Manana Island, ME

Manana Island is a (now) uninhabited speck that sits about fifty yards from Monhegan Island off the coast of central Maine. After dinner, my wife, Joan, and I were sitting on the porch of the inn we stayed at while visiting Monhegan when light, clouds and gulls aligned allowing me to make this photograph.

The Line Up

This photo relies on pattern to create interest. It was taken in the early evening on Monhegan Island, off the central Maine coast. Joan and I emerged from the inn where we were staying for an after dinner stroll in this delightful place, I looked up and saw these birds as a photograph just waiting to be made!
Bridgewater Review

ON THE COVER
Roger Dunn, Professor of Art, traveled to India during a 2004 Sabbatical. Pictured is a bazaar in Hampi, India where vendors set up in the shade of the columned market that surrounds a pool, with a shrine in its center. Additional photographs of Hampi by Professor Dunn are seen on pages 15–18.

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One of our proudest accomplishments at the twenty-two years were filled with collegial joy and heartily about our own foibles and idiosyncrasies. Those working lunches where we mulled over the next from campus. My fondest memories of Barbara will be ful. She had a keen eye for educational trends and how writing “voice” was always clear, precise and thought-sis, travels to Italy, and insights into campus life. Her based on her firm belief that the faculty at Bridgewater quality magazine.

Barbara, meaning Barbara,Apstein, has now entered a new era, Bridgewater has a new era, and the A.B. stands for After Barbara, meaning that Barbara Apstein, the associate editor of the magazine for twenty-two years, is retiring. During these twenty-two years I have been privileged to have Barbara as the associate editor. Her skill at spotting all those awkward sentences, her patience in working with anxious authors, her calming presence dealing with a hyperac- tive editor, and most of all her commitment to highlight the fine work of the Bridgewater State College faculty

The Bridgewater Review has now entered a new era, the A.B. era. A.B. stands for After Barbara, meaning that Barbara Apstein, the associate editor of the magazine for twenty-two years, is retiring. During these twenty-two years I have been privileged to have Barbara as the associate editor. Her skill at spotting all those awkward sentences, her patience in working with anxious authors, her calming presence dealing with a hyperactive editor, and most of all her commitment to highlight the fine work of the Bridgewater State College faculty will be sorely missed and difficult to replace.

Over the years Barbara has written some wonderful articles for the Review on student writing, literary analy-sis, travels to Italy, and insights into campus life. Her writing “voice” was always clear, precise and thought-ful. She had a keen eye for educational trends and how students were changing birth in the classroom and away from campus. My fondest memories of Barbara will be the working lunches where we mulled over the next issue and too often got a little loud as we would laugh heartily about our own foibles and idiosyncrasies.

One of our proudest accomplishments at the Review has been to keep the magazine going through budget crises, changes in administration and just the wear and tear of turning out two editions every year that are unique and maintain a standard of quality. The secret to the success of the Bridgewater Review was Barbara Apstein, who never wavered from demanding and then producing a quality magazine.

Barbara Apstein’s success as an associate editor was based on her firm belief that the faculty at Bridgewater State College was indeed special and was making contri-

butions to the advancement of knowledge that some did not expect from a small state school. Barbara wanted to help tell the story of a fine and distinguished facul-
ty through the Bridgewater Review, and after twenty-two years her legacy is contained in all those issues that she helped publish.

Barbara, like many of us senior faculty who have given much to public higher education, realizes that there is indeed “life after Bridgewater.” Barbara will likely play tennis, attend the opera, travel to Italy and enjoy life with her husband Carl. But Barbara will never leave Bridgewater because there is a body of work published in the faculty magazine that she was so influential in shaping. When people retire they leave behind fond memories and many friendships. When Barbara retires she leaves behind all those wonderful articles and commentaries that made people think and broaden their understanding of the world. That’s quite an accomplishment.

I can only wish Barbara the best as she enters the next stage of her career. The Review will miss her kind edit-
ing, her clear thinking and her commitment to the thousands of students she touched over the years. What I will miss most is Barbara’s generous heart and her human dignity. Sadly, the Bridgewater Review will never be the same.

Alzheimer’s Disease and Contrast Sensitivity

Implications for Everyday Functioning

by Sandra Neargarder

Alzheimer’s disease (AD) is a progressive brain disorder that gradually destroys an individual’s mental functions and social capabilities, including memory, reasoning, decision-making, communication, and the ability to carry out everyday activities. According to the Alzheimer’s Association, AD affects approximately 4.5 million Americans, and by the year 2050 this number could increase to 11.3–16 million. Increasing age is the greatest risk factor for AD. Approximately 10% of indi-

viduals over the age of 65 and 50% of those over the age of 85 are affected. It is estimated that after the onset of symptoms, individuals with AD live an average of 8 years, but the duration of the disease can range any-

where from 3 to 20 years. With rising healthcare costs (the average lifetime cost of care for an individual with AD is $174,000), it is imperative that individuals with AD be able to function independently for as long as possible.

Patients, caregivers, and most health-care professionals primarily identify AD as a memory disorder. Although a memory deficit is usually the first sign of AD, impair-
ments are evident in other domains, including visual function. These impairments are commonly overlooked because visual function is typically measured in terms of visual acuity (the standard letter chart used in an optometrist’s office), which is normal in individuals with AD. Based on previous research we know that impairments exist in a variety of visual domains, includ-
ing blue/yellow color vision, depth perception, motion perception, and contrast sensitivity. In fact, approxi-

mately 60% of individuals with AD show a decline in one or more of these visual abilities, which is not the result of normal aging processes.

Contrast sensitivity has been the most extensively examined visual function, and may, in fact, have the greatest influence on the ability of individuals with AD to carry out activities of daily living. Contrast sensitiv-
ity is defined as the smallest difference in intensity that a person can resolve between an object and its immediate surroundings. It is typically measured in a laboratory setting using standardized vision charts such as the Vistech or the FACT (Functional Acuity Contrast Test). These tests measure an individual’s ability to detect dif-

cferences in contrast (both high and low) across a range of spatial frequencies (both high and low). Thus, one’s contrast sensitivity measure is based on both contrast and spatial frequency. We will consider these two terms separately, starting with contrast.

A high contrast example would be detecting a white electrical outlet against a dark-brown wall, a low con-
trast example would be detecting a white electrical outlet against a white wall. Healthy elderly adults would be able to detect the electrical outlet in both cases, indi-

viduals with AD would not. They would be able to detect the outlet in the high contrast example, but

because of deficits in contrast, would be unable to detect the outlet in the low contrast example.

Now consider high versus low spatial frequencies. High spatial frequencies convey visual information about details such as angles and lines. Low spatial frequencies convey visual information about gross form and smooth, flat planar surfaces. Any given object in the environment contains both high and low spatial fre-

quencies. For example, consider a picture of a human face. Extraction of high spatial frequencies would result in a cartoon-like looking face with lines detailing the eyes, mouth, and so on. Extraction of low spatial fre-

quencies would result in a shadow-like looking face where details cannot be seen, but the overall contour and shadows of the face are observed. When high and low spatial frequencies are combined, a face with detailed contours, shadows, and contours is observed. Research suggests that healthy elderly adults exhibit impair-
ments at high spatial frequencies, whereas individuals with AD exhibit impairments at both high and low spa-

tial frequencies.

Assessments such as the Vistech and the FACT enable researchers to measure individual contrast thresholds at different spatial frequencies. In other words, when pre-
sented with individual spatial frequencies ranging from high to low, researchers measure at what contrast these frequencies need to be in order for individuals with AD to detect them. These individual frequencies are typical-

ly created using sinusoidal gratings in a laboratory set-
ting. This information can then be used to examine how specific deficits relate to real-world functioning. A perfect example of this is the AD filter, developed by our colleagues Drs. Grover C. Gilmore and Cecil Thomas at
Although research has demonstrated that contrast sensitivity deficits exist in AD, one question concerns the location of the neuropathology responsible for these deficits. Researchers have shown that these deficits result from damage to the brain, rather than from damage to the retina in the eye or the optic nerve. Specifically, the neuropathological hallmarks of AD, which include the presence of senile amyloid plaques and neurofibrillary tangles, have been identified in higher order visual areas of the brain including areas within the occipital lobes (extra- striate visual cortex), parietal lobes (posterior regions), and temporal lobes (inferior regions). This neuropathological evidence combined with behavioral evidence suggests that individuals with AD most likely experience problems with everyday tasks because of visual impairments such as those noted in contrast sensitivity that are independent of any memory deficits.

In addition to target type, we manipulated scene complexity using both simple and complex scenes. For the simple scene condition, photographs were taken at close range depicting approximately five objects per scene, including the target. For the complex scene condition, photographs were taken of the entire room, which contained many more than five items. The example shown above is a simple scene.

Participants were shown 36 pairs of photographs and were asked to identify the target as quickly as possible. They were aware of the type of target they were searching for. We measured both reaction times and accuracy rates. Results revealed that individuals with AD were much slower overall than healthy elderly adults, who were themselves slower than young adults, at identifying each of the three target types. Moreover, all three groups were slower at identifying targets in the complex scenes compared to the simple scenes. Of particular interest were the findings related to the contrast target. In the simple scene condition, individuals with AD were unable to find the target 33% of the time compared to 5% for the healthy elderly adults and 0% for the young adults. More extreme group differences emerged in the low contrast, complex scene condition. Here, individuals with AD were unable to find the target in 62% of the trials compared to 38% for the healthy elderly adults and 7% for the young adults. This inability to find the target was minimal for the other target conditions of color and presence/absence.

These results suggest that as a scene becomes more complex, individuals with AD have more difficulty finding the target, especially when that target relates to contrast. The smaller the contrast difference (e.g., a target that changes from black to gray) the less likely the individual with AD will be able to find it. These findings parallel what we know about contrast sensitivity deficits in AD and how basic visual impairments can impact one’s ability to function in a real-world environment. For example, imagine an individual with AD pouring black coffee into a black mug. Because of the minimal contrast difference between these two items, it is highly likely that the individual with AD would not be able to perform this simple everyday task. However, if we replaced the black mug with a white one, thereby enhancing the contrast between the two items, the individual would have a greater probability of success. This idea of enhancing contrast in the everyday environment of an individual with AD is further demonstrated in the following study on nutrition and AD.

**THE NUTRITION STUDY**

Research suggests that significant weight loss affects approximately 40% of individuals with AD. This weight loss may arise from depression, the inability to eat independently, or the inability to attend to more than one food at a time. One additional explanation is that these individuals have deficits in contrast sensitivity. Without sufficient contrast, an individual unable to distinguish a plate from a table setting, food from a plate, or liquid from its container, thereby leading to an overall reduction in consumption. Realizing that a number of AD day programs, nursing homes, and other AD care facilities commonly use white table settings (tablecloths, plates, cups) and often serve food and liquid that are of the same color (e.g., mashed potatoes, milk, etc.), we wondered if we could alter food and liquid intake by manipulating the contrast between the food and liquid and the table settings used.

The AD participants in this study resided in long-term care units of the Geriatric Research, Education and Clinical Center at the ENRM Veterans Affairs Medical Center in Bedford, Massachusetts. All exhibited severe levels of dementia. We collected data over three consecutive 10-day periods in order to coincide with menu changes. We measured food intake (in grams) and liquid intake (in ounces) across the three 10-day periods for both lunch and supper. For the first 10 days (the baseline condition), white plates and white cups were used. For the next 10 days (the intervention condition), bright (high contrast) red plates and red cups were used. For the last 10 days (the post-intervention condition) white plates and white cups were used again. There were no additional variations in staff, room setting, lighting, daily routine, or health status of the individuals with AD over the 30-day testing period.

Results revealed a significant increase in food and liquid intake for both lunch and supper when the plates and cups were changed from white (baseline) to red (intervention). See the figure below for the group results for food intake. Overall, there was a 24.6% mean increase in food intake and an 87% mean increase in liquid intake. Intake values dropped back down again in the post- intervention condition when white plates and white cups were re-introduced. In terms of individual findings, 89% of the individuals with AD exhibited at least a 10% increase in food and liquid intake at intervention relative to baseline and post-intervention for both lunch and supper. The poorer ingestors appeared to benefit the most. These findings suggest that deficits in contrast sensitivity significantly impact food and liquid intake in individuals with AD. Following the completion of this study, we designed a second study. Questions arise concerning whether the color of the plates was an important factor or even whether other items were simply contrast enhancing. That is, individuals may have eaten more because the red plates were new and interesting to them. One additional question concerned whether the saliency of the color of the plate mattered. For instance, we could obtain the same results if we used a pastel (or low contrast) red plate instead of a bright (high contrast) red plate.
The Importance of Leadership

by Dorothy J. Mulcahy

Why is the topic of leadership important? History is rich with stories of leaders who have shaped the course of nations, the economy, and society. It is well recognized that effectively run organizations are more productive and successful while poorly run organizations suffer at the hands of ineffective leaders. Compounding the need for effective leadership is the unethical and illegal behavior of numerous business and public sector leaders that has led to the failure of many organizations. The scandals at Enron, WorldCom, HealthSouth, OfficeMax, Tyco, Marsh & McLennan, Putnam, and Boeing, to name just a few, have focused considerable attention on the qualities a leader needs to have in order to achieve the organization’s goals.

Employees have suffered at the hands of ineffective leaders. Job satisfaction has declined over the last decade, with the biggest decline in on-the-job happiness among workers earning $25,000 to $35,000, and among workers between the ages of 35 to 44. The biggest reason for people leaving their organizations is that they are being treated poorly by their bosses. Hundreds of studies support the fact that leadership makes a profound difference in followers’ performance and satisfaction. However, often a leader exists between what is expected of leaders and what they produce.

The discussion of leadership begs for definitions. Several definitions suggest that leadership is a process used by an individual to influence group members toward the achievement of group goals through change. Early studies of leadership focused on an examination of traits of leaders; those characteristics accounting for leadership effectiveness, such as high energy, aggressiveness, and persuasiveness. The belief was that leaders were born, not made. Such assumptions were replaced by an examination of ‘leaders’ behavior, those distinctive styles used by effective leaders. This evolved into contingency leadership theories that attempted to explain the appropri-

In the second study (which consisted of some participants from the first study plus a few new ones) data were collected over seven consecutive 10-day periods, which I will refer to as the seven phases of the study: Once again food and liquid intake were measured for both lunch and supper. The colors of the plates and cups used for each of the seven phases were as follows:

Phase 1: white plates and cups
Phase 2: bright (high contrast) blue plates and cups
Phase 3: white plates and cups
Phase 4: pastel (low contrast) red plates and cups
Phase 5: white plates and cups
Phase 6: pastel (low contrast) blue plates and cups
Phase 7: white plates and cups

Group results revealed that when bright (high contrast) blue plates and cups were used, there was a significant 25.1% mean increase in food intake and a 29.8% mean increase in liquid intake. Increases were noted for both lunch and supper. Once again, intake values dropped back down again when the white plates and white cups were re-introduced. The use of the pastel (low contrast) red plates and cups and the pastel (low contrast) blue plates and cups did reveal a significant increase in either food or liquid intake across conditions. Group results of food intake collapsed across lunch and supper, as well as the collapsed group results from the first experiment for comparison, are given below:

These results suggest that high contrast tableware (in this case bright red and bright blue plates and cups) significantly increases food and liquid intake in severely demented individuals. A decrease in contrast between plates and cups and the colors of the tableware is a crucial factor, thereby demonstrating that the enhancement of contrast is a simple yet effective intervention for increasing food and liquid intake in individuals with AD.

PRACTICAL APPLICATIONS

When we present our research findings at various conferences or even AD care facilities, the audience is often interested in knowing the more practical application of our findings. Specifically, they are interested in learning ways in which they can change contrast in the environment in order to maintain or improve functional abilities in individuals with AD. The following suggestions are adapted from a book chapter written by Dr. Tracy Dunne appearing in Vision in Alzheimer’s Disease edited by Cronin-Golomb and Hof. Ideas for enhancing contrast in the bathroom and kitchen are briefly discussed.

One of the major challenges in caring for individuals with AD is getting them to bathe. Because of deficiencies in depth and contrast perception, individuals with AD may have difficulty transitioning into the bathtub. Placing a non-skid bath mat inside the tub that is a contrasting color to the tub should help alleviate this difficulty. Moreover, using different colored knobs for hot and cold faucets (for e.g., red for hot and blue for cold) and using grab rails that contrast to the walls should also provide some assistance. Contrast can also be used to aid with toileting behaviors, which pose a major concern for caregivers. As the disease progresses, it is not uncommon for individuals with AD to mistakenly use utility plants, hampers, and wastebaskets as toilets. By providing contrasting around the toilet area, either by using colored toilet water and/or by placing a contrasting toilet mat around the base of the toilet, it will help to provide a cue as to where the individual should sit or stand.

Moreover, placing a light inside the toilet bowl or right above the toilet using commercially made products that use a light-emitting diode may also be beneficial. Finally, installing safety rails of a contrasting color is another way to draw attention to the toilet itself.

To encourage independent functioning in the kitchen, use light switches and electrical outlets that contrast with the walls, and provide high-contrast knobs and handles on cabinets. If, however, use of switches, outlets, and cabinets poses a safety hazard, use plate covers and handles that are the same color as the walls and cabinets to discourage use. Kitchen cabinets can easily enhance or minimize contrast depending on whether they want to encourage or discourage particular behaviors. Other ideas for the kitchen include the use of large, multicolored buttons on appliances and the use of open shelving or glass cabinet doors to aid in finding items used on a daily basis such as bread or cereal.

In conclusion, by visually manipulating the environment, we can begin to compensate for brain-based visual deficits, such as those noted in contrast sensitivity, and thereby ultimately improve the quality of life for both individuals with AD and their caregivers.

Sandra Neugut is Associate Professor of Psychology

BRIDGewater REVIEW

JUNE 2005
Leaders typically exhibit behavioral patterns to influence their followers and perform several roles. The interpersonal role consists of the figurative head, leader and liaison. They assume the figurative head roles when they represent their organizations at ceremonies and symbolic activities, such as commencements and official signings or openings. In the informational role, they will be seen as the spokesperson for the organization. Terry Lundgren, CEO of Federated Department Stores, aptly performed the spokesperson role at the news conference announcing the acquisition of May Department Stores.

The decisional roles are seen in the entrepreneurial, resource allocator or negotiator functions. When organizations undergo serious turmoil, particularly brought on by negative public attention, the figurative head of an organization is frequently the sacrificial lamb. Beset by a football recruiting scandal and upheaval over a professor who compared September 11, 2001 victims to notorious Nazi Adolf Eichmann, the University of Colorado President Elizabeth Hoffman resigned in March 2005. The symbolic resignation or removal of a CEO in a case like this is an attempt by governing boards to assure the key stakeholders that the organization will recover from the controversies that led to its calamitous state.

Massachusetts also had attention drawn to it by the President of Harvard University, Lawrence H. Summers, whose decisions and leadership style have received widespread notice almost since the day he stepped onto Cambridge soil. During a January 2005 speech to the National Bureau of Economic Research, Summers discussed possible reasons for the current underrepresentation of women at the top in many fields, especially in science, engineering, and math. He contended that reasons could include social issues, such as willingness to commit fully to a highly demanding career and biological differences between the genders.

His remarks set off an outburst of protests not only by members of the Harvard community, but also by his peers at similar universities. In an effort to quell the controversy and avoid votes of no confidence, he announced his resignation. Summers’s terms to step down were accepted by the board of overseers and affirmed by the faculty. The resignation letter states that Summers will stay on at Harvard through the end of the academic year

Even more pronounced in analyzing President Summers can be a leadership attitude developed by theorist Douglas McGregor who classified attitudes as assumptions of employees and the leader. Theory X leaders believe employees dislike work and must be closely supervised in order to do their work. The other hand, Theory Y leaders hold the attitude that employees like to work and do not need to be closely supervised in order to do their work. The Theory X leader generally has a pessimistic attitude about employees and uses a coercive style, controlling through threats and punishment. The Theory Y leader has a positive, optimistic view of employees and uses a participative leadership style, providing rewards as incentives. A more recent theory, referred to as Theory Z, is that organizations are culturally found at college campuses and universities. Theory Z organizations support clear, detailed goal statements and supportive policies that encourage individuals to transcend self-interests and focus on the good of the organization. Theory Z organizations are typically found where charismatic leadership behavior is not welcomed by followers. Researchers have suggested that followers resist charismatic leadership when employees are self-confident, highly educated, and have a strong belief in human equality.

Charismatic leadership can be effective or ineffective, depending on the organization and situation. German sociologist Max Weber is credited with applying the term charisma to a type of authority or influence based on exceptional characteristics, demonstrated by heroic acts or by advocating a revolutionary mission or program of action to resolve a crisis. Today charismatic leaders are viewed as passionate, driven individuals having personalities that inspire devotion and commitment from followers. These leaders make inspirational speeches, describe a desirable mission or vision for the future, take risks to achieve the mission, and model their own behavior for followers to emulate. Charismatic leaders often emerge during times of crisis when dramatic change is required. A subset of charismatic leadership is transformational leadership, in which the status quo is changed by appealing to followers’ values and their sense of history. Colin Powell and General Wesley Clark are an example of transformational leaders who require a dramatic event for a change in leadership.

Transformational leaders often emerge during times of crisis when dramatic change is required. A subset of charismatic leadership is transformational leadership, in which the status quo is changed by appealing to followers’ values and their sense of history. Colin Powell and General Wesley Clark are an example of transformational leaders who require a dramatic event for a change in leadership. The leadership change that took place within the context of an organizational culture. Cultural leaders believe that employees who inflict their own vision and assumptions on an organization or group of individuals. Eventually the assumptions are taken for granted, leading to a culture that defines for future members what kinds of leadership are acceptable. While there are many definitions of culture, it is generally seen when things in organizations or groups are shared or held in common, such as customs and traditions, group norms, espoused values, and formal philosophy. Well-known organizational culture theorist Edgar H. Schein defines it as “a pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and integration, that has worked well enough to be considered valid, and therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems.”

A failure of merging organizational culture and leader- is not always the formula for success. Some researchers have found that the most effective leaders lacked charisma. In his book God to Ground, Jim Collins refers to the Level 5 Leadership. Based on a five-year research study of all the companies that were on the Fortune 500 list from 1965 to 1995, Collins identified two types of leadership. Level 1 leaders turn around a可怜y mediocre company into a truly great company are led by this Level 5 leader. Level 5 refers to the highest level in a hierarchy of executive capability. This kind of leader builds enduring greatness through personal humility plus professional will. Such a leader is calm in crises, never boastful, takes responsibility for failure, and is courteous and police.

Level 5 leaders spend a considerable amount of time surrounding themselves with the right people and build high performing teams. While leaders at the other four levels can produce high degrees of success, they do not elevate their companies from mediocrity to sustained excellence.

The study found eleven companies dramatically exceeded all the other companies in terms of financial success. The leaders of these companies did not let their egos get in the way of building great companies. These leaders avoided the spotlight, but were focused on creating companies that produced outstanding results. They channeled all their energy toward the success of their companies, as opposed to the personal aggrandizement. Collins cites particularly the former CEO of Kimberly-Clark, Darwin E. Smith, a shy, unpretentious, awkward person, but with an iron will and ferocious resolve. He transformed the company from a stodgy old paper company with poor performance into the world’s largest paper products company in the world. While other factors are critical to transformation, including having the right key people in the organization, good-to-great transformation must have Level 5 leaders. Collins found that CEOs with large egos contributed to the demise or continued mediocrity of an organization. Even though many companies showed a shift in performance under a talented yet egocentric Level 4 leader, the companies declined in later years.

Collins cites Lee Iacocca as a Level 4 leader, one who sets a clear and compelling vision. However, such leaders’ ego often changes when transforming the organizations to transforming themselves. In spite of this empirical evidence, many boards of directors have not paid attention to Collins’ findings and continue to look for charismatic leaders at the Level 5 CEO’s to lead their organizations.

Leadership takes place within the context of an organizational culture. Cultures begin with leaders who inflect their own values and assumptions on an organization or a group of individuals. Eventually the assumptions are taken for granted, leading to a culture that defines for future members what kinds of leadership are acceptable. While there are many definitions of culture, it is generally seen when things in organizations or groups are shared or held in common, such as customs and traditions, group norms, espoused values, and formal philosophy. Well-known organizational culture theorist Edgar H. Schein defines it as “a pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and integration, that has worked well enough to be considered valid, and therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems.”

A failure of merging organizational culture and leader- style was seen at Hewlett-Packard.

Receiving considerable attention during the last year is Cadent (Cathy) S. Fiorina, former CEO of Hewlett-Packard. She has been described as unshakable, self- relaxed, passionate about the big picture, and embracing change as a way of life. With the image of a charismatic leader, Fiorina was the first outsider to be CEO of a very conventional, stuffy, and oldest Silicon Valley company that was deeply entrenched in its paternalistic culture known as “The HP Way.” In spite of leading the successful acquisition of rival Compaq Computer in 2002, she was unable to revitalize the sluggish computer business. HP struggled against Dell in the PC business and IBM in the corporate computing industry. Many viewed Fiorina as an inspiring speaker, but lacked the skills to fix HP’s operational problems. Fiorina was an outsider brought in to revitalize a struggling organization. It had a deeply rooted engineering culture that needed to revise its strategies. Analysts claimed Fiorina ignored simple rules of successful leadership. The first accusation was that she was more concerned about her own image rather
HP is obviously in need of major transformation. The new CEO will need to develop a vision and strategy to undertake fierce global competition, lead major technology initiatives, and transform current infrastructure and processes to bring the company a new perspective.

A classical transformation process can be viewed as a four-phase model: (1) the first step is to recognize the need for change. In John Kotter's book Leading Change, his process of creating major change calls first for developing a sense of urgency, wherein the market and competitors' reactions are examined and major opportunities are identified. HP definitely senses such a sense of urgency. The second phase of transformation calls for creating a new vision, followed by managing transition, and formally institutionalizing the change. Some have described transformational leaders as motivating followers to strive for higher-level values and morality. Such a leader raises the consciousness of followers to lower levels to strive for higher-level values and morality.

Such a leader raises the consciousness of followers to lower levels to strive for higher-level values and morality. While much focus in the media has been paid to CEOs who have been unsuccessful in transforming or propelling their organizations forward, HP would be wise to heed the transformation process of one of its main competitors, IBM. Under the leadership of its former CEO Louis V. Gerstner, Jr., IBM has been successful in transforming itself and improving HP's earnings targets as a way of deflecting attention away from herself.

The importance of leaders is evident in the various dramatic corporate turnarounds in business history. One of these is the turnaround of IBM under CEO Louis V. Gerstner, Jr. Gerstner led one of the most dramatic corporate turnarounds in business history by revitalizing IBM, a major U.S. corporation, from the brink of bankruptcy and turning it into a profitable business. Another example is the turnaround of NCR, a large computer company, which was able to significantly increase its market share by articulating to followers the problems it faced and creating a new vision, followed by managing transition, culminating in a two-year term as CEO where he quieted the board of directors and focused on marketing and resisted the board's efforts to appoint a chief financial officer.

BSC CityLab: Teaching Tomorrow's Technology to Today's Youth

By Jeffrey Bowen

The importance of leaders is evident in the various dramatic corporate turnarounds in business history. One of these is the turnaround of IBM under CEO Louis V. Gerstner, Jr. Gerstner led one of the most dramatic corporate turnarounds in business history by revitalizing IBM, a major U.S. corporation, from the brink of bankruptcy and turning it into a profitable business. Another example is the turnaround of NCR, a large computer company, which was able to significantly increase its market share by articulating to followers the problems it faced and creating a new vision, followed by managing transition, culminating in a two-year term as CEO where he quieted the board of directors and focused on marketing and resisted the board's efforts to appoint a chief financial officer. Currently, the future of higher education is in flux, with many institutions facing significant challenges, including funding cuts, increased competition from for-profit universities, and the need to prepare students for the workforce of the future. BSC CityLab, an innovative program at Bridgewater State College, is working to address these challenges by providing students with hands-on learning experiences in the fields of biomedicine and biotechnology.

BSC CityLab is a unique program at Bridgewater State College, located in eastern Massachusetts. The program is designed to engage students in exploring the sciences through hands-on activities, and to prepare them for future careers in biomedicine and biotechnology. The program includes a variety of initiatives, such as the CityLab Lending Lab, which provides students with access to state-of-the-art laboratory equipment and experienced scientists to guide them through their projects.

The program has also received significant support from external sources, including grants from the Science Education Partnership Awards (SEPA) and the National Institutes of Health. These grants have enabled the program to provide students with the resources they need to succeed, including equipment, supplies, and experienced mentors.

In addition to its focus on research and education, BSC CityLab is committed to community engagement, partnering with local schools and organizations to promote STEM education. Through these partnerships, the program is able to reach a wider audience and make a positive impact on the local community.

Overall, BSC CityLab is a model of how higher education can adapt to the changing landscape of the 21st century. By providing students with hands-on learning experiences and connecting them with the latest research and experts in the field, the program is preparing them for success in a rapidly evolving job market. Through its focus on biomedicine and biotechnology, BSC CityLab is also helping to address some of the most pressing issues of our time, from healthcare to environmental sustainability.
After the orientation, you and twenty-three other new employees move into the laboratory to begin your training. The lab looks very high-tech with all of its equipment and instrumentation along with its strange names: things like microcentrifuge, pipetman, and a gel electrophoresis apparatus. This place looks exciting and you are glad that you were hired for this week-long special assignment.

The new hires, or Junior Scientists as you’re called, break up into teams of three to begin the process of learning how to use the equipment. The Senior Scientists are busy explaining how the equipment is used, and since the equipment is like nothing you have ever used before, you are glad to have some help with learning how to use it properly. You notice that each team has a team name. Suddenly, it dawns on you that you recognize the names...they are famous scientists! You are proud to be on Team Watson, named for one of the scientists that discovered the three-dimensional shape of DNA.

Then something strange happens. As you and your team are learning to use the pipetman, a device used to measure very small volumes of liquids, you notice that the lab became quite busy with activity. This was shortly after a phone call that Dr. Mike received about some packages that were just delivered to the front desk. You knew this because Dr. Mike asked Dr. Pat and Dr. Merc to come help him pack up the packages. They return with a cart full of boxes and every box is marked “Evidence.” Dr. Mike called a meeting with some of the Senior Scientists while everybody went on break.

Upon returning from break, Dr. Mike explains to Junior and Senior Scientists that the boxes are evidence from a very important and ongoing case that BAFL has been investigating. He goes on to explain that the boxes of evidence came from one of BAFL’s field agents, a scientific sleuth named Jonah Cetacean. Jonah and the rest of the Junior Scientists convince him that you and they are ready! To facilitate training of protein fingerprinting, you are glad to have some help with learning how to use the equipment. The Senior Scientists are in their box look like they are different, but you can’t read it any more. This is a major problem! He did, however, mark each sample as A, B, or C. The problem is that when he packed samples in to send them, the paper identifying each sample got wet and you can’t read it any more. This is a major problem since you need a piece of muscle tissue which contains a lot of protein to run the protein fingerprint. Genes observations of the samples indicate that all three samples in your box look like they are different, but you don’t know what each sample is. As it turns out, all the other teams are having the same problem...the Senior Scientists will need to talk to Jonah about this.

It is now time for a brainstorming session with all of the scientists to figure out how to determine which sample is muscle, or whether they all muscle. As a company, you figure out that tissues taken from different organs, like muscle or liver, are going to look different under the microscope. If you look at the cellular arrangement of the different tissues, then maybe you can determine the organ of origin for each sample. Sure enough, by the end of the first day, you know which sample is muscle and you can begin the process of protein fingerprinting the next day. It looks like tomorrow will be just as busy as today, but you hope that there are no more unexpected bumps in the road!

SCIENCE SUMMER PROGRAMS
This is only the first day of a week-long program that includes hands-on scientific activities, a whale-watching trip, and a presentation to a “mock” congressional hearing along with a few other unexpected events along the way. Feedback from students participating in Whale of a Mystery and their parents has been very positive. As with all of our CityLab modules, Whale of a Mystery involves critical thinking, math, and language arts skills. Critical thinking skills are a hallmark of all CityLab modules and are integrated throughout the experience with twists and turns throughout the storyline beginning with the engagement piece. Math skills are promoted by graphing and analyzing the collected data. Language art skills are encouraged through writing in lab notebooks, contributing to Reflections (a BAFL newsletter composed of articles and artwork by the Junior Scientists), and preparing for the poster presentation given on Friday by each team to the mock congressional hearing. Additionally, the students are doing real science and using real biotechnology equipment to help them solve a problem.

In addition to the inquiry-based scenario adapted by the summer programs, another great advantage to this program is the outstanding help of Bridgewater State College faculty, staff, and students. The faculty that work on this summer program include four Biology professors (Dr. Jeff Bowen, Michael Canion, Meredith Krevosky, and Patricia Mancini), a Chemistry professor (Dr. Frank Gorga) as well as an English professor who plays the role of our company lawyer and helps the students to prepare their testimony (Dr. Anne Doyle) in addition to the Program Coordinator (Ms. Cathy Hart, BSC ‘02). The program also enlists three or four undergraduate interns who are interested in a career in teaching. The high instructor to student ratio works very well and the students get a chance to work with real scientists and professors. Additionally, the students, most of whom are female, get to see the huge role that women can have in science and the women who work with BSC CityLab are outstanding role models for these students.

The interaction between the “Senior Scientists” and the students is critical in our summer programs as it is also evident in our high school level summer program called Thread of Evidence. In Thread of Evidence, students run the Forensics Institute at Bridgewater (or FIB, as we like to call it) and need to use biotechnology to solve a case of industrial espionage and kidnapping that occurs within the company when one of the Senior Scientists turns up missing and there is evidence of foul play. FIB high school students tend to be a little skeptical of stories like this, we are upfront that we are playing a game such as a murder-mystery dinner and they are welcome to play along with us. As long as we are upfront with the students that we are not trying to convince them that this is a real situation, they invest themselves in the story. As the program moves forward, rumors and accusations run rampant as the students use DNA evidence and other biotechniques at their disposal to lead them to the primary suspect...another Senior Scientist.
The students have to prepare their evidence and present a hypothesis of what happened on the evening the scientist disappeared.

CLASSROOM VISITATIONS
All of our modules, be it for week-long programs like Whale of a Mystery and Thread of Evidence or for one-day experiences for local schools, are based on a case or mystery that students have to solve. The modules that are offered in one-day experiences include a pre-laboratory exercise that is done in the classroom to provide the background and the mystery that needs to be solved. As with the summer program, the storylines are designed to be open-ended to help the students “discover” the best way to solve the problem. The only way to solve these mysteries is to use modern biotechnology.

The lab equipment is only there to help find an answer, not the other way around.

The most popular module is The Mystery of the Crooked Cell that was originally developed at BUSM CityLab. This module for middle school aged students explores sickle cell syndrome with the progression-of-inquiry approach. Students begin with a description of a patient with symptoms of some sort of malady. Through a series of inquiry-based and hands-on steps, they can determine that the disorder is indeed sickle cell syndrome. After obtaining a “sample” of the patient’s blood, they perform a series of tests to definitively prove their hypothesis—case solved!

For high school students, BSC CityLab has developed “Chances Are,” a follow-up to the middle-school module based on sickle cell syndrome described above. In this module, high school students play the role of genetic counselors and learn how to correctly develop and analyze a pedigree, decide which family member(s) should be tested, and use polyacrylamide electrophoresis to run the diagnostic test. In addition to the biotechnology needed for this module, students must also face and discuss some of the ethical dilemmas people face surrounding the knowledge that can be garnered from knowing your genetic make-up.

TEACHER TRAINING & LENDING LAB
BSC CityLab has historically been very involved in providing opportunities for pre- and in-service teachers through courses in support of the Masters of Art in Teaching program and workshops throughout southeastern Massachusetts. The courses that the faculty offer serve two major functions. The first is to provide area teachers with content knowledge in the area of Biomedicine and Biotechnology that they can take back to their classroom and expand the teachers’ knowledge base. The second major function is to provide teachers with alternative pedagogical strategies that they can use in their classrooms and the training to become proficient in the techniques associated with the modules.

Once teachers are trained, they will be able to borrow equipment, supplies, and reagents to take back to their classroom through BSC CityLab’s Lending Lab program. Efforts are currently being put forth by BSC CityLab to expand the Lending Lab program. Although we recognize the intrinsic value of having area students come to Bridgewater State College and BSC CityLab, we also realize that many school districts are facing financial difficulties and cannot afford the cost of a substitute teacher and busing required for a BSC CityLab visit. Many of the modules that are run in BSC CityLab have been modified to work in a classroom with the time and space constraints that teachers face.

FUTURE OF BSC CITYLAB
Unfortunately, federal and grant monies are scarce for programs that are designed for children and the programs and grants that do support such activities are very highly competitive. BSC CityLab was fortunate to receive the seed money from the SEPA grant. However, for BSC CityLab to continue, we must get BSC CityLab institutionalized and create an endowment for the continued development and running of our modules and programs. To this end, BSC CityLab is continuing to pursue granting opportunities and has begun a campaign to raise the finances to keep this outstanding program going. Additionally, BSC CityLab is working to become formalized as an established center on campus that would provide the basic infrastructure and necessities to run the programs. If you are interested and would like to help BSC CityLab educate our children in the uses and applications of science, especially biotechnology, please feel free to contact us at CITYLAB@bridgew.edu or you may contact the director of BSC CityLab, Dr. Michael Carson (mjcarnon@bridgew.edu).

—Jeffery Bowen is Associate Professor of Biology.
A view of a large temple complex with smaller shrines in the foreground.

A shrine at the top of one of the hills of Hampi.

An open air shrine is dominated by a statue of Narasima, a lion-headed incarnation of the god Vishnu, who destroyed an evil tyrant.

The tower rising up from a temple complex marks the location of the sanctuary, the most holy place. This temple continues in use today.
No sooner was the ink on the 2004 post-mortem election analysis dry did the pundits of American politics turn their attention to who would vie for the Democratic and Republican presidential nominations in the 2008 race. Among the names mentioned so far are two prominent political women—Hillary Clinton and Condoleezza Rice. In fact, a February 2005 public opinion poll conducted by Siena College and Hearst Newspapers found that 53% of those polled thought Hillary Clinton should run, and 42% of those polled thought Condoleezza Rice should run. Moreover, 62% of those polled agreed that the US is “ready” for a woman president in 2008.

For a nation who has never seen a woman assume its highest office, this is interesting food for thought. In this same poll, 24% of respondents reported they thought a woman president would be a better foreign policy-maker than a man, 11% thought a man president would be better. 18% of those polled thought a woman would be a better commander-in-chief, though 23% thought a man would be better in this role. On domestic issues, however, a full 67% thought a woman president would be better than a man, and only 9% thought the opposite was true. Clearly, those polled thought that electing a woman president would not only be a symbolic change in who represents our nation, but would lead to substantive policy changes as well.

Interestingly, though, we know that Hillary Clinton and Condi Rice come from considerably different sides of the table on a lot of policy debates. Knowing this, how can we believe categorically that electing any woman to an office like the presidency would lead to changes in policy from her male predecessor’s? How do we expect political change based on gender within the context of politics that seems increasingly divided by political parties? It is this puzzle that drove me to examine the impact that women have on the policy process at a different level of government, in the 50 US state legislatures.

The state legislatures are one of the first places women made inroads in becoming part of the political elite in American politics, making them a great place to understand if women change politics, and how they might do so. Currently, according to the Center for Women in American Politics (CAWP) at Rutgers University, 22.5% of state legislators in the US are women, up from only 8% in 1975. The proportion of women in the state legislature varies dramatically by state, however. Maryland has the largest percentage of women in the state legislature at 34%, South Carolina has the smallest proportion at just 8.8%. Massachusetts ranks near the middle in the proportion of women in their legislature (20th out of 50 states), but still above the national average, with 24.5% women in the 184th General Court. Across the US, about 63% of the women legislators are Democrats and 37% are Republicans.

These women legislators operate in an increasingly partisan universe. According to the National Council of State Legislatures, 11 of the 50 state legislatures have one house controlled by the Republicans and one house controlled by the Democrats. Even where one party does control both houses of the legislature, many of the parties are neck and neck in the number of seats they hold, and therefore the majority’s hold on legislative control can be tenuous. For example, in the Colorado...
was to care for the family in the private world of the women. At an early age, women were taught to be caregivers and to make their mark on the legislative process. Most legislatures noted women pursued a different issue agenda than men. For instance, one early researcher studying women in state politics found women legislators in one state had to fight just to have a women’s restroom built near the chamber. During the breaks in this chamber, women had to run to a different part of the building to use the restroom, and therefore they missed deals that could be made in the halls of the legislature during these breaks. The men in the legislature had a restroom just outside the door, and so they didn’t encounter this problem.

As women moved past these early obstacles, they began to make their mark on the legislative process. Most notably, observers of women’s activities in the state legislatures noted women pursued a different issue agenda in the legislative process. Primarily, women focused on “women’s issues,” or a set of issues that followed from their roles - bills about education, healthcare, welfare, children and families. Additionally, women paid attention to women’s rights legislation in the chamber - bills that related to women’s own place in society.

Women’s attention to these areas of legislation was noted, but the fruits of their labor, or the outcomes of these pieces of legislation, were less clear, the point from which I began my own research. Within the 99 chambers of the 50 state legislatures (each state has a house and senate except for Nebraska, which has a unicameral chamber) I catalogued three pieces of information. First, I used a survey from Project Vote Smart, a nonprofit organization that collects information about candidates for elections, to determine what women and men candidates for the state legislatures thought about various issues, such as abortion, affirmative action, the economy, education, healthcare, and welfare. Second, I collected all of the bills sponsored by women and men legislators in four states - Arkansas, Colorado, Washington, and Wisconsin - and recorded the type of issue each bill addressed. Third, through the Representation in America’s Legislatures Project, I collected roll call votes on legislation in 97 of the 99 state chambers, so that I could tell how each male and female legislator voted on each piece of legislation in the chamber. Using these three pieces of information, I could track women legislators’ opinions and actions from the election to the passing of a bill, to see if women did create and pass a different agenda from men in the legislative process, or more simply, whether electing women to the legislature made a difference in the kinds of policies the legislature created.

In the candidate survey, I found women legislators expressed different opinions about policies in the election process. For instance, women candidates were more likely to support the legalization of abortion and increasing state funds for child care for low-income families. However, once I accounted for the women candidates’ party identification, I found Democratic women hold policy opinions closer to Democratic men than to Republican women, and Republican women agreed more with Republican men than with Democratic women in their policy positions. Women legislators are different from men in their opinions about issues, but partisan differences still separate Democratic and Republican women.

On bill sponsorship, both women and men legislators introduced bills that related to women’s issues. A woman legislator in Colorado introduced a bill that prohibited discrimination in wages for persons working in comparable jobs, and a woman legislator in Washington introduced legislation mandating contraceptive coverage by insurance plans. However, a male legislator in Arkansas introduced legislation prohibiting group insurance plans from diminishing benefits for a woman during pregnancy, and a male legislator in Wisconsin introduced legislation giving a tax credit to businesses that equip their facilities to allow the pumping and storage of breast milk. Women legislators in opposite parties tended to introduce legislation in different areas pertaining to women’s issues. For instance, Democratic women focused on expanding women’s rights under the law (such as the wage discrimination example above), while Republican women focused on crimes against women, such as domestic abuse and sentencing for sex offenders. Republican and Democratic women sometimes stood on opposite sides of women’s issues, for instance, in abortion and marriage/divorce laws. Both introduced bills aimed to redefine these rights as they related to women, but these bills did dramatically opposing things.

For roll call votes on these issues, women legislators simply voted with their respective parties in most circumstances. Some women’s issues bills, particularly those dealing with non-controversial women’s health issues, such as money to fund breast cancer research, passed overwhelmingly when introduced in any chamber. More often than not, though, women followed party lines in voting rather than unity in the chamber around their gender. Therefore, much of the legislation benefiting women that was passed in these legislative sessions was due to partisan agreement on an issue, and so women’s issues had a decidedly partisan stance. Exceptions existed, but they were rare - one in the many bills across twenty-two chambers in this portion of the study.

What do these results at the state legislative level say for a potential President Rice or second President Clinton? I believe they are evidence that agendas affecting women can come in substantially different partisan forms. Women may be more interested in women’s issues at the outset of their involvement in political life, but within the structure of politics, their efforts regarding women’s issues are shaped by the partisan nature of the policy process. This is not to discount the symbolic value a woman president may bring to the office - certainly, it is beneficial for a young woman in the US to see a woman in the ultimate position of power in the government. The findings do signal, however, a need to go beyond a singular understanding of what a woman may do to change politics. She may certainly change things, but in a different way from her partisan counterpart.

---Tracy L. Osborn is Assistant Professor of Political Science.
Dr. Amos Nwosu, Professor of Health in the Movement Arts, Health Promotion and Leisure Studies Department, had a question he wanted to answer: what, if any, is the role that psycho-social or cultural factors play in the high incidence of HIV/AIDS infection in Africa. Nwosu received a Faculty/ Librarian Research Grant (FLRG) from Bridgewater’s Center for the Advancement of Research and Teaching (CART) to study the issue. “As many people are aware, the demographic picture of the African continent has changed significantly due to the worldwide HIV/AIDS epidemic,” Nwosu stated. “In fact, Sub-Saharan Africa has the highest rate of infection in the world.” In 2005 alone, 2.2 million people died from the disease. Existing literature identified the need for studies which would examine the impact of psycho-social factors on the ecology and spread of the infection and Nwosu did just that. In the following discussion with Associate Editor Barbara Fanning the research findings and the analysis of those findings by Dr. Nwosu are presented.

**News from CART**

(Conference for the Advancement of Research and Teaching)

Nigeria was selected as the study site because it is one of the most populous countries in Sub-Saharan Africa (the latest census report gave the population figure as 150 million), and there were reports of approximately 100,000 new cases of HIV/AIDS annually. In addition, Nigeria has one of the fastest growing economies in the continent. Its oil and gas exploration, including offshore drilling sites, are industries which account for increasing immigration and emigration as foreign workers enter and leave the country. And, recently, tourism had become an important part of the country’s economy. Centered primarily on distinctive cultural attractions, tourism sites and activities reflect the country’s unique religious beliefs, dances, songs, and artwork. Colorful festivals attract travelers from around the globe. In addition, Nigeria has an abundance of physical attractions including breathtaking waterfalls, lakes and mountains which provide leisure and adventure. Some of the most popular tourist sites include the Jos Wildlife Park, Old Oyo National Park, and Yankari National Park, which are populated by elephants, crocodiles, leopards and other wildlife. Many parks offer canoeing and sport fishing, others provide wildlife safaris. These kinds of tourism activities have become increasingly important to Nigeria’s economic survival, making tourism an industry the government wants to promote and one which the continued HIV/AIDS epidemic could seriously undermine.

According to the HIV/AIDS Emergency Action Plan (HEAP, 2003), although the first identified case of AIDS in Nigeria was diagnosed in 1986, it was not until 1994 that the country became seriously concerned about the epidemic and its ramifications. Still, the numbers continued to mount with over two and half million reported cases in 1999 and close to four million living with AIDS by 2003. Left uncontrolled, the number could surpass five million by the end of this decade.

To date, “HIV/AIDS preventive efforts in Africa have focused on safe sex and distribution of condoms,” reports Nwosu, “without considering the impact of psycho-social and socio-cultural factors such as poverty, malnutrition, religion, cultural norms and taboos, stress, participation in physical activities, and the overall health of individuals which may increase their susceptibility to the infection.” The purpose of the study was to gather data on just these dimensions and to use the findings of this research to improve existing preventive services. He selected the state of Abia within Nigeria specifically because of the high reported incidence of HIV compared to other portions of the country and because of his own knowledge of the geography and culture of the area. He used a triangulated study, utilizing both qualitative and quantitative measures, taking advantage of existing demographic and psycho-social data on dimensions such as poverty, nutrition, religious beliefs, and common cultural practices. Nwosu augmented these quantitative instruments with open-ended interviews. “These interviews provided us with individuals’ perceptions of themselves as well as their behaviors and activities in relation to the transmission of HIV/AIDS infection,” he stated. Fifty respondents were identified and trained interviewers administered this phase of the data collection, most of which took place between September and November of 2003.

After he returned to Bridgewater State College, Nwosu set to work analyzing his data. The statistical package for the social sciences, a set of computerized routines for analyzing large data sets, was used to generate descriptive statistics. “The analysis also tested the association between selected psycho-social factors and the incidence of HIV/AIDS infection,” the professor explained. The results were statistically significant with strong associations between the selected psycho-social factors and the incidence of HIV/AIDS. Poverty, hunger, and malnutrition all correlated to the increased incidence of disease. Two other factors were determined to be associated with the development of HIV, however: religious beliefs and cultural practices. “Some religious groups believe that prayer and faith will keep them safe,” Nwosu elaborated. “Tragically, when sickness occurs, they will seek comfort at prayer houses instead of obtaining medical treatment.” These beliefs, along with cultural practices such as the number which could be termed “western” methods of treatment, impede prevention, diagnosis, and care. Similarly, the study found that the role of women in the traditional Nigerian culture places them at increased risk. The findings in this regard confirmed the results of a study titled “African Women and AIDS: Negotiating Behavioral Change,” published in Social Sciences and Medicine in 2003. That study “determined that trends in the incidence of HIV/AIDS among women in Sub-Saharan Africa places this population increasingly at risk.” Nwosu (2003) confirms that. It is not only the poverty and malnutrition that endangers women, however, but also “uncontrolled fertility, the complications of childbearing, and a culturally-influenced inability to practice safer sex.” Nwosu (2003) found that there are educational programs targeting prostitutes and sex workers throughout Nigeria and that knowledge about the use of condoms as a preventive measure is high. However, cultural beliefs and practices still all too often offset this knowledge. And, once they are infected, “victims suffer from segregation and discrimination. They are shunned and culturally stigmatized.” Thus traditional societal and cultural norms work against both prevention practices and the care of the sufferers.

Some studies in Nigeria confirm Nwosu’s conclusions. The HIV/AIDS Emergency Action Plan (HEAP) developed as a response to the epidemic in Nigeria and identified over 200 activities which the government intends to implement. These include both short-term interventions and long-term cultural change. HEAP’s initiatives include encouraging communities to design their own community-specific action plan, passing laws against discrimination and stigmatization of victims, and providing non-judgmental care and support. Another important aspect of HEAP is the stimulation of further research and the appropriate distribution of available resources. HIV/AIDS has some effects on certain aspects of life in Nigeria. The impact of the epidemic extends from the labor market, to industrial and tourism development, to education and agriculture. Cooperation from all tiers of government as well as partnerships with international organizations and entities will be needed to guide the strategies and implementation. Nwosu agrees it is a daunting task.

“More needs to be done,” Nwosu states emphatically. “The role of academia in HIV/AIDS prevention and education in Africa cannot be overemphasized. First, we need to educate people in prevention techniques, including distributing condoms and providing informal workshops. Addressing cultural issues at this point is important. Second, we need to educate individuals to be tested by medical personnel. Hospitals must work with HIV/AIDS victims and caregivers to provide adequate treatment in a supportive environment. And, third, international assistance, which to date has come primarily from the United States, needs to be increased. The World Health Organization (WHO), the United Nations (UN), and the World Bank need to step up their assistance. The end result will benefit mankind in general.”
Research Note

Without a Trace: The Disappearance of Jeremiah Brophy

by Patricia Fanning

May 19, 1925 – McKeesport, Pennsylvania

Disappearing (last Saturday) after telephoning that he was going to a dentist, J.J. Brophy, aged 30, an agent of the Western Pennsylvania Humane Society, has neither been seen nor heard from since and police were asked to search for him today. Brophy has a wife and three small children at his home in Douglass, Pa.

Historical research often provides us with unsolved mysteries, some more intriguing than others. Every so often, if we’re lucky, the story will lead us into the present. Several years ago as archivist of the correspondence of F. Holland Day, noted pictorial photographer and philanthropist from Norwood, Massachusetts, I came across correspondence from one Jeremiah (Jerry) Brophy. The letters dated from 1903 until 1925 when the above newspaper article was sent to Day with a plaintive note from Brophy’s wife, who feared, along with authorities, that “he may have met with final play!” I was charmed by Jerry, who kept up a lively, imaginative, and quite literate correspondence despite having little formal education. I followed the clues embedded in his letters, and pieced together the threads of Jerry’s life. To my surprise, I even added a final chapter.

Jerry Brophy was born around 1889 and surrendered to Boston’s Home for Destitute Catholic Children (HDCC) by his mother sometime after 1900. The HDCC, founded in 1864 by Boston’s Catholic diocese, was an organization which placed needy or wayward children in foster homes. I contacted the HDCC, now called Nazareth, and operating under the auspices of the Daughters of Charity. They kindly sent me what little information they had about the young man, to his study- mind which is forever recalling those bright scenes for a series of break-ins at homes in Andover, Massachusetts. Day’s lawyer represented him in court. At Concord, inmates were allowed to write one letter each month. Jerry’s monthly letters went to Day and his memory of the brief, lifeless time he had spent in Maine became the inspiration for evocative images of peace and security: “I…never will forget the good man who was both a father and a friend to me during that happy summer which left some hidden energy in my mind which is forever recalling those bright scenes and the smell of the sea and the pines.” Day supplied his young friend not only with much needed emotional support and encouragement, but magazines and books. In August, 1909, Jerry acknowledged one particular package: “Yesterday when I awoke under my door one of the books that you so kindly sent to me and I expect to pass many a pleasant hour in reading it. The one I refer to is Dickens Tale of Two Cities and I think you selected it as an appropriate one for me just at present. The other I was not allowed to have, it being deemed inappropriate for me, by the officials of this prison…[note: the rejected book was Tom Jones].” As his writing ability improved, due in part, according to the young man, to his studying Day’s correspondence, Jerry began to work for Our Paper, the in-house Concord Reformatory newspaper, copies of which are housed in the Massachusetts State Archives.

Jerry was released from Concord on August, 1910, found work in a hotel, and, once again, began to plan for his future: “I am sending along the Colby Academy catalog which interests me very much. So much so that I think I can save some money this winter I shall go to it when the spring term starts and after four years am finished go to college. If others can do it, I know I can. I want to be somebody and of some use in the world….Read it over and tell me what you think about it and I will follow whatever advice you may give me as I know it will be of the best.”

Day approved, and renewed his offer to pay educational expenses. In December, Jerry wrote to Day with the principal of Colby Academy but the news was not good. “He said it was unusual to take students in the middle term of the school year because such students needed special attention, and when I brazened the subject of working my way through he said that would be impossible. Jerry was understandably disappointed and discouraged. In desperation, he once again tried Amherst Agricultural but, after meeting with someone there, sent a postcard to Day with the words: “No use. Am coming back to Boston.”

Tracking down his records at Kansas State was not difficult. Jerry worked in the coal mines and, eventually, the print shop. He also joined the prison band and, once again, worked and wrote for the prison newspaper. Due to his age and good behavior, he was transferred to the State Industrial Reformatory. He gained an early release in 1915 due to financial assistance from Day and a faculty member from a nearby Kansas college who had expressed confidence in Jerry’s abilities. After his release, he worked for the Rock Island Railroad and even won a short story contest in Ftitt, Kansas, but he could not gain admittance to the local agricultural college without a high school certificate which he did not have. One year later, in December, 1916, Jerry enlisted in the Canadian Overseas Expeditionary Force (WW1) uniform. His notation under the photograph simply identifies “Jerry Brophy Sr.”

His hopes dashed, Jerry searched for steady employment but as the rejections mounted, his confidence eroded. At his lowest point, he wrote: “I am afraid that I am but an ordinary young man destined always to remain so…However I think that if I try to do my best in an ordinary way more good will come of it than if I tried to climb out of my sphere in life.” Eventually, Day paid Jerry’s way to Chicago to join his older brother Tom. In October, 1911, the brothers were arrested and imprisoned in Kansas State Penitentiary for burglary and grand larceny. A remorseful Jerry, still only about 16 years old, wrote to Day in December: “Your sorrow at finding me here I can partly understand but your continued interest in me is something which I can hardly believe possible… I know it must be very discouraging to you to see your hopes blasted, for I flatter myself that my hopes were yours.”

Jerry was placed in four foster homes between March, 1903 and September, 1904 and was always returned. As his writing ability improved, he often wrote to his foster home experiences, he reported that “I ran away from the home in Jamaica Plain and went to Lawrence to live with my aunt, since then I have knocked about sometimes working on farms and more often working in the mills,” adding that “I have thought of you very often [for]…I have always thought of you as the kindest and best friend ever had.”

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His wartime letters also remind one of who Jerry was, an intelligent, somewhat wild, but good-natured and well-intentioned young man, constantly striving and
just as consistently running into one obstacle after another. While awaiting combat, he wrote to Day: ‘In case I do not return, you will always know that, to the end, I was deeply grateful to you for showing me the best way to get the real good out of a life which could not have been anything but a miserable existence, had you not pointed my feet into a better path.’ Jerry was severely gassed while fighting in France. During his convalescence, he transferred into the military band and remained there for the duration of the war. He returned to the United States and, in July, 1920, in a lengthy letter, brought Day up-to-date. He was working in the coal mining region of Pennsylvania and more: ‘I am not only married but have a little tow-head to carry the name on. He is three months old now. My wife...has helped me to get a little home together where we are happy and getting along splendidly.’ He closed ebulliently, ‘As I have often turned to you in times of need, so when prospects are bright and the future full promise, I turn again to you who were my boyhood ideal and who guided me in more ways than you guessed.’

Sometimes in 1923, Jerry left the mines and began working as an agent for the Western Pennsylvania Humane Society, an association established to prevent cruelty toward animals, children, and the elderly. With this position, Jerry had seemingly come full circle, with a home and family of his own and a career dedicated to the welfare of those around him. He was working in the coal mining region of Pennsylvania and more: ‘I am not only married but have a little tow-head to carry the name on. He is three months old now. My wife...has helped me to get a little home together where we are happy and getting along splendidly.’ He closed ebulliently, ‘As I have often turned to you in times of need, so when prospects are bright and the future full promise, I turn again to you who were my boyhood ideal and who guided me in more ways than you guessed.’

Edward Brophy, 5 years old, and J. J. Brophy, Jr., 8 years old, accompanied by their pet ‘Prince’ run to the station every time the train whistle is heard in the hope that their father and master may be one of the passengers. The boys every day have met with disappointment but are hopeful that soon they will meet their daddy. I could not leave it at that and wrote to every Brophy in the western Pennsylvania telephone directory. Jerry’s daughter, who had been eleven months old when her father was last seen, and his younger son’s two children responded. They knew nothing of the details of Jerry’s early life, only that he had disappeared without a trace and was never found. I was told that Jerry’s widow, Charlotte, remarried several years after his disappearance. Jerry’s three children grew to adulthood. Edward died in the service during World War II and J. J. passed away in 1969. I sent copies of Jerry’s letters to his grandchildren and daughter. The correspondence helped them understand how difficult his life had been and convinced them that he had not left his family willingly. As for me, I will always treasure the: ‘Thank you notes from Jerry’s daughter, Marion, who wept when I spoke with her on the telephone. She died a few years later. Making contact with the Brophys somehow provided me with the sense of reuniting a family and, perhaps, in some way, seeing Jerry home.’

Patricia Fanning is Associate Professor of Sociology and Associate Editor of the Bridgewater Review.

At two o’clock, on a cold February afternoon in 1996, a fourteen-year-old boy walked into his Washington Junior High School and behaved in a way that his teacher could never have anticipated. Armed with two guns, he shot and killed two of his classmates and his teacher. Had that teacher had the right kind of professional training, she might have been able to recognize the student’s emotional and behavioral problems, and might also have been able to intervene when she could. Eight years later, the United States is reeling from a series of school shootings and requiring teachers, more than ever, to understand and intervene with students who have behavioral problems leading to violence.

K-12 educators today know that their job is not what it was two decades ago. For example, what should a fourth grade teacher do if she or he discovers that one of the students in the class has been extorting money from another student, threatening the victim with a beating if the money is not paid every week? Despite their hunger for training in behavioral problems and aggression, most teacher-training institutions, including Bridgewater State College, do not offer systematic education about childhood aggression. This remains true despite a renewed emphasis on researching the causes of childhood aggression among higher education faculty and other researchers. Psychology programs often offer elective courses focusing on this topic, and my own book, Understanding Violence, focuses entirely on a review of the vast array of experimental studies examining the causes and contributing factors to such behavior. However, many K-12 educators leave their training with little understanding about this topic, despite their desire to know more. During their professional lives, little knowledge filters down from the scientific journals in which most researchers publish such information. My awareness of the extent of this problem is the direct result of the response I received to my book on violence. It clarified for me the education profession’s lack of understanding of the causes of violence in children. For the last few years, much of my professional effort has been aimed at increasing the access K-12 educators have to expertise I have in this area.

In September 2000, I formed a group of concerned experts which was known as the Massachusetts Aggression Reduction Partnership (MARP). The partners in this group were myself, other BSC faculty, experts in law and sociology, entertainers focusing on children’s aggression, and educational groups. Facing History & Ourselves. MARP gave a Conference, here at BSC, in January 2004. The conference, which was essentially the kick-off for the group, was successful in tapping into an area of great need. Its coverage by the Boston Globe and other local papers and drew a large response, and we were ultimately filled up and obliged to turn away interested potential attendees. During the conference, breakaway sessions were designed specifically to cater to different educators’ needs (e.g., some breakaway sessions were appropriate for K-3 educators, others for high school educators). We conducted outcomes assessment for research purposes. This data is awaiting analysis now and will be used to mold future workshops and conferences.

In March of 2004 I proposed to the President of Bridgewater State College, Dr. Dana Mohler-Faria, a year-long project aimed at setting in place a new BSC Center, the logic outgrowth of that Partnership, which would focus on a broad array of knowledge that could be successfully communicated to K-12 educators in the Commonwealth of Massachusetts. I was thrilled to be awarded this first Presidential Fellowship. The Fellowship was created by Dr. Mohler-Faria to free a faculty member from all teaching responsibilities to pursue a project of value to the campus, in the form of a major research, scholarship or service project. The new Center I proposed was to include collaborations both within campus and with external partners (the Attorney General and the Plymouth County District Attorney), student research opportunities, mechanisms to attract external funding, and significant service education in Massachusetts.

Presidental Fellow
Progress at MARC: The Massachusetts Aggression Reduction Center at Bridgewater State College

by Elizabeth Englander
The Presidential Fellowship has allowed me to make great progress in establishing the Massachusetts Aggression Reduction Center (MARC) here at Bridgewater State College. It is designed to bring high-quality, low-cost services to K–12 education in the area of understanding, coping with and preventing child- hood aggression, bullying and violence. In that effort, a multitude of services have been developed within MARC. The Center has already hosted six conferences here at BSC on a variety of topics about children and violence. There is a MARC Anti-Bullying Program for K–12 schools—arguably our most popular program. It works intensively with children, teachers, administra- tors, and parents to begin to change school climates so bullying is no longer considered a high-status, desirable behavior. The program has age-appropriate curriculum, hands-on situation-centered faculty training and concrete suggestions for administration and policy so they can cope effectively with aggressive behavior by chil- dren in their schools. MARC, a training Center, has a strong focus on training BSC students to work as facilita- tors so they can teach adolescent students how to begin to think about their school climate, and how to begin to plan to change it. A major goal of MARC is to teach younger children to be conscious of bullying behaviors, and to empower older children to begin to address this problem among themselves.

The Student Associates and Facilitators are a critical part of our collaborations with schools. For example, three undergraduate facilitators recently worked with a group of students in a Middle School in southeastern Massachusetts. The group learned to identify bullying and harassment behaviors which they felt were objec- tionable. They discussed how they should take responsi- bility for starting to change the climate in their school, and they began to plan student-led programs which might reduce the bullying they saw on a daily basis. One such program was a Lunchtime Program, where 8th-graders would be trained to visit several lunch tables during each lunchtime to help guide the conversa- tion to reduce bullying and abuse, and to help other students recognize the destructiveness of this behavior. This is a student-initiated, student-conceived, and stu- dent-led program, brought about through the facilita- tion and mentoring offered by the students’ older, collegiate peers.

Another example of how expertise from MARC has been employed during the initial year of its existence took place in an elementary school in Walpole. In that school it had long been the practice to require a child who was found to have been bullying a classmate, to write a letter of apology to his or her victim. Through MARC training, we communicated to administration and faculty the drawbacks of involving victims in reme- dies for any bullying incident. In this case, having a bully write an apology letter to a victim can be counter- productive because such letters can readily be read by that victim as a further threat. In fact, the between-the- lines message sent by such a letter is often “I know that you told on me.” Disciplining a bully in isolation from the victim actually increases the reporting of bullying if victims and potential victims don’t have to be involved with their tormentor in any way.

Though MARC is only in its first year of operation, we can point at progress we have made toward fulfilling some of the important goals set out in the original pro- posal for the Center. We have increased collaboration between Arts & Sciences and Education by drawing stu- dent facilitators from both departments in both areas. Students in MARC programs are involved in efficacy research measuring the effectiveness of MARC pro- grams. At the time this article is being written they are entering preliminary data and conducting simple data analysis. Several external grant proposals have already been sent out, and we anticipate using preliminary data in future grant proposals. MARC has become involved in regional and statewide planning, as a partner to the Massachusetts State Senate and the Attorney General, and is involved in the formulation of new state-wide law, policy and initiatives regarding school violence. Via MARC, partnerships have been formed with the Massachusetts Attorney General and the District Attorney of Plymouth County. As the director of MARC, I am also working with several State Senators to help formulate effective legislation around school safety. Encouragingly, preliminary data indicates a posi- tive reaction to the pragmatic, hands-on approach the MARC training takes in preparing educators to deal with violence and bullying among children.

—Elizabeth Englander is Professor of Psychology.

Judging by newspapers and television stories, it seems like we live in a pretty dangerous place these days. Just within the last day I counted more than fifty stories that reported murder and mayhem from every quarter. The Christine Worthington murder is in the news again with the arrest of a suspect after two years of investiga- tion. Worthington was the young woman writer who was found stabbed to death in her Truro home in January of 2002. Yesterday a mother of two was stabbed to death by her son in the dining room of their suburban home. There is serious possible danger to drivers posed by massive leaks (not just damp walls) in the new Big Dig tunnels. Crackles have appeared in the brakes of the high speed Acela trains that could result in disaster for riders. And today the Boston Herald headlined, in a screaming one inch type front page headline “Rape Fear Grips City.” Some local television news programs seem to have become so dominated by stories of threats to our lives, especially by murder (the more lurid and the more local the better), that they have no time left in the broadcast for information about anything else. Why is there such a focus on the dangers of the world, and what are the possible consequences of being exposed to so much horrible news?

It is easy to understand why newspapers and television stations produce these fear-inducing stories. They sell newspapers and build audience. But why do they? What happens when we watch a story about a murder in town just like the one we live in, or read about a seemingly normal teenager who has been collecting guns for a planned attack on classmates? One explana- tion is that such information is useful to us. In the case of murder on the television news, we may watch because we need to keep track of how whacked the world is right now. It can be comforting to learn what the extremes of danger in everyday life have become.

For example, I can use the information to plan to act so as to limit that danger myself and my family. Parents now typically drive their children to school rather than let them walk. And I think I’ll ask that psychotic board- er to move out of our guest room. Stories like these help us map the dangers of the real world so we can better navigate it.

Another common explanation for our fascination with news of the dangerous is a variant of the explanation for why so many people like getting “scared to death” because the experience reenforces their sense of safety and security in real life. After all, if you can watch the awful stuff that Hollywood special effects departments can do to the characters on the screen, but still walk out afterwards to go for chocolate ice cream, how dangerous can the real world be? Every time you go to a film like this you psychically defy death. And it’s not just film that works this way. Great scary stories depicting human disaster have sold for as long as stories have been told. And video games like Mortal Kombat and Doom, which advertise themselves as “the scariest games ever made” have taken routine and extreme violence into the mainstream of play.

But what happens if we confuse the reporting of disas- ters in the news with the depiction of it in factors? While mayhem may sell in both entertainment and in the news, this practice can lead to two kinds of prob- lems. One is that we may come to see real disaster as similar to entertainment disaster. Those generations of Americans who are raised in the film, television and computer game era may have lowered ability to make distinctions between the murder produced for enter- tainment value, and the murder that really happened. Think of the cases of children who imitate acts they have seen in film, but have no idea that they would have deadly consequence for their victims. If by blurring the line between news and entertainment we become less sensitive to the consequences of real suffering and dan- ger, we are less prepared to make good decisions about how to live in the real world. I can’t help think of the similarity in the depictions of massive floods and wholesale destruction of life and property in the 2004 film The Day After Tomorrow, and the television coverage of the South East Asian tsunami that killed more than 210,000 people in December of that same year. I remem-

Cultural Commentary

The Danger of Danger

by William C. Levin

We map the dangers of the real world so we can better navigate it.
The anti-Semitism intensifies. Walter Winchell, who has used his weekly radio broadcast to oppose Lindberg, decides to campaign for the presidency in September 1942. Intense anti-Semitism becomes virulent. Winchell is assassinated in Boston. The Justice Department starts rounding up and arresting prominent Jews. Hitler’s foreign minister von Ribbentrop travels to Washington, ostensibly to attend a state dinner but actually to pressure Lindberg to formulate “more stringent anti-Jewish measures.” Lindberg, who wishes to enhance his stature as a figure himself to his political rallies and meetings, disappears. The facts, as they emerge, reveal that the Nazis have been planning the Holocaust. Lindberg is assassinated. The Justice Department starts mass arrests of prominent Jews. Hitler’s foreign minister von Ribbentrop travels to Washington, ostensibly to attend a state dinner but actually to pressure Lindberg to formulate “more stringent anti-Jewish measures.” Lindberg, who wishes to enhance his stature as a figure himself to his political rallies and meetings, disappears. The facts, as they emerge, reveal that the Nazis have been planning the Holocaust. Lindberg is assassinated.
should be organized, confront that president with a threat, and see how quickly public hysteria will wither individual rights. Roth's family story, the one narrated by Philip, shows a family trying to hold together amid unforeseen and unpredictable events. In a world where being different simultaneously means being frightening to others who don't understand you and frightened all the time of their ignorance, one's only defense may lie in an active and skeptical intelligence. Even that may not be enough to prevent disaster.

Disaster is what Richard Clarke anticipates for the U.S. if the government fails to learn from the mistakes that led up to and followed September 11, 2001. "Ten Years Later" takes the form of a September 11, 2011 anniver-
sary lecture to the Kennedy School of Government. The lecturer, presumably Clarke himself, looks back on "the second wave of al-Qaeda attacks" that have brought the U.S. "spiraling downward in terms of economic strength, national security, and civil liberties." Rather than use commercial airliners as bombs to destroy large buildings, this second wave of attacks begins with suicide bombers who detonate themselves in casinos, theme parks, and other places where Americans gather for amusement. The nation's permissive gun laws allow terrorists to arm themselves and attack shopping malls and public transit systems. Terrorists will infiltrate computer networks with viruses and worms. Ultimately, they attack chemical plants and cause panic in the areas surrounding those plants.

Meanwhile American foreign policy, in taking an arro-
gant go it alone approach to Europe and the Middle East, has exacerbated tensions and produced greater instability. Using Saudi Arabia as its base for bombing Iran and destroying that nation's nuclear facilities, the U.S. inflames anti-American feelings among Islamic fundamentalists who ultimately overthrow the House of Saud. Crude oil prices skyrocket to $85 a barrel. In the U.S. anti-Arab hostility leads to acts against American citizens of Middle Eastern descent even though few of the second wave terrorists derive from the Middle East. Congress imposes a new draft and creates new courts to handle suspected terrorists.

Civil liberties erode in the face of domestic security threats, real and perceived. America becomes a funda-
mentally different country, suspicious of its neighbor Canada, alienated from its European and Asian allies, and engraved by internal indoctrination and dissent.

Clarke clearly anticipates some such scenario coming into play if the American government doesn't correct mistakes it made leading up to and after 9-11. Not since the Carter Administration has the U.S. made any serious attempt to lessen the country's dependence on imported foreign oil. That must change. The U.S. must develop adequate and accurate intelligence about the middle Eastern countries and about the various terrorist networks working within them. We as a nation must be prepared to engage "the Islamic world in a true battle of ideas." (I infer that Clarke doesn't think the recently enacted reorganization of the intelligence agencies and creation of an intelligence czar accomplished what's needed in this area.) Finally, the U.S. must correct the mistakes that resulted from the inva-
sion of Iraq, the greatest of which—as he predicted in Against All Enemies—would be creation of a breeding and training ground for new generations of terrorists. One can pray that Clarke's anticipations are wrong, but as he says in a concluding author's note, his scenario is not worst case; nuclear and biological attacks are worst case.

Perhaps not, though. Azar Nafisi recounts life in Iran during the Cultural Revolution as the ayatollahs sys-
tematically transformed Iran into the Islamic Republic of Iran by imposing their fundamentalist religious ideol-
gy on the country. Daily life became a matter of fearful encounters with squads of thought police, the enforcers of Islamic law: the Revolutionary Guards who would arrest and carry away people who might never again be seen, and government committees that proposed new laws and restrictions on all forms, particularly Western forms, of thought and expression. The Islamic Republic practiced totalitarian brainwashing on a national scale and, disastrously, tried to extend it to Iraq in what resulted in a war of attrition for both countries. Reading Lolita in Tehr

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"What now?"

—Charles Angell is Professor of English and Book Review Editor of the Bridgewater Review.
Still Life #2
In making a photograph, I often look for one of two things: the interplay of light and shadow or patterns. Clearly, this photograph relies mainly on the former. It was taken in late afternoon on an early November day inside one of the dwellings at Plimoth Plantation. Like the large majority of my images, it relies on natural light.

Still Life #1
In some ways this is a similar image to the one above; both images were taken on the same afternoon. While also relying on the interplay of light and shadow for interest, this image relies on linear forms to make its statement rather than the curves seen in the other image.

—Frank Gorga is Professor of Chemical Sciences.