan New England, fueling the judicial frenzy that left 156 people imprisoned, four of whom died in jail, one of whom was pressed to death and nineteen of whom were hanged. Few slave revolts in the mainland colonies resulted in as many deaths. Tituba herself proved too valuable to hang: she was rewarded for her cooperation with her life, and sold to pay her jail fees.

Witchcraft in Massachusetts, as in New Mexico, was closely linked to colonial dispossession—for the English as for the Spanish, devilry was virtually synonymous with Indian culture. Yet the excesses of Salem made English colonists skeptical of witchcraft, and as European settlers consolidated their hold on America,

they had less need to demonize the spiritual beliefs of its aboriginal inhabitants. Witchcraft didn't wholly disappear. Scattered New Englanders were accused well into the next century, but episodes were local and generally confined to the lower classes, where the lore of witchcraft mingled with other European folklore and fragments of more elite

occultism. Those elements, combined with the religious revivals of the Great Awakening, with their emphasis on direct spiritual contact and their religious theater of trances and speaking of tongues, would lead, though a circuitous path, to the farmhouse outside of Rochester where the Fox sisters would hear their mysterious rappings. By 1848, New Mexico and New England were part of one nation, and spiritualism would again play a key role in negotiating cultural conflict on this vastly larger American stage.

—John J. Kucich is Assistant Professor of English

This article is drawn from the book *Ghostly Communion: Cross-cultural Spiritualism in 19th Century American Literature*, forthcoming this fall from University Press of New England.

News from CART

(Center for the Advancement of Research and Teaching)

The Center for the Advancement of Research and Teaching (CART) offers grant support for both small and large-scale faculty research projects, as well as for travel to professional conferences. Deborah Nemko, Assistant Professor of Music, was among the recent grant recipients.

MY WORK WITH THE "GRAND DAME OF BELGIAN PIANISM"

In the summer of 2002 I had the pleasure of studying the piano works of Zoltán Kodály with Madame Diane Andersen in Belgium. An internationally known pianist who has lived a most colorful life, Andersen is also an Honorary Professor at the Royal Brussels Conservatory. Among her other accomplishments are numerous awards for her recordings, including a "Grand Prix du Disque" (Belgian Radio). Currently masterful musicians like Boston-area composer Diane Goolkasian Rahbee continue to write music for Andersen to perform and record.

Andersen can also be considered a primary source for information about both composers Béla Bartók and Zoltán Kodály. For many years she was married to Andre Gertler, the friend and duo-partner of Béla Bartók, and she knew Bartók well. As collector and champion of the folk music of eastern Europe, with Zoltán Kodály, Bartók is seen as one of the most influential musicians of the 20th century.

Diane Andersen and I met in the International Prague Piano Master Classes during the summer of 2000.



Deborah Nemko

I was very impressed with her pianism, style and grace and immediately felt a connection to both the vitality of her work and the pianist behind the music. As a result of my study with Andersen, each summer I now teach and perform in Belgium in the International Piano Class that Andersen directs. The music world, as you may guess, is very small and I am grateful to have had the opportunity through a CART summer grant to soak up some of the musical wisdom from this very gifted lady. My project in the summer of 2002 was the study and analysis of the works of Zoltán Kodály and Béla Bartók. I spent most of my hours, when I was not teaching, in the International Workshop for Pianists, practicing and studying two works by Zoltán Kodály with Madame Andersen: *The Seven Pieces for Piano, Op. 11* (1921) and “The Dances of Marosszek” (1930). While Zoltán Kodály is mostly known for his work as educator and ethnomusicologist, for me it has been a great discovery to learn of his very fine piano pieces.

Kodály’s various compositions, including his piano works, reflect his interest in the folk music of Hungary, his native country. In the early 1900s Hungary was a place of political and cultural upheaval. The upper classes maintained strong ties with Germany, spoke German and had little interest in what they considered “less cultivated music”—the folk music of the peasants. In 1905, inspired by the beauty and rhythmical variety of music he heard, Kodály began collecting Hungarian folk music, thereby beginning a long career devoted to its promotion and preservation. Though the classical music world at first was resistant to this style of music, considering it primitive and simple, Kodály, a classically trained musician, acted as archivist for the music, recording examples in the field of localities in Eastern Europe using early recording equipment, and also transcribing the music for later performance and study.

As a classical composer, the collection of this music provided Kodály with interesting materials for his own work. A natural consequence of his association with folk music, Kodály’s compositions, like Bartók’s, were informed by his contact with these “new” materials. Piano works like “The Dances of Marosszek” and the *Seven Pieces for Piano, Op. 11* reflect the composer’s respect and reverence for Hungarian folk music. In “The Dances of Marosszek,” one finds the interweaving of folkdance and folk-tune in a decidedly classical texture. The rhythmical energy and improvisatory style of the work echo the spirit and spontaneity of the original dances upon which the classical work was based.

Mme. Andersen taught me much about the unusual tone colors related to the folk instruments which are referenced in Kodály’s piano pieces. In addition, Andersen’s discussion of the use of the pedal in the music was also very enlightening. By rapidly changing the pedal in moments where the music is very speech-like and at other times holding the pedal down for a lush sonority, one can create a rich variety of sounds similar to the original instruments associated with the folk-music. In addition, an understanding of the Hungarian language, she stressed, helps one to understand the phrasing and articulation of Kodály’s music.

Andersen, who speaks Hungarian, explained points in the musical phrase that reflect the natural rhythm and flow of the Hungarian language. Though the works I studied are written for piano, clearly an understanding of language and Hungarian culture assist one in giving a more moving and authentic performance of the work. Ornamentation is prevalent in the music and, as in the performance practice of Baroque music where the oral tradition dictated the understanding and practice of ornamentation, it pays to study ornamentation in Kodály’s works with someone who has heard Kodály himself perform the pieces.

The summer of 2002 gave me a greater understanding of music by Kodály and Bartók

and also brought Diane Andersen closer to the United States. After my week in Belgium we arranged to have her visit Bridgewater State College to give a workshop to my students and the Bridgewater community. Most recently, Bridgewater piano students had an opportunity to work with Mme. Andersen in March, 2004, when she conducted a Master Class in the Horace Mann auditorium. The BSC students played beautifully, I am most proud to say, and walked away feeling inspired to be better pianists and develop an even greater knowledge of the wealth of amazing music which belongs to us all.

—Deborah Nemko is Assistant Professor of Music



Book Review: Lascivious Grace

The Mechanics of Submission

Phil Tabakow

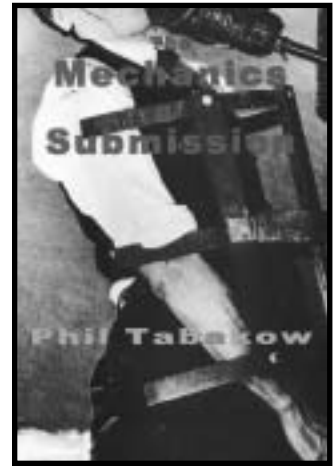
by Charles F. Angell

Phil Tabakow occupies the office adjacent to mine; we talk often, mostly in prose, about office politics, the joys of teaching, his kids and mine, the usual. I've heard Phil read his poems on more than one occasion and watched over the past several months as he's prepared his new collection for publication, but only since its appearance this past March have I had the chance to engage with Phil's work as a reader. Reading Phil's collection, I couldn't help recalling James Lee Burke's remark about one of his characters: "his mind was a neighborhood he didn't want to walk around alone in." I mentioned this wise-crack to Phil who quickly recalled for me the first premise of reading and teaching literature: "Don't confuse a poem's speaker with its author."

Still, the reader can't help but wonder about this disjunction when reading the title poem of Phil's collection. *The Mechanics of Submission* pits "magazine needs" for inoffensive and innocuous—"no overtly philosophical, fuzzily pontificating," etc.—poetry submissions against "my muse,"—an insatiably vulvaic concentration/camp matron from a postwar/German art film, dimly recalled—. This muse "jackboots" the poet into submitting to her unarticulated landscapes where magazine poetry editors, themselves moralistic jackbooters, refuse to travel. Indeed, these timid poetry editors are descendants (let's hope not progenitors) of "H. Schwartz, Head Architect," the speaker of "Addendum to the Final Plan," the poem immediately preceding "The Mechanics of Submission." Here, in language entirely sanitized, the Schwartz persona delineates how by adhering to the revised rules operators can improve the "overall efficiency" of the concentration camp death chambers. Paradoxically, the poet's muse, the "seig-heiling, fascist woman warrior," compels the poet into linguistic acts of subversion that expose and defy the complacent morality and terrible amorality of editors and operators. The poet must submit to linguistic explorations of an inchoate landscape.

Phil's "Two Interstates Converged" uses a familiar highway landscape to suggest that pain avoided may in the end be more painful than pain confronted. The poem begins "two interstates converged near some suburban sprawl," a witty and obvious echo of Frost's familiar "two roads diverged in a yellow wood." For Phil's speaker, the choice lies between taking the interstate south to comfort a friend dying of melanoma or traveling north

to visit "a woman I'd known twenty years before." Frost's "yellow wood" becomes a "blanket of yellow smog." The speaker travels north into the smog instead of south and "clearing skies" but realizes that at some future point "I'll probably be telling this with a guilty shrug/to some high-priced shrink." Guilt replaces conscience. "I took the road less travelled by/and never saw my friend again." The speaker by his act submits himself to a featureless and sprawling landscape.



By happy coincidence I was reading Mary Karr's essay "Against Decoration" where she decries contemporary poets' tendency to obscure the particular features of a felt experience with formal decoration of metaphor and language. Karr quotes lines from Wallace Stevens' "Esthetique du Mal" in which

The greatest poverty is not to live
In a physical world, to feel that one's desire
Is too difficult to tell from despair. Perhaps,
After Death, the non-physical people, in paradise,
Itself non-physical, may, by chance, observe
The green corn gleaming and experience
The minor of what we feel. . . .

For Karr Stevens' "non-physical people" "looked down and envied in me the very passions that caused me difficulty." For me they provide a palimpsest for Phil's "Sex After Death" where "It doesn't exist./ "That's why it's so good,"/ say the dead, "so good!" Like Stevens' "non-physical people," the dead in "Sex After Death" have sex "always at the tips of their tongues/or nibbling at their toes." They live in "parallel universes without feeling" where "The living are unable to fathom/such states of ecstasy.// And the dead know it." The poem articulates the inability of the living to understand states of ecstasy in themselves or imagine that such states might exist among the dead. The poem then imbues the dead with knowledge about states of ecstasy on which they are unable to act. Parallel universes know but cannot touch one another.

Phil Tabakow's *The Mechanics of Submission* offers numerous delights of the sort encountered in the few poems I've mentioned. Just as in "Ars Poetica" the sun ignites the coppered/rooftops on the Kentucky shore,/ and transforms decrepit old Covington/into the long sought for city of God," so *The Mechanics of Submission* illuminates an all too familiar moral, emotional, and spiritual landscape in which none of us want to walk around alone.

—Charles F. Angell is Professor of English

Research Note:

Musical Traditions in India

Salil Sachdev



In summer 2004 I will be traveling to New Delhi, India, for a period of three months after having received a Rotary Grant for University Professors. My intent in traveling to India is based on a two-fold purpose. First, I want to share my experience and skills in an area of my expertise, music theory, at the Delhi School of Music, and second, I am eager to continue working on my long-term project of documenting the traditional folk music of India on video and audio recordings.

The Delhi School of Music is one of the only 2 institutions in India dedicated to teaching Western classical music, the other one being in Mumbai. Based on a highly credible and strong reputation, it is the only place in North India where young people can study Western classical music in a formal setting. However, the emphasis of study has always been on instrumental performance. There has always been a strong need for teaching in music theory, a need that remains largely unfulfilled due to the lack of teachers specializing in this area. Perhaps the most appropriate example of this dire need would best be illustrated by my own experience as a student of music composition in New Delhi. At the time that I was pursuing my studies in music in India,

there were only two people in New Delhi who had the necessary background and training to adequately prepare students in advanced Western music theory. I was fortunate to be able to study privately with one of them

(the Conductor of the Delhi Symphony Orchestra) for a period of four years, after which I was prepared and able to pursue my graduate studies in music composition in the United States. By having the ability to contribute in this area now, I would be able to help students studying western music in India, to solidify an area of their background so necessary to having a well-rounded foundation in music.

My second reason for going to India is to further investigate, and as well to continue documenting, the traditional folk music of India on video and audio recordings, a project that I started two years ago. India is one of the most diverse nations in the world—a “museum of peoples.” Comprised of 26 states organized on a linguistic basis, the country consists of people with a multitude of different ethnic identities and backgrounds as well as philosophical and religious beliefs. Hence, there is a profusion of distinctly different kinds of folk, religious and

ceremonial music vibrantly alive in all parts of the country. While the universal emphasis on studying the classical music of India has proved to be highly fruitful on its own accord, it has in the process overshadowed the abundance of folk music resonant with everyday life in the country. Long in



its history and beautiful in its melodic form and expression, Indian classical music is one of the oldest unbroken musical traditions in the world. Many scholars and researchers from around the world have found themselves drawn deeply into the classical music tradition of India. While this continues to be a highly worthwhile

Opposite: Backwaters of Kerala. Below: Chenda Drummers.

effort, overlooked in this emphasis is the rich cultural heritage of the abundance of folk music existent in India in different parts of the country. These profound musical artistic traditions have co-existed with Indian classical music for centuries. However, being the music of the “average” people and rural areas, their place in research, study and documentation has not been given as much stress as their classical counterpart. Thus, the significance of this project lies in discovering and documenting artistic traditions which have proven to hold their dignity and integrity in the face of continual change, and constant demands for modernization, transformation and threats of extinction.



Among the many possibilities of research in folk music are work songs in south India. These include harvest songs, hunting songs, boat songs and weavers’ songs, all meant to alleviate the the monotony of everyday chores and labor. As well in south India is one of the most mesmerizing drum ensembles, consisting of Chenda drums, accompanied by a bell and cymbal. The Chenda drum is a hollow cylindrical drum made out of soft wood with the ends covered with cowhide. It is one of the most important percussion instruments played in temple festivals. The Thyambaka, a renowned drum ensemble in the state of Kerala, features several Chenda players playing some of the most exciting and vibrant music that can be heard anywhere.

Commonly found in parts of North India is the one-string fiddle player, walking around in different neighborhoods with a bunch of fiddles delicately balanced on a basket placed on his head, while playing the fiddle at the same time. This fiddle, made out of a piece of wood, small gourd and one string, comes alive in the hands of this street vendor, trying to sell his instruments with his exquisite “walking performance.”

Brass bands, with their blaring and vibrant sounds, are commonly found in all parts of India and are an important part of many wedding celebrations. Composed of trombones, trumpets and various other instruments, they reflect the English influence on India from the colonial period. The music they play, however, is mostly

popular Indian film music. It is certainly one of the most interesting and fun filled sights to see this very common phenomenon in the country.

I plan to travel to various parts of India, particularly rural areas, and record the folk music of various regions on audio and video. The video documentary will include street performances and interviews with practicing musicians, as well as the cultural and geographical history of the regions. Additionally, I plan to document certain festivals where folk music is an integral part of the event.

The outcome of this effort will contribute to not only the visual and aural documentation of traditional folk musical practices in India, but will also serve to stimulate and encourage further research and study in this enormous area. Since there is such an astounding variety of folk, religious and ceremonial music in the many culturally diverse regions across India, it will require an effort of a lifetime to document them thoroughly. Ultimately, it is my intention to document all of the major streams of folk music existent in the country (and the associated festivals) in a multi-volume video and audio anthology. This continually growing anthology would serve as a valuable resource to music schools, libraries, researchers and scholars, and students of arts and humanities all around the world.

—Salil Sachdev is Assistant Professor of Music

Cultural Commentary:

The Art of Persuasion

by Barbara Apstein

Jeff, one of my advisees, appeared in my office about a week late to register for spring semester classes. “I’m sorry to tell you,” I said, glancing at the computer screen, “but the classes you want are full.”

“I know I should have come earlier,” Jeff replied, “but I can usually manage to get into classes even if they are closed.” He paused and smiled. “I can be very persuasive. I have my methods.”

I tried to imagine what his methods might be. Jeff was a good talker; he had bright eyes and an animated expression. I could easily imagine that a professor whose class was fully enrolled might size him up as an intelligent, articulate young man who would add some intellectual spark to class discussion. Or perhaps Jeff would present some compelling reasons for joining the class: he might reveal a life-long love of the works of, say, James Joyce. Or he might evoke sympathy by explaining that he needed to hold two jobs in order to earn enough money to pay his tuition and car insurance. I realized that I myself had occasionally waived the rules for persuasive students like him.

Aristotle analyzed the art of persuasion almost 3,000 years ago in his *Rhetoric*, distinguishing three categories. *Logos*, the origin of the English word *logic*, is “the power of proving a truth by means of persuasive arguments,” in other words, the appeal to good reasons. *Pathos* is “the power of stirring the emotions of one’s hearers,” the appeal to emotion and shared values. *Ethos* is “the speaker’s power of evincing a personal character which will make his speech credible,” make him or her appear trustworthy. This analysis remains useful today, whether we are talking about the public sphere, where, to an extent that Aristotle’s contemporaries never imagined, Americans of the 21st century are swamped with persuasive appeals from advertisers and politicians, or the private sphere.

Where student-faculty relations are involved, the three kinds of persuasion usually occur in combination. Take, for example, the issue of absences and late papers. Most professors present strict, no-nonsense policies on their

course information handouts: “only three absences are permitted”; “lateness will be considered an absence,” “absences due to illness are excused only with a doctor’s note,” and so forth. In practice, however, there are some good reasons for missing class:

I had to go to a funeral (or wake).

My car wouldn’t start.

I was in an accident.

I had to appear in court.

I had to take my roommate to the emergency room.

I was sick (most frequently, the flu or strep throat).

In some instances, students and faculty may disagree on what constitutes a good reason:

I had a dentist appointment.

I had to drive my aunt to the airport.

I had to go to my cat’s funeral.

I went to Disney World with my friends.

Even a good reason, however, may not be enough to convince. Unless the student has established a credible *ethos* by attending class regularly, being attentive, handing assignments in on time, and doing well on exams, his or her excuses may be greeted with skepticism. A student with a strong *ethos* and a sketchy reason is more likely to be trusted than one with a weak *ethos* and a good reason.

Pathos also comes into play, especially when a student is obviously upset. And sometimes the sheer number of reasons for missing a class or an assignment compels trust. When the problems are overwhelming, it’s hard to believe that anyone would make them up, as in the following note:

“Please excuse my absences from your class and for missing our scheduled appointment on Wednesday. On Tuesday we had a major computer failure at my job, and I did not get out of work until 3:00 A.M. I decided that it would be better to just stay awake and try and make it through my classes and then go home to sleep. However, I fell asleep in my 8:00 class and decided that it would be best if I went home after that. The next few days were spent mostly in the hospital, as my boyfriend’s sister tried to commit suicide.”

Of course, a good reason is not necessarily a true one, and it is generally acknowledged that the rate of student illnesses and family deaths increases sharply at exam time. Although the chances of being found out

Rembrandt's portrait of Aristotle (1653).

may seem remote, occasionally a “bereaved” student is caught lying. A colleague recently reported that Susan, a student in her *Writing I* class, after the sudden, unexpected death of her father, had composed a touching tribute to him, for which she had received a high grade. The paper had been late, unavoidably, as the funeral and mourning process had taken their toll. A few weeks later, at a dinner party, the colleague was introduced by mutual friends to Susan’s parents—both very much alive.

Persuasive appeals play a role in other kinds of student-faculty interactions. The growth of the internet and its vast assortment of online documents has made plagiarism an enormous problem in the academic world. The fact that professional writers occasionally make the news by plagiarizing their articles doesn’t help.

On college campuses, an accusation of plagiarism usually leads to an awkward and unpleasant confrontation. The accused student almost always appears shocked to discover that someone else’s paragraphs have appeared in his or her paper. The persuasive effort begins with good reasons, generally involving computer malfunction or careless error:

“I don’t know how that got in there!” [staring in disbelief at the offending passage].

“I cited the source of that -- didn’t I? I meant to.”

“That was in my notes, but it wasn’t supposed to be in my final paper. I must have *printed the wrong file by mistake.*”

However, occasionally this process is inverted and a student actually succeeds in being persuasive by producing a bad reason. Debbie, a student in my *Writing II* class, submitted a research paper consisting largely of chunks of text which had been cut-and-pasted from various internet sources. I was not looking forward to confronting Debbie, and I had prepared a speech explaining “fair use” of other writers’ work, the seriousness of academic dishonesty and the penalties she was likely to incur. However, she surprised me.

“How much of this essay did *you* write,” I asked in a censorious tone.

“Not much, to tell the truth,” she replied. “Most of it I took off the internet.”

No excuses; this was unusual. However, I persevered:

“Do you know what plagiarism is?”

“Oh, yes,” Debbie responded. “I do it all the time. I can’t help it. Several teachers have spoken to me about it...”

“But...but...”



I couldn’t think of anything to say.

“You see,” she went on, “the thing is, when I read something, it sounds so good. I can’t think of any way to change the wording. The author’s wording is perfect. Maybe I should just put the whole paper in quotes?”

Who could make this up? By not even pretending to have a “good reason” for plagiarizing, Debbie established a credible *ethos*; I believed her. Her sense of helplessness, the confession of plagiarism addiction, also created an element of *pathos*, a sympathetic desire to help Debbie learn how to explain other people’s ideas in her own words.

Successful teaching, too, depends on the art of persuasion. Teachers must try, from the very first day of class, to establish a positive *ethos*: we must convince students that we are trustworthy as well as being knowledgeable; that our assignments and tests are fair and reasonable; that we are committed to their learning. We must provide good reasons (*logos*) why our subject is important, worth the time and effort they will need to understand it—a particularly challenging task in required courses. Perhaps most difficult, but found in the best teachers, is the element of *pathos*, the ability to stir emotion, to communicate enthusiasm for one’s subject and to convince students that they can succeed.

—Barbara Apstein is Professor of English and Associate Editor of the *Bridgewater Review*

Cultural Commentary:

When More is Better, and Then It's Not

by William C. Levin

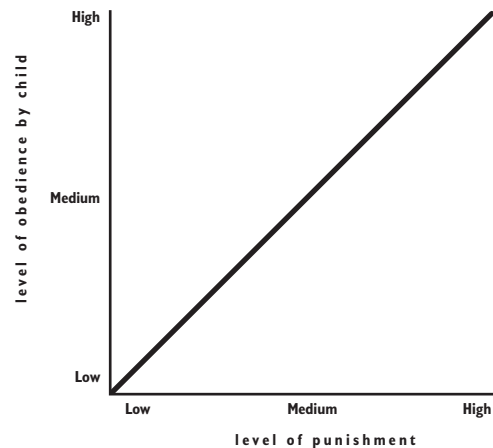
Attempting to explain human behavior is such fun that we who do it for a living should probably feel guilty about being paid. But absorbing as it is, the task does present some challenges. For example, there is a tendency for people to oversimplify explanations, and even professionals can fall prey to the temptation. There are a number of ways that we can oversimplify our explanations. One is the attempt to explain a human behavior with a single underlying cause. For example, it would be foolish to imagine that divorce is the result of poor communication between spouses, and of nothing else. Another is the tendency to oversimplify the nature of the relationship between a specific cause and effect. I was reminded of the danger of this sort of error by something that I observed just yesterday.

I was shopping in my local supermarket when a child of about 6 years old, who was sitting in his mother's shopping cart, reached out to grab from the shelf a box of Poppy-Puffs Cereal. Before he could pull in the catch his mother grabbed his arm at the wrist, twisted it into a scary shape, and shrieked into his face the threat that "You put that back or I'll break your #*!&* arm." (As for the #*!&*, it started with "G" and ended with "m.") I was pretty much horrified, and looked around to see who had heard this. I think I felt embarrassed for the dignity of our shopping aisle. There was a woman right behind me who shrugged her shoulders to me and whispered, "Spare the rod, spoil the child."

I have heard that expression used many times, I think the first time from my uncle George, who was famous for his pithy pronouncements. He used the saying to sum up an otherwise complex family discussion about a cousin who had been caught stealing money from his parents to pay for his losses at the track. We kids all knew what he meant. Cousin Rollo had been pampered, and had he been properly disciplined when young, he would not have come to such a sad end.

As an academic, I would now describe the idea as a relationship between two variables. Punishment for wrongdoing increases levels of obedience. It is what we call a linear relationship, and in graphic terms it looks like this.

FIGURE 1



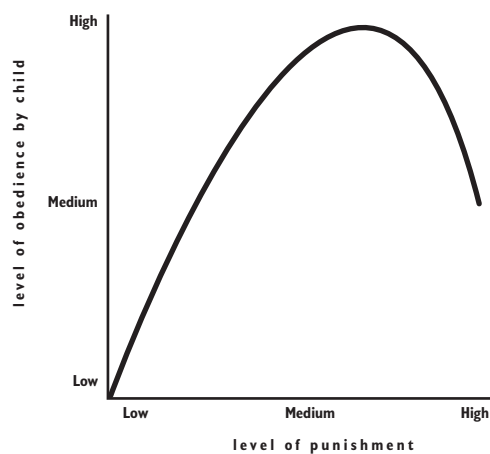
The idea is that as you increase the level of punishment for wrongdoing, the level of obedience by your child should increase. In fact, most of our statements about the relationships between variables take this form. For example, we normally hear assertions that harder work (such as studying) yields greater success (such as higher grades), that you have to spend money to get higher quality goods, that more education will yield higher career incomes, that nutrients aid plant growth, that more hours of television viewing can be expected to drive down academic performance in high school and that the more troops we have available for a conflict, the greater likelihood we will have of achieving military objective. (This last one was taken from today's story in the *Boston Globe* about perceived need to increase the number of American troops in Iraq.) In each of the statements above, the relationship is stated in terms that make it seem linear.

The problem with such statements is not that they are illogical, but that they are oversimplifications. While it may be true that a total lack of discipline can lead to disobedience in a child, and that some discipline will produce raised levels of obedience, will infinite amounts of discipline produce perfect obedience? Even a brief discussion with parents, at least with the ones who are not drowning in deep end of the discipline-obedience pool, will reveal that there are limits to what discipline can be expected to accomplish in the rearing of children. As with the woman in the supermarket, it is apparent that the child was not obeying her, though she had already

ratcheted the punishment and threat levels to high levels for minor offenses. It would probably not surprise you to know that just a few minutes after that little boy had been so severely disciplined by his mother, I saw him grabbing for more verboten goods when his mother wasn't looking.

So a more complex relationship between variables would need a more sophisticated depiction. A straight line relationship is too simple. We need to be able to consider that relationships between variables can be curvilinear. Here is one such depiction.

FIGURE 2



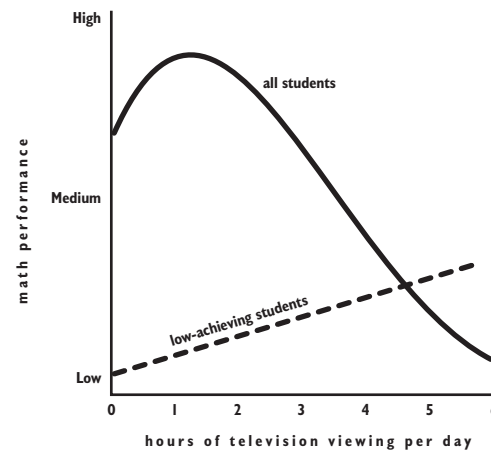
In this case, a complete lack of discipline is associated with low levels of obedience, low and moderate levels of discipline increase obedience levels, but at some point acts of discipline begin to be less effective. This “point of diminishing returns” is typically expressed in the child’s response of “yeah, yeah yeah.” If levels of discipline increase further, it is possible that discipline will have no effect at all (the flat top of the curve), and if levels of discipline go higher, the consequence may be rebellion by the child such that further discipline actually drives down obedience. This is the dreaded response of “If you hit me more and harder, I’ll make you pay.” that the little boy in the cart seemed to have reached.

The more I study human interaction, the more I come to the conclusion that linear relationships are the exception rather than the rule. They may be useful for beginning discussions, but they quickly fade on thoughtful examination of the probabilities, and after data is collected to explicate relationships between variables. Here

are just a few articles from a number of professional journals that illustrate the value of being able to think in curvilinear terms about relationships between variables.

What is the relationship between hours of television viewing by high school students and their performance on math tests? If it is linear, you would imagine that the relationship should be that the more television children watch, the lower their math scores tend to be. This would be an example of a negative, but still linear relationship. In a study conducted in 2000 in the journal *Quality and Quantity*, a researcher (e-mail me for complete citations to any of the following articles) found a clearly curvilinear relationship between the variables. Here is the relationship in graphic terms.

FIGURE 3



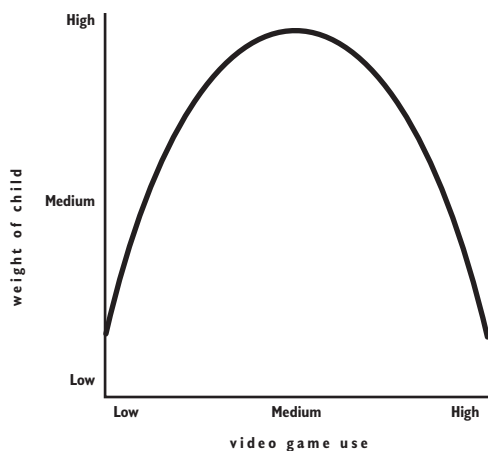
The data showed that in a sample of high school seniors, students who watched no television on an average day had good scores on math tests, but that students who watched an average of one hour per day had even higher math scores. After that point, increasing hours of television viewing per day was associated with proportionately lower math scores. This is not the most complicated sort of curvilinear relationship, but it is clear that an assumption of linearity is wrong here. As for why kids who watched one hour of television per day did better on their math tests than any other students, your guess is as good as mine or the author of the articles. Much of his discussion of the data is taken up with speculation as to the reason for the finding, with the possibility that these kids are watching educational television being my favorite.

Interestingly, this same author found a clearly linear relationship in the same set of data, showing that among poor performing students, there was a positive

and linear relationship between television viewing and math performance. (This is shown in the dotted line on the figure.) Makes no sense, huh? Why should watching *more* television have been associated with higher math performance, even though these were academically the weakest of the students? Go figure.

What about the relationship between children's weight and their use of video games. Asked to hypothesize about this relationship, my students agreed that there should be a linear relationship in which greater video game use would be associated with greater weight in children. In fact, researchers found in the *Journal of Adolescence* in 2004 that the children in their sample who weighed the most had played video games moderately, while the lightest children had played the video games very little or the most. See the figure below.

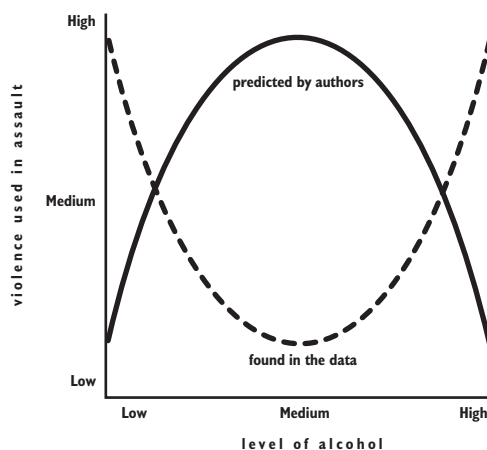
FIGURE 4



Now that you see the pattern, let me give you a few more examples in short form. In 2002 researchers publishing in the *Journal of General Internal Medicine* reported that elderly patients who lived in the poorest and the wealthiest neighborhoods were most likely to use teaching hospitals, while those living in middle-income neighborhoods used them the least. In 2000 researchers published in the journal *Sociological Forum* the finding that the poorer the neighborhood, the greater the number of religious institutions the neighborhood supported. However, once the level of poverty in the neighborhood got too high, neighborhood support for religious institutions began to decline. In 2001, in the journal *Current Anthropology*, a study of risk-taking

among certain South American peasants (Aymara herders living in Peru and Bolivia) found that the poorer and wealthier herders were most willing to take economic risks, while the moderately well-off among the herders were the most risk-averse. And here's a scary one to end with. In 2002 in the journal *Psychology of Women*, the researchers had predicted a curvilinear relationship between how drunk a rapist was and the violence he employed in his attack on his victim. They hypothesized that the most violent attacks would be found among the attackers who had drunk moderate amounts of alcohol, and that those who had drunk little or a great deal would have employed less violence. They were right to predict that the relationship would be curvilinear, but as the figure below shows, the curve they found flipped their prediction upside down. They found that the most violent attacks were committed by the perpetrators who had consumed the least and the most alcohol. The least violent attacks were committed by those who had drunk in moderation.

FIGURE 5



This last finding suggests the language of the Greek ideal that all things should be experienced in moderation, though it also turns the idea on its head. If we keep in mind that even things that have desirable effects can be overdone, then we automatically open the door to thinking in curvilinear terms. I love chocolate, though the pleasure of its taste certainly diminishes after a few bowls, and becomes tiresome after that. To the extent that we allow ourselves to think and speak employing the easier, shorthand view that linearity offers we will limit our ability to imagine the more complex world.

—William C. Levin is Professor of Sociology and Associate Editor of the *Bridgewater Review*