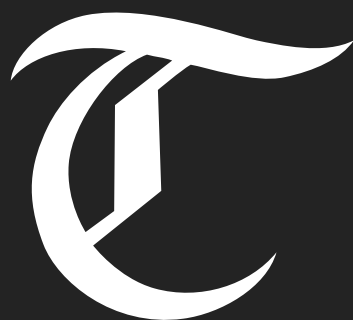




2013 IN REVIEW



FEBRUARY 4, 2014

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From the editor

MIT entered 2013 expecting to face federal funding cuts for research due to the sequester, and high-level MIT officials searched for ways to keep our research thriving, saying we could handle the cuts better other affected institutions. The difficulties we could not have anticipated, however, shook our community at many levels as we navigated through an especially turbulent 2013.

Here, often seemingly isolated from those beyond our campus, we joined with Cambridge, Boston, and the rest of the country through the Boston Marathon bombing and the fatal shooting of MIT Police Officer Sean Collier that hit even closer to home. Concern poured in from family and friends, and putting aside our differences, we supported Boston and each other.

On a different level, following Internet activist Aaron Swartz's tragic suicide in January, MIT faced scrutiny from media, the online community, and some of its own students and alumni. Inquiries into MIT's involvement in the two years preceding Swartz's death forced the Institute to reflect on its policies, societal obligations, and educational scope.

Within our campus, the sudden announcement of undergraduate dorm Bexley Hall's closure toward the end of the Spring semester dispersed residents. With an undergraduate experience known for strong, varying dorm cultures, MIT's other living communities welcomed into their midst groups of former Bexley residents, who have championed the continuation of their culture.

Alongside these experiences, MIT took time to invest in its future. While the changes are intended to move us forward as an institution and as a community, the plans and manner of execution were not always entirely uncontentious. Much of MIT's senior leadership changed with L. Rafael Reif's second year as President, and the Institute announced a new capital campaign to be led by Eric Grimson PhD '80. Upperclassmen no longer knew best about the General Institute Requirements — many GIRs saw a makeover as MIT used edX methods to explore new possibilities with residential education. Scaffolding became a common sight around campus as renovations began to improve or replace outdated buildings. MIT pushed through an ambitious development project for east campus and Kendall Square, sparking debate about the commercialization of the area and the degree of faculty involvement in such decisions.

As we come out of a tumultuous year, we remember that in the most difficult moments, we showed strength as a community. We remember that when we cared, we voiced our concerns. We remember that we showed compassion for each other's situations. Continuing into 2014, as the Institute implements changes to push MIT forward, we should hope for the same — that those who care will speak, that those in charge will honestly consider them, and that those involved in our community discourse will be active and supportive.

—Anne Cai, Volume 133 Editor in Chief

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Terror strikes, four are slain, Boston prevails, and MIT remembers *MIT Police Officer Sean Collier killed*

By Austin Hess
NEWS EDITOR

Tragedy struck Boston, Cambridge, and MIT this year with the bombing at the 117th Boston Marathon on Monday Apr. 15 and the shooting death of MIT Police Officer Sean Collier that Friday. The events that unfolded halted Boston's daily operations and thrust the city and Institute into the national spotlight.

Two bombs exploded near the race's finish line on Boylston Street at 2:50 p.m. that Monday, hours after the elite groups of runners finished. The first detonated in front of Marathon Sports, a Back Bay running store, followed by the second about 600 feet west 13 seconds later.

Local emergency workers, Massachusetts Army National Guard soldiers (already at the marathon providing security), and bystanders provided the first response. According to *The Boston Globe*, individuals injured in the blast were then treated at 27 surrounding hospitals.

Three people, Martin Richard, 8, Krystle Campbell, 29, and Lu Lingzi, 23, were killed while watching from the sidewalk on Boylston

Street. As many as 264 people were injured, 14 of whom required the amputation of limbs, according to *The Boston Globe*.

Police evacuated nearby buildings and declared a 15-block crime scene in which they searched for additional bombs. The Boston Police Bomb Squad dealt with many bags dropped by fleeing spectators as potential bombs. Several MIT living groups in the Back Bay offered water, outlets for cell phone charging, and other services to runners and spectators in the crowd trying to evacuate the area.

While news reports in the afternoon suggested that police officials had found and were dismantling another explosive device, Boston Police Commissioner Ed Davis confirmed later that night that the only devices discovered were the two that detonated. Other news reports incorrectly connected a fire at the John F. Kennedy Presidential Library to the bombings, although it was in fact unrelated.

MBTA services were interrupted in many locations, and the investigation of a suspicious package took place near the Harvard MBTA sta-



1 TIFFANY IRA HUANG—THE TECH



2 HO YIN AU—THE TECH



3 ETHAN A. SOLOMON—THE TECH

1. A large American flag was suspended behind the stage at Sean Collier's memorial by two firetruck ladders.
2. The Green Building at MIT was lit in tribute to MIT police officer Sean Collier on the night of April 19, 2013.
3. Boylston St. remained blocked off two days after the Marathon bombings. Blue and yellow flowers, representing the colors of the Boston Marathon, were tucked into the barricade near a makeshift memorial.

After night of violence, dragnet paralyzes city

Suspects found days after bombing

tion an hour and a half after the blasts. At 4:50 p.m., the Federal Aviation Administration imposed a ground stop at Logan airport, allowing aircraft to land again at 5:35 p.m.

MIT President L. Rafael Reif sent a message to the MIT community in the evening confirming that no MIT students or faculty were among the casualties, although many were indirectly affected. Chris Peterson, an MIT admissions officer and Comparative Media Studies researcher, raised \$47,500 over the course of the week for the family of his friend, young deceased victim Martin Richard. Both parents of Richard T. Whalley '10 were in the ICU following the bombing, and Whalley's coworkers helped raise \$64,000 for the family by the Friday after the bombing.

Investigations by the FBI and other federal agencies continued over the following days. Authorities determined that the bombs were made from pressure cookers filled with shrapnel and hidden inside black nylon backpacks.

On Wednesday, April 17, the FBI criticized media sources for reporting based on unofficial and unsubstantiated rumors. In a press conference at 5 p.m. on Thursday, April 18, the FBI released security images of two men it identified as the suspects. The timing of the release was partially in response to the incorrect speculation by news organizations and social media.

The suspects were later identified as brothers Dzhokhar Tsarnaev, 19, and Tamerlan Tsarnaev, 26. They came to the U.S. in the early 2000s from Dagestan in Russia after their parents obtained asylum status. On Thursday, April 18, Dzhokhar's friends at University of Massachusetts-Dartmouth allegedly attempted to dispose of a backpack in his room containing fireworks after recognizing him in the released images.

MIT Police Officer Sean A. Collier

was stationed in a cruiser outside the Stata Center Thursday night. Dzhokhar and Tamerlan Tsarnaev allegedly shot Collier multiple times while he sat in the cruiser. After a postdoctoral student reported loud noises at 10:25 p.m., Collier was discovered with multiple bullet wounds at 10:31 p.m. by another MIT officer. Collier was pronounced dead after being taken to Massachusetts General Hospital.

Police later announced that they believed the Tsarnaev brothers, who had only one firearm, killed Collier in an attempt to obtain his gun, which they were ultimately unable to do due to a holster mechanism.

The brothers then allegedly hijacked an SUV and took its owner hostage less than an hour later near Brighton Ave. The owner escaped while the brothers were stopped at a gas station on Memorial Drive.

Soon after midnight, police saw the brothers in the stolen SUV and another vehicle in Watertown. The brothers became involved in a firefight with the police, during which hundreds of rounds of ammunition were fired, and the brothers reportedly threw homemade bombs and grenades. According to the Watertown Police Chief, Dzhokhar escaped capture by driving the SUV at police and then driving away, hitting and dragging his older brother Tamerlan in the process. This allowed police to apprehend Tamerlan Tsarnaev, who was severely wounded by the vehicle and gunshots and pronounced dead at 1:35 a.m. at Beth Israel Deaconess Hospital.

The search for Dzhokhar continued through the night and into the morning. Fearing that he had more explosives, MBTA service was halted and Boston authorities advised residents to stay indoors. Heavy military equipment was used in the search in and around Watertown. MIT, Harvard, and



CHRIS BENSON

More than 10,000 guests were in attendance at the Sean Collier memorial in Briggs Field.



HO YIN AU—THE TECH

1. MIT police officer Kevin O'Connor paid tribute to fellow officer Sean Collier in front of Building 32 on Friday, April 19, 2013. Collier was killed near this location the previous night by the Marathon bombing suspects.
2. Hundreds of paper cranes and origami flowers were draped on the MIT police cruiser in the Stata Center in honor of Officer Sean Collier.
3. The thousands of law enforcement officers present at fallen MIT police officer Sean Collier's memorial were seated before a majority of MIT community members arrived at Briggs Field.

other Boston area colleges cancelled classes. Parts of this lockdown were lifted at 6 p.m. before the suspect was found.

After a Watertown resident noticed a strange shape in the boat in his back yard he thought to be the missing suspect, police and SWAT teams worked to extract Tsarnaev, cautious of the possibility that he still possessed explosives. Dzhokhar Tsarnaev was apprehended at 8:41 p.m. He was taken to Beth Israel Hospital in critical condition due to multiple gunshot wounds. The emergency state at MIT ended at 9:24 p.m. Celebrations spilled into the street in the Back Bay, Boston Common, and other locations.

Following the return to safety and apprehension of the suspects, the MIT community turned its focus to fallen officer Sean Collier. In an interview with *The Tech*, MIT Police Chief John DiFava said that "[Collier] had a sense of humor. He was incredibly charismatic. He was very, very dedicated, very hardworking." On Monday, April 22, a state-wide moment of silence and human chain on Vassar Street commemorated Collier.

Hacks also appeared around MIT in honor of Collier, including paper cranes attached to the Stata Center's old campus police cruiser and MIT Police logos on the Great Dome and Alchemist, the sculpture

of a thinking person near the Student Center. Students participated in making posters and cards and took part in other activities in memory of Collier.

On Wednesday, April 24, MIT cancelled classes and held an official memorial service for Collier on Briggs Field. Thousands of police officers were in attendance. Speeches by Collier's brother and coworkers portrayed Collier as kind, humble, sincere, and active in his community. Massachusetts Senator Elizabeth Warren and U.S. Vice President Joe Biden also spoke, and several MIT music groups performed.

The MIT Alumni Association set up a memorial fund in Collier's honor and will use the funds to award the Collier Medal to those who reflect his values.

Dzhokhar Tsarnaev awaits trial for "using and conspiring to use a weapon of mass destruction resulting in death" and "malicious destruction of property resulting in death," according to the U.S. Department of Justice's filing. This trial may still be as much as a year away. Officials believe the bombings were motivated by the brothers' religious beliefs, as they apparently adopted extremist Islamic beliefs in the years and months before the attack but acted without ties to existing terrorist organizations. ■



TAMI FORRESTER—THE TECH



TIFFANY IRA HUANG—THE TECH



Internet rallies for liberator of information

MIT and prosecutors draw fire after the suicide of Aaron Swartz

By Anne Cai
EDITOR IN CHIEF

Internet activist Aaron H. Swartz committed suicide on Jan. 11, 2013, igniting a firestorm of discussion over the Internet — where he was regarded as something of a folk hero — and triggering questions regarding the prosecution, MIT, and JSTOR's involvement in *United States v. Aaron Swartz*.

In July 2011, Swartz was federally indicted for allegedly downloading millions of documents from JSTOR through the MIT network — using a laptop hidden in a basement network closet in MIT's Building 16 — with the intent of distribution. He had appeared in court on Sept. 24, 2012 and pleaded not guilty. The case, with a trial then scheduled for April 1, 2013, was dismissed as a result of Swartz's death.

In the days following Swartz's death, his family and partner released an official statement on remembraaaronsw.com, a site that grew into an online memorial to Swartz. In addition to remembering Swartz for his "insatiable curiosity, creativity, and brilliance," and his dedication to online activism, the statement also called out MIT and the Mas-

sachusetts U.S. Attorney's office.

"Decisions made by officials in the Massachusetts U.S. Attorney's office and at MIT contributed to his death," Swartz's family and partner Taren Stinebrickner-Kauffman wrote in the official statement. "Meanwhile, unlike JSTOR, MIT refused to stand up for Aaron and its own community's most cherished principles."

In early 2013, MIT experienced several events as a result of Swartz's suicide, raising security concerns.

The Internet reacted strongly to Swartz's death. The popular technological social news site *Hacker News* saw its front page dominated with Swartz posts for two days, and supporters of Swartz tweeted PDFs of academic papers as tribute for his advocacy of free information. Several petitions also sprung up, including a We the People petition calling for the removal of Carmen Ortiz, the U.S. District Attorney who prosecuted Swartz's case, from office, which has since acquired over 50,000 signatures. On Jan. 14,

a petition authored by Yan Zhu '12, Frank Dernoncourt G, and others outside the MIT community was posted on the MIT Society of Open Science website, calling for MIT to apologize for its "silence regarding the unjust federal prosecution against Aaron Swartz."

In the early months of 2013, MIT experienced several events as a result of Swartz's suicide, raising security concerns. In the latter half of January, MIT's network fell to a denial-of-service attack allegedly by the Internet activist group Anonymous, causing users of MIT's network to lose access to most sites, MIT's own web properties to become inaccessible on the web at large, and two MIT subdomain homepages to be replaced by messages calling "the government's prosecution of Swartz ... a grotesque miscarriage of justice." Later in the month, MIT was hacked again, with MIT URLs redirecting to a webpage claiming credit for the attack in remembrance of Aaron Swartz, and on Feb. 23, 2013, MIT's area of Massachusetts Avenue was shut down after Cambridge Police received a report — later confirmed to be a hoax — of a gunman on campus going after MIT President L. Rafael Reif and school staff



SOURCE: U.S. DEPARTMENT OF JUSTICE; DOCKET PAPER 81, EXHIBIT 14

Aaron Swartz enters 16-004T on Jan. 4, 2011, face exposed.

Swartz enters 16-004T on Jan. 6, 2011, hiding behind helmet.

in retaliation for Swartz's death.

The Sunday after Swartz's death, Reif reached out to the MIT community, writing that "although Aaron had no formal affiliation with MIT, I am writing to you now because he was beloved by many members of our community, and because MIT played a role in the legal struggles that began for him in 2011." On Jan. 22, 2013, Reif officially charged Hal Abelson PhD '73 — Electrical Engineering & Computer Science professor and a founding director of Creative Commons and the Free Software Foundation — with leading a "thorough analysis of MIT's involvement" starting from September 2010. The public report resulting from that analysis (released by MIT on July 30 and authored by Abelson, economics professor Peter A. Diamond PhD '63, and Andrew Grosso, a Washington-based lawyer) found that the Institute maintained "neutrality" during Swartz's federal prosecution, and while there was no wrongdoing, MIT missed the chance to show "leadership" in the two years prior to Swartz's suicide. Stinebrickner-Kauffman called the report a "whitewash."

"MIT's lawyers gave prosecutors total access to witnesses and evidence, while refusing access to Aaron's lawyers to the exact same witnesses and evidence," Stinebrickner-Kauffman wrote in a statement. "That's

not neutral." In an interview with *The Tech* in August, Abelson called that claim "80 percent false."

Meanwhile, alongside Abelson's analysis, the U.S. House of Representatives Committee on Oversight and Government reform began an investigation in January after Swartz's death and requested access to materials used in his trial, including MIT documents, many of which had already been publicly known and published by *The Tech* and *The New York Times*, among others. Following a March 15, 2013 motion by the Estate of Aaron Swartz to publicly release those documents, MIT filed a legal memorandum arguing that, while it was not opposed to releasing the documents, names and identifying information of members of the MIT community should be redacted, as well as any information that may expose MIT network vulnerabilities. Also citing privacy concerns, JSTOR requested a similar redaction for its employees. In May 2013, U.S. District Judge Nathaniel M. Gorton agreed with MIT and JSTOR's requests.

In July, MIT and JSTOR filed similar motions intervening in the Freedom of Information Act (FOIA) lawsuit by *Wired* investigations editor Kevin Poulsen against the U.S. Department of Homeland Security, filed on April 12, requesting the release of any Secret

Service documents regarding Swartz. On Aug. 12, the Secret Service began releasing the first batch of redacted version of its files on Swartz.

On the anniversary of Swartz's death, a preview of documentary about Swartz entitled *The Internet's Own Boy: The Story of Aaron Swartz* was released. On the same day, an MIT website, *cogen.mit.edu*, was hacked by Anonymous again, displaying a message headlined "the day we fight back" and calling for a mass Internet protest scheduled for Feb. 11, sponsored by organizations such as Demand Progress, Electronic Frontier Foundation, Mozilla, and Reddit.

The accomplished Swartz co-authored the now widely-used RSS 1.0 specification at age 14, founded Infogami which later merged with the popular social news site Reddit, and completed a fellowship at Harvard's Ethics Center Lab on Institutional Corruption. In 2010, he founded Demand Progress, a "campaign against the Internet censorship bills SOPA/PIPA." In June 2013, he was inducted posthumously into the Internet Hall of Fame. ■

```
Domain Name: MIT.EDU

Registrant:
  Massachusetts Institute of Technology
  Cambridge, MA 02139
  UNITED STATES

Administrative Contact:
  I got owned
  Massachusetts Institute of Technology
  MIT Room W92-167, 77 Massachusetts Avenue
  Cambridge, MA 02139-4307
  UNITED STATES
  (617) 324-1337
  cunt@mit.edu

Technical Contact:
  OWNED NETWORK OPERATIONS
  ROOT
  US
  DESTROYED, MA 02139-4307
  UNITED STATES
  (617) 253-1337
  owned@mit.edu

Name Servers:
  FRED.NS.CLOUDFLARE.COM
  KATE.NS.CLOUDFLARE.COM

Domain record activated: 23-May-1985
Domain record last updated: 22-Jan-2013
Domain expires: 31-Jul-2013
```

A screenshot of MIT's EDUCAUSE Whois database record from Tuesday, Jan. 22. The name of the administrative contact for the domain was changed from MIT Network Operations to "I got owned," and the name servers were changed to CloudFare servers.

Hurdle cleared for Kendall portal to MIT

East campus office towers to join tech hub, rival Green Building

By Leon Lin

ASSOCIATE NEWS EDITOR

Biotech and tech companies are clustered so densely around MIT's campus, especially to the east, that they leave an MIT-shaped hole on a map.

With walking distance of the Kendall T stop are Amgen, Biogen Idec, Genzyme, Novartis, Google, Microsoft, Amazon, and Akamai, not to mention the hundreds of startups housed in places like the Cambridge Innovation Center.

The buzz about the "innovation cluster" — the "envy of the world," one state official called it — has made MIT's easternmost holdings prime real estate. Yet that part of campus, just across Main Street from many of these companies, is mostly an unimpressive collection of parking lots.

But change is afoot in what's often seen as the last undeveloped region of MIT's campus. MIT wants to bring corporate Kendall Square down south of Main Street and liven it up for pedestrians with some ground-floor retail.

MIT cleared a major hurdle for the project in April 2013 when it pushed what became a politicized rezoning of east campus through City Council in a final bout of dealmaking.

The project is part of the MIT 2030 framework, but it's poised to shape Kendall Square and MIT for the better part of a century.

Within MIT, the rezoning sparked debate about graduate student housing and the line between the academic and the commercial. For the city, the rezoning was in many ways a familiar struggle of urban development, the struggle between those ready for change — the glass high-rises, the imported affluence — and those wary of it.

A vibrant gateway

The plan is to build two or three office buildings along the MIT side of Main Street as well as a residential tower at One Broadway, which together would bring MIT an estimated \$20 to \$30 million each year in leases and rent.

If they are built to their maximum height of 300 feet, the new buildings would be taller than the Green Building, not counting the ra-

dio and weather equipment on the roof.

What warms the city up to these corporate complexes is that they generate tax revenue, unlike academic buildings. So MIT helps to develop the city, increasing the valuation of its own property — it's not a new strategy for MIT, which also owns University Park and Technology Square. Decades from now, when leases are up and MIT's research needs have expanded, the buildings could join the academic campus proper.

"We'll use this commercial activity to get these knowledge-based companies into our innovation cluster," said Steven C. Marsh, the head of the real estate team at the MIT Investment Management Company (MITIMCo). "This makes Kendall Square better, makes MIT better. We're bringing in talent. We're bringing in an exciting ecosystem. We'll use that opportunity to revitalize Kendall Square."

Both the city and MIT also want to change Kendall Square's reputation as a business-hours-only office park. Early renderings have included plazas and public green spaces, and both the new zoning and a recent city study call for as much. Fountains and even a riverwalk from Point Park down through the Sloan School have been proposed. MITIMCo models feature colorful storefronts and outdoor tables with umbrellas. In community forums, residents and students have asked for restaurants, grocery stores, and other amenities.

It's not just a livelier streetscape that MITIMCo has in mind. The Kendall T stop area and its neighboring buildings are to be transformed into an eastern "gateway" to MIT — an architectural statement as obvious and iconic as 77 Massachusetts Ave. The proposal is like 77, but modern — one drawing from before the rezoning even has buildings adorned with lights, screens, and ribbons. "MIT-ness" is the term thrown around by MITIMCo and the design firms hired since the rezoning.

An outspoken opponent

Not everyone, however, has been on board with MIT's plans.

In the months leading up to the City Council vote on the rezoning petition that would make MITIMCo's plans possible, opponents

of the rezoning called on the Council to vote it down.

Especially vocal was biology professor Jonathan A. King, who at City Council meetings broke the image of a united Institute coming forward with a vision for Kendall Square.

King is also the chairman of the Cambridge Residents Alliance, which circulated a petition for a one-year moratorium on all "up-zoning" in Kendall Square and other places. The petition cited concerns about density, rents, traffic, safety, gentrification, air quality, noise, and blocked sky views.

King argued in particular that the plans would exacerbate a graduate housing crisis.

"Graduate students are the engine of MIT R&D productivity," King said at a forum in February last year. "Their most pressing need is decent, affordable housing. The MITIMCo petition ignores this need and proposes commercial office towers in the center of east campus." The new commercial buildings will be east of the MIT Medical building, overlooking Main Street.

King said that the new buildings would not only take up space that could be used to house graduate students — who he said need to live nearby to attend to their wet labs — but would also introduce competition for what little housing there is in Cambridge.

Israel Ruiz SM '01, executive vice president and treasurer of MIT, countered that MIT houses a greater fraction of its graduate students than many other schools, and that MIT could build more graduate dormitories elsewhere on campus, such as in the northwest corner.

The findings of a study on the housing needs of MIT graduate housing students are expected to be released in 2014.

King further argued, individually and with other members of the faculty newsletter editorial board, that campus planning decisions should be made by faculty members rather than real-estate executives who he said only had their eyes on the bottom line. At the November faculty meeting, King and nine other professors moved to establish a faculty-elected campus planning committee. The motion will be voted on in February this year.

A crucial vote

As the April 15 deadline for the rezoning's approval loomed, MIT executives scrambled to secure its passage, with President L. Rafael Reif showing up in person at a hearing on April 1 to speak in favor of MIT's petition.

It was already MIT's second attempt at the rezoning. The first petition had been drawn up in 2011 during Susan J. Hockfield's presidency.

City councillors saw the opportunity to milk favors from MIT in exchange for votes.

Following meetings with councillors in late March, MIT committed on April 2 to paying \$14 million to a city community benefits fund (up from a previous promise of \$10 million) and to contributing to a number of the councillors' pet causes, some of which had little to do with the rezoning.

Then-Vice Mayor Denise Simmons called the episode a round of "public extortion," the Cambridge Chronicle reported.

The vote on April 8 drew a crowd to City Hall. During the public comment period, many applauded when Fred P. Salvucci '61 — a civil engineering lecturer and former Massachusetts secretary of transportation — warned that the rezoning would facilitate gentrification as well-off technologists moved in.

With time, "nobody who voted for you will still be living in this neighborhood," Salvucci told the councillors.

Being priced out is something Kendall startups have to worry about, too, with Fortune 500 companies vying for the same space. Councillor Leland Cheung MBA '12 especially pushed for measures to ensure that Kendall never loses its entrepreneurial dynamism.

The final rezoning petition included minimum percentages for both low-income hous-

ing and startup space. Startup founders at the meeting praised the petition universally, though the same could not be said for advocates of affordable housing, who nevertheless understood that MIT could not on its own be expected to solve the tougher problems of housing and economic diversity in the city.

The much-anticipated vote was delayed that evening for hours, with two of the councillors tied up at the state legislature and five eleventh-hour amendments proposed.

One amendment, from Councillor Minka vanBeuzekom, threatened to derail the entire project. The amendment, which required new buildings to net zero greenhouse gas emissions annually, appeared to pass 5 to 4 at first.

But then MIT officials signalled to Councillor David Maher from across the chamber, and they conferred in a side room. Maher then seemed to steal about the chamber, whispering to different councillors, including Mayor Henrietta Davis. This happened all while another councillor described his visit to MIT, creating a "diversion," a member of the anti-development Cambridge Residents Alliance would later allege.

Davis finally announced that the net zero amendment would likely "sink this whole project" and took back her affirmative vote, voiding the amendment.

In the end, MIT's rezoning petition passed with seven votes for it, one vote against it, and one vote of "present."

A design team

Since the rezoning, a group of MITIMCo executives and faculty from the School of Architecture have selected a team of six firms to draw up the plans for the future of the east-

ernmost parts of campus. The team is led by Mack Scogin Merrill Elam Architects, who have also designed for other universities.

At community forums in December, Mack Scogin said that the team had identified four "critical design issues": the future of Eastgate, the graduate dormitory; the new eastern gateway to MIT; the placement of public spaces, such as gardens and plazas; and the "connections" within MIT and to MIT's surroundings.

An exchange between Scogin and former campus planning director O. Robert Simha MCP '57 at a forum reprised a debate about the role of commercial buildings on campus.

Simha and others had said that MIT's land south of Vassar Street and Main Street should be reserved for academic purposes — that was what the land was acquired for. Besides, it's hard to predict how MIT's research plant will need to expand in the future, he argued.

MITIMCo officials have pointed out that under the rezoning, which permits greater density, commercial buildings can be built while maintaining the amount of academic space available before.

Responding to concerns about a sketch of a skywalk between a commercial building and an academic building, Scogin said that the collaboration between MIT and industry was a boost to both. Indeed, the extent of MIT's collaborations with industry historically ought to be a point of pride for MIT, he said.

But Simha was not swayed. MIT must "never forget," he said at the forum, that academic research is open, while commercial activity is "the opposite."

Detailed designs are expected at the next community forum on Wednesday, Feb. 12 from 5:30 to 7:30 p.m. in Room E25-III. ■

COURTESY OF SARAH GALLOP

The Kendall T stop as viewed from the Marriott Hotel. 1. Existing streetscape. 2. A rendering of a possible design for MIT's new eastern "gateway" at the Kendall T stop. The gateway is intended to mirror the grandeur of 77 Mass. Ave. The larger building in the right foreground will likely be a commercial office or lab building.





VANESSA TREVINO—THE TECH

Bexley Hall closed for renovations that will take up to three years at the end of the 2012-2013 academic year.

Bexley Hall closed due to structural issues

Sudden dorm closing dispersed residents, some concerned about culture

By Bruno B. F. Faviero

NEWS EDITOR

At a meeting on May 7, 2013, residents of the former undergraduate dormitory Bexley Hall learned that the final weeks of the spring semester would be their last in the dorm, which was planned to remain closed for up to three years in order to resolve structural issues. On Apr. 29, the administration received the engineering report that recommended the building's closure. Residents of the building were instructed to move out by June 8.

The damage to Bexley was discovered during inspections of the building's facade as a part of the Department of Facilities' Accelerated Capital Renewal Program. The engineering report was commissioned after Facilities' initial evaluation. It indicated that there was water damage inside the building's exterior walls requiring a year and a half of planning and a similar period of construction, according to Richard Amster, Director of Facilities Campus Planning, Engineering, and Construction.

Following the news, Bexley residents returning for the fall semester were given the choice of entering an emergency housing lottery to be placed in open dormitory rooms

on campus or moving off campus. Chancellor Eric L. Grimson PhD '80 assured students that there would be space in other dorms for any student who wanted to continue living on campus. Additionally, the administration offered to pay for summer storage for all Bexley residents and the cost of moving for those who opted to move off campus for the fall. The GRTs — who had signed contracts with MIT guaranteeing them on-campus housing in a graduate dorm — and housemasters were instructed to move out as soon as possible following the final exam period.

In some dorms, this meant the return of crowded rooms that had been alleviated by the opening of Maseeh Hall.

Several dorm housing chairs tried to leave spaces for Bexley students to live close together while the Bexley housing lottery was sorted out. Burton-Conner, for example, saw students giving up their rooms to allow for larger blocks of open rooms for Bexley students; many other dorms also offered up continuous

blocks of rooms. In some dorms, this shuffling of rooms meant the return of crowded rooms that had previously been alleviated by the opening of Maseeh Hall. The size of the incoming freshman class, which had been increasing since Maseeh opened, will now remain the same as last year's. While incoming class size is influenced by several factors, housing capacity is taken into account, according to Dean of Admissions Stu Schmill.

Regarding the cost of these new living assignments, Grimson responded to a financial concern voiced by Bexley students, promising that students moving to another dorm would not pay more than they did living in Bexley. A Bexley double cost \$3,147 in 2012-2013, the cheapest available at the Institute as a Tier 3 dorm, like Random Hall and East Campus. Comparably, a double costs \$3,777 in a Tier 1 dorm (Maseeh, Simmons, Next, and Baker) and \$3,525 in a Tier 2 dorm. Students moving into a dining dorm, however, would still have to purchase a dining plan.

This concern was one of many voiced by Bexley residents in a 2,000-word letter to Chancellor Grimson and Dean for Student Life Chris Colombo. Many residents expressed a desire to remain together the

following year and maintain the culture of Bexley. The letter, signed by over 70 residents, also brought up options for housing, asking for considerations including on-campus temporary housing or off-campus ILG-like housing. The group also requested an on-campus space for the group as a way to maintain the community's visibility and presence on campus.

Shortly after the composition of the letter and the end of the Spring term, Bexley's 50 entry was vandalized on the night of June 7. The incident left fixtures torn from the ceiling and walls, broken glass strewn across the floors, and even a human-sized hole in the wall. Because of the vandalism and resultant damage, no extensions or exceptions were granted to the senior move out date of June 8 — the day after Commencement.

In August, a Bexley advisory group, including student representatives from Bexley and DormCon, was established to evaluate the implications of the

dormitory's shutdown. The group received access to information including temporary housing cost projections, engineering reports of the damage to the building, and other information.

On Oct. 17, Chancellor Grimson announced to the Bexley and MIT community at large that the Division of Student Life planned to put forth a recommendation to demolish Bexley Hall due to the severity of its condition. He stated that in the spring their understanding of the building's condition was such that "with renovation and repair, Bexley might be reopened within three years." However, additional inspection of the property showed, according to Dean Colombo in an article by *MIT News*, that "saving the shell of Bexley is simply not practical." Amster added in that article that the building, constructed over 100 years ago and purchased by MIT in 1939, "was not built according to the best practices in use at the time."

"I would have a hard time recommending to leadership



JOSEPH MAURER—THE TECH

A hole in the wall of Bexley Hall's entry 50 was part of vandalism that happened in the now-closed dorm. Bexley will be undergoing extensive renovations for up to the next three years.



NICOLE M. POWER

Illustrations in Pritchett Lounge in Walker Memorial were edited by Bexlians after CAC expressed concerns about the "offensive" drawings. In August, former Bexley residents were given the lounge to use as a community space following the closure of Bexley Hall last spring.

to make the investment in the facility to renew it," Amster said in an interview with *The Tech* in October.

At the end of this email announcing this decision, Grimson cited a need to find a way to sustain the Bexley community "in name and in spirit," responding to many students' concerns for the preservation of the dormitory's culture.

This concern was addressed in the form of the Pritchett Lounge on the second floor of Walker Memorial. The lounge, furnished with a pool table, TV, refrigerator, and microwave, is strictly a day-use space — no overnight sleeping allowed. Smoking and alcohol are also banned from the space. The lounge opened to students beginning on Aug. 26. It saw controversy in early November, when after a request for recycling bins in the space by a former GRT, the Campus Activities Complex (CAC) discovered what they deemed offensive posters taped to the walls. Unlike Bexley, the Pritchett Lounge came with, among others, the stipulation that the space was not to be altered without advanced approval. CAC Director Phil

Walsh requested the immediate removal of the posters, which included written sexual themes and a squid that resembled male genitalia. Instead of removing the art, the former Bexley residents altered it to be less offensive. In one instance, "I jerk off" was edited to say "I twerk off." The modifications were deemed acceptable, and the art allowed to stay, with Walsh adding that he was pleased that the space was active for the community.

"We are glad we get to use the Pritchett Dining space, though there are still some kinks in communication with the various administrators with regards to our use of the space," Kristjan Erik E. Kaseniit '14, a member of the Bexley advisory group said to *The Tech* in October. "An important issue in keeping a community going, as I'm sure many living groups here know, is the influx of like-minded people. This is somewhat hard for Bexley, given that many of us are strong individualists. We are already seeing new faces at our shenanigans in Pritchett, which is great. However, this must be more seriously discussed in any future advisory groups regarding Bexley." ■

GIR Changes

2012-2013 2013-2014

Biology
Fall
7.012

Genetics focus,
open admittance

—

—

Spring
7.012x

edX filming of
7.012 classroom

7.013

Human bio focus,
open admittance

7.014

Not offered

Biology
Fall
7.012

Genetics focus,
lottery controlled

7.015

Advanced topics,
lottery controlled

7.016

Chemistry focus,
open admittance

Spring
—

7.013

Human bio focus,
open admittance

7.014

Ecological focus,
open admittance

3.091
3

midterms
Final Exam

0

online assesments

3.091
No
Exams

37

online assesments

Source: MIT Course Catalog

INFOGRAPHIC BY WILL CONWAY

The new faces of the GIRs: makeovers in biology, chemistry

More variations of Intro Biology; 3.091 & 7.012 use online learning

By Alexandra Delmore

STAFF REPORTER

In Fall 2013, alterations and additions to the General Institute Requirement (GIR) classes offered students more options and new mediums for learning. The Department of Biology introduced two new Introductory Biology classes, 7.015 and 7.016, as well as incorporated online learning from edX into 7.012. Additionally, 3.091 (Solid State Chemistry) piloted an entirely new course format that strongly integrated the use of online learning materials into the structure of the course.

3.091 had edX online learning modules available to students that were different from the ones offered publicly on edX open courseware.

Biology

The Department of Biology introduced 7.015 and 7.016 as additional offerings to fulfill the Biology GIR in the fall, bringing the total number of Biology GIR classes offered to a total of five: 7.012, 7.013, 7.014, 7.015, and 7.016. 7.013 and 7.014 will continue to be the only two options offered in the Spring.

The addition of these courses alleviated the precarious popularity of 7.012; only 451 students were enrolled in the course at the end of this past semester, according to the reported number of students eligible to respond to the online subject evaluations for each course. This is much lower than the 802 students in 7.012 at the end of Fall 2012. 7.015 had 38 students, and 7.016 had 321.

All of the Biology GIR classes have a common core that comprises about 50 percent of the curriculum. For the remaining portion of the course, each takes a different focus: 7.012 focuses on genetics, 7.013 focuses on neuroscience and human biology, 7.014 focuses on ecology and biogeochemical cycles, and the new biology classes bring more options to the table.

The changes to 7.012 included with incorporating online materials into the curriculum. Students could watch edX lectures, as well as screencasts by Prof. Eric S. Lander that explained some of the content in more detail. Practice questions through edX were also offered; some were optional, and others were incorporated as parts of the p-sets.

7.015 is analogous to 8.012 and 5.112 — it is meant for students

with strong backgrounds or keen interests in biology. The class introduced a new course format that included only two midterms and four p-sets, as opposed to 7.012's three midterms and seven p-sets. 7.015 also added reading, discussion, and writing assignments, as well as guest speakers and discussion-based recitations.

Leah M. Okumura, one of 7.015's instructors, found that the new class format offered more real world applications to the curriculum. "Overall I think having fewer p-sets really let us focus on the discussions," said Okumura. "The discussions were geared toward popular press articles about some social or economic aspect of the science that we were discussing in lecture, which is designed to get students to think about the real world applications of what they are learning."

On the other hand, the goal of 7.016 was to provide a more general approach to Introductory Biology and go into some depth about disease connections and current topics in biology. "We aim to teach the students the impact of modern biology on their lives," said Prof. Barbara Imperiali, one of the 7.016 instructors.

7.016 closely resembled 7.012 in format, using the traditional lecture, problem set, and recitation style. However, 7.016 implemented the use of clickers in the classroom which made the lectures more interactive.

"The clickers were very helpful because they provided professors with feedback to see if we did a good job explaining the topics," said Prof. Angelika Amon, another 7.016 professor. "When it was clear that students didn't get it, we'd try again; the clickers were a way for students to tell the professors if they didn't understand."

3.091

Professor Michael J. Cima experimented with a bold new format for 3.091 this past fall: online assessments and learning modules were used as primary components of the curriculum. The course continued the use of lectures and recitations, but gave out no p-sets, no tests, and no final exam.

In September, Cima made the adjustment that attendance at 80 percent of lectures and recitations was mandatory in order to ensure that students did not intentionally schedule conflicts. Cima viewed

that this was necessary to ensure that students were properly exposed to the content, as well as to extract proper data about how attendance correlated with comprehension and outcomes.

There were edX online learning modules available to students that were different from the ones offered publicly on edX open courseware. These modules had videos that supplemented the lectures and optional practice questions that gave students instant feedback.

Instead of tests and quizzes, the grades for 3.091 were based on online assessments that students took in a proctored Athena Cluster. There were 14 units in the course, and each unit had two or three assessment questions that students completed in order to pass the unit. In some units, students were given flexibility and were only required to answer some of the questions correctly, in other units, students were required to answer all of the questions correctly. Students had two weeks to complete each unit, with one attempt allowed per question per day.

According to the course evaluations for the 7.015 version of Introductory Biology, students valued the small lectures and recitations because it allowed the class to be more interactive, said Okumura.

There were 37 questions in total, which is the same number of questions that students were expected to answer in the old format amongst the final exams, midterms, and quizzes. Cima notes that requiring students to solve the problems correctly and giving them multiple attempts to do so allowed greater comprehension. "Outcomes, as measured by success at solving problems, is substantially improved over the traditional format," said Cima in an e-mail to *The Tech*.

However, the new format had some controversial outcomes. "My impression is that the new format had greater positive impact on the less motivated of the students," Cima said. "This is only my impression, but motivated students in chemistry may have had a better experience in the old format. They did not have a chance to 'shine' with the new format."

364 students completed 3.091 this past fall, which is consistent with fall enroll-

ment numbers from recent years, according to the subject evaluation data online.

The future of GIRs

Data from students' performances in class is telling of the efficacy of the new implementations. Only 167 fifth week flags were issued this November, which down from 203 flags issued in Fall 2012 and 214 flags issued in Fall 2011. For perspective, 3.091 gave out only two flags this year, as opposed to 29 in 2012. As for the new Introductory Biology classes, 7.015 issued flags to 7.5 percent of the class, and 7.016 issued flags to 9 percent of the class. This is significantly less than 7.012, which issued flags to 14.6 percent of the class.

Responses from the students in the evaluations at the semester's end are considered when determining which components of the GIRs will change and which will stay the same in upcoming years.

In its course evaluation, 3.091 scored a 4.2 out of 7 overall, with a 70 percent response rate from students. 7.015 scored a 5.5 out of 7 overall, with an 84 percent re-

sponse rate. 7.016 scored a 5.2 out of 7, with a 70 percent response rate.

According to the course evaluations for 7.015, said Okumura, students valued the small lectures and recitations because it allowed the class to be more interactive. Okumura noted that "there were a lot of student questions in class, which I felt really allowed the professors to tailor the discussion to what students were interested in hearing about."

Imperiali said that "We are really pleased with how 7.016 went in its first year and with attendance. I think it will get even better; we will polish and refine what we can."

"There are many other observations and improvements to make if I get permission to try this again," added Cima. "Assessment room hours need to be improved. What we had access to last term was insufficient as students would have preferred more options for taking assessments." ■

Our campus in scaffolding

2013 saw renovations, announced demolitions

By Stan Gill
NEWS EDITOR

In addition to recommendations to demolish Bexley and the several capital projects ongoing in Kendall and Central Square, MIT started several renovation projects of its own over the past year — including renovations on Building 2 and E52, the demolition of Building 12, and the opening of the new Koch Childcare Center adjacent to Simmons.

Buildings 2 and E52

Renovations to both Building 2 and E52 are underway and expected to be completed by Summer 2015 and 2016, respectively. The two buildings housed the core of the Math and Economics departments, both of which now occupy the “swing space” in E17, E18, and E19.

Building 2 has not seen a significant renovation since it was built in 1916. According to MIT Capital Projects, one of the main themes will be “enhancement of life and learning,” with sustainability playing a central role. “From the (math) graduate student’s perspective, [the renovation] will be quite stunning,” mathematics department head Michael Sipser told *The Tech* in May.

Previously, the graduate student offices were dispersed throughout Building 2 with some offices in the basement. According to the MIT School of Science, the renovation will ensure that there will be more collaborative spaces, with graduate student and faculty offices opening out to meeting areas. The renovation will also bring the interior space up to modern standards and, with over half of the budget dedicated to the exterior, the building will be restored with new windows and masonry.

E52, which closed at the start of the fall semester, is expected to receive a similar treatment. The MIT Capital Projects website indicates the lower floors will be used for student-related Sloan School administration, the fourth and fifth floors will be for the Economics Department, and that there will be a glass-enclosed addition to the building to create sixth and seventh floors for conferences.

Also, the trees along Memorial Drive will be replaced and other landscaping changes will occur.

Building 12

In early December, it was announced that Building 12, which houses several offices including the Global Education and Career Development Offices (GECD) and the Writing and Communications Center, will be demolished as early as this summer to make way for the new Nano-Materials, Structures, and Systems Lab (nMaSS), Building 28.

Director of Campus Planning, Engineering, & Construction Richard L. Amster said that Building 12 is “a tired old building that sub-optimizes the use of space at its incredible location.” Building 12 is in close proximity to the Department of Materials Science and Engineering labs in Building 4 and the Research Laboratory of Electronics (RLE) in Buildings 26, 36, and 38 — all areas that Amster says are critical to nMaSS’s future research. The construction of nMaSS will bring together research and equipment related to nanotechnology and materials that are currently spread across several areas of campus. The new building will also include clean room space and other amenities to accommodate new research equipment.

The current tenants of Building 12 are working with the Provost’s office to find new space for the upcoming years. All of the current tenants will be moved out of the building well before the demolition starts this summer. However, the athena cluster in Building 12, which will be closed in preparation for this project, will not be replaced. The GECD will move to a new space equipped with dedicated small offices for interviews, larger staff offices, and dedicated conference room space in E39 starting this May, GECD executive director Melanie L. Parker told *The Tech* in December.

“The Institute is making every effort to accommodate our needs,” Parker said. “We will work hard to transcend the distance between our new office and MIT.”

Koch Childcare Center

On Oct. 1, MIT opened the David H. Koch



MELISSA RENÉE SCHUMACHER—THE TECH

Building 12 could be demolished as early as Summer 2014, pending approval from the City of Cambridge. The building’s demolition will make way for the Nano-Materials, Structures, and Systems Lab (nMaSS), to be completed in 2018.

Childcare Center or TCC Koch — the fourth of MIT’s Technology Childcare Center (TCC) facilities — at 219 Vassar Street, next to Simmons Hall. The opening of this new center supplements space currently available for children of faculty, employees, and students at Eastgate, Westgate, Stata, Lincoln, Mass. (serving all MIT affiliates including Lincoln Labs employees) and the on-campus infant care room in Building 68.

Many students and post-doctoral associates who had been in need of childcare were finally able to obtain spots with the opening of TCC Koch. As of late November, TCC Koch provided spaces for all but six of the 500 families that had been on a waiting list and indicated a need for care at the present time. Kathy L. Simons, senior program manager of childcare services and work-life policy at the MIT Work-Life Center, noted that there are 157 families on the waiting list who are still looking for care in the future.

“The opening of [TCC Koch] allowed us to meet nearly all existing demand for MIT childcare,” Simons told *The Tech* in November.

At the time of opening, the center featured three infant classrooms, four open toddler classrooms with a fifth set to open in the early winter, and two open preschool classrooms with a third set to open in late winter or early spring. In addition, the center features a “gross motor room,” which allows children to participate in active play such as jumping, dancing, and singing. ■

The Institute racked up awards in 2013

Faculty, students, and alumni win MacArthur, Marshall, and Rhodes

By Kath Xu

ASSOCIATE NEWS EDITOR

From MacArthur Fellowships to Marshall Scholarships, MIT students, faculty, and alumni racked up a number of impressive awards in 2013.

In March, three professors were honored for their pioneering research. Together, MIT professors Shafi Goldwasser and Silvio Micali won the Association for Computing Machinery's (ACM) A.M. Turing Award for their work on encrypting and securing information transfer. The duo has collaborated on projects for over three decades since they were graduate students in 1980. The annual award, which comes with \$250,000 in prize money, is frequently referred to as the "Nobel Prize in computing."

In addition, Professor Martin Polz received the American Society for Microbiology's (ASM's) oldest and most prestigious award, the Eli Lilly and Company-Elanco Research Award. Polz, who studies microbial communities in nature, is also an American Academy of Microbiology Fellow.

Furthermore, MIT professor Stephen J. Lippard earned the Priestley Medal in June "for mentoring legions of scientists in the course of furthering the basic science of inorganic chemistry and paving the way for improvements in human health." The Priestley Medal is the American Chemical Society's (ACS) highest honor.

In July, Professor Sallie (Penny) Chisholm was selected to receive the Ramon Margalef

Prize in Ecology for her discovery and subsequent research on the ocean phytoplankton *Prochlorococcus*. The President of Catalonia awarded Chisholm the \$100,000 prize at a ceremony in October. Chisholm is also a 2012 National Medal of Science recipient.

Two more professors, computer scientist Dina Katabi PhD '03 and astrophysicist Sara Seager, were named MacArthur Fellows in September. Often called the MacArthur "Genius Grants," the award comes with \$625,000 of no-strings-attached prize money. Katabi's research focuses on improving the speed and reliability of wireless networks, while Seager studies planets outside of our solar system in the hopes of identifying the possibility of life elsewhere.

In October, the Royal Swedish Academy of Sciences announced that alumnus Robert J. Shiller PhD '72 would share the 2013 Nobel Prize in economic sciences with University of Chicago professors Eugene F. Fama and Lars Peter Hansen. Shiller is currently a professor at Yale University. The team's research found that while stock prices are notoriously difficult to predict in the short-term, this is not actually the case in the long-term.

On the humanities side of MIT, history professor John Dower won the American Historical Association's (AHA) Award for Scholarly Distinction in November. According to the MIT News Office press release, the award is "one of the highest forms of career recognition in the field" and is given for lifetime achievement. Dower, who studies East Asian history, has won a Pulitzer Prize and a Nation-



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The Rhodes Scholar from MIT this year, John G. Mikhael '13.

al Book Award for his 1999 book, "Embracing Defeat: Japan in the Wake of World War II."

Professors were not the only award winners this year. Four MIT seniors won Marshall scholarships in November, and a recent alumnus won a Rhodes scholarship. Marshall winners Kirin J. Sinha '14, Catherine E. Koch '14, Grace C. Young '14 (a *Tech Arts* editor), and Colleen Loynachan '14 will study at a U.K. institution of their choice once they graduate.

The only MIT student to receive a Rhodes Scholarship this year, John G. Mikhael '13 graduated with a bachelor's degree in mathematics and a minor in chemistry. He currently researches full-time in Brain and Cognitive Sciences professor Nancy Kanwisher's lab. Mikhael plans to eventually attain an MD/PhD after pursuing graduate studies at Oxford. ■

Catherine E. Koch '14.

Colleen Loynachan '14.

Kirin J. Sinha '14.

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Grace C. Young '14.





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Dennis Freeman PhD '86, DUE.



COURTESY OF MIT NEWS OFFICE

Chris A. Kaiser PhD '87, former provost.



ELIJAH MENA

Chancellor Eric Grimson PhD '80.

Institute's top brass are shuffled around

Provost returns to faculty, chancellor tapped for capital campaign

By Anthony Yu
STAFF REPORTER

MIT's senior leadership saw sweeping changes in 2013. Dennis Freeman PhD '86 became the new dean of undergraduate education (DUE), Chris A. Kaiser PhD '87 stepped down as provost, and Eric Grimson PhD '80 announced his plans to leave Chancellorship in order to head a capital fundraising campaign. In total, nine of the twenty-six total positions in the senior administration changed or will change.

New DUE: Freeman

On July 1, 2013, Freeman, former Professor of Electrical Engineering and Course 6 undergraduate officer, replaced Daniel E. Hastings PhD '80 as the dean of undergraduate education.

A search committee chaired by Graham C. Walker, formed after Hastings' Jan. 8 announcement to step down, recommended three to five candidates as the next DUE to Chancellor Grimson, who made the final selection.

Freeman, who previously held the role of the Course 6 undergraduate officer and chaired the Committee on the Undergraduate Program, sees two clear priorities for the DUE position: continuing student and faculty dialogue, and improving residential education.

Freeman recognizes the importance of student involvement in driving faculty decisions. He cites his experiences with the "SuperUROP" program, which he helped launch in Fall 2012. Originally, "People would come out of [the program] having written a paper.

That appealed to us, because that's what we did," Freeman said. However, after meeting with a student advisory group, it was clear students thought differently.

"The students were much more interested in things that would be good to show on their resume, make them more attractive to Google or whoever they were trying to be hired by," said Freeman. "So we adjusted the goal. [Super UROP] became more project-based."

Freeman also wants to ensure that developments with MITx have positive benefits for residential education. Harkening back to his experiences from teaching 6.01, a class which "used MITx-like technology," Freeman views the interactive component of the MIT education as a key ingredient to improving the residential experience.

Freeman sees two clear priorities for the DUE position: continuing student and faculty dialogue, and improving residential education for the future.

Freeman works with the Task Force on the Future of MIT Education to evaluate MIT's educational model, which released a preliminary report in late November 2013 that included proposals of building more collaborative "maker" spaces and implementing a more flexible curriculum.

Kaiser steps down as provost; Schmidt acting provost

Another important change in the senior administration was the position of provost. Kaiser stepped down as provost to return to teaching and research at the end of October. Kaiser became provost in July 2012 after then-

provost Reif became president. The provost is primarily responsible for all of the Institute's education programs, according to the MIT News Office.

While serving as provost, Kaiser led the development of "working consensus on MIT's plans" with the Kendall Square zoning petition and was deeply involved in edX.

In order to address faculty concerns about the Kendall area development, Kaiser set up a task force. However, "there was never a full and open discussion of the whole faculty," said Biology Professor Jonathan A. King, chair of the Faculty Newsletter editorial board, who has been critical of the lack of outreach to faculty. "I certainly hope the next provost recognizes that the faculty are stakeholders in the actual future of the campus, and that radi-

cal actions like placing large office buildings in the heart of east campus would be much more broadly and seriously discussed than they have been to date."

On the edX front, Kaiser worked with Chancellor Grimson to create the positions, director and the associate director of digital learning, which are now filled by Sanjay Sarma and Isaac Chuang respectively. While Kaiser noted, in his letter to the faculty, that he was a "cheerleader" for edX and online learning developments at MIT, he recognized that "administrating and cheerleading are not the same as doing."

"[Kaiser's] whole history is basically as a

research scientist with hardly any history of participation in socially controversial or economically complex issues. I suspect that he may have been uncomfortable on this provost hot seat,” said King, referring to Kaiser on Kendall and edX.

Nevertheless, Reif thanked Kaiser to his help. “Since taking on the role of provost, Chris has served by my side through a challenging period for MIT, and I am grateful for his steady presence and sound advice,” wrote Reif in a letter to the MIT community.

Kaiser will return to teaching and research after stepping down. While teaching assignments are made by the department, Kaiser has a few ideas on his mind. “I’d like to do something with online learning, and reactivating my lab is a big deal for me. It’s my first passion — the reason I headed down this path of becoming a professor at a research university is because I love research,” he said.

On Oct. 22, President Reif announced in an email to the MIT community that associate provost Martin Schmidt PhD ’88 would serve as acting provost until a permanent replacement can be found. His term began on November 1.

Grimson to leave Chancellorship to lead capital campaign

Along with the appointment of Schmidt to acting provost, Reif also announced that Eric L. Grimson PhD ’80 would be leaving his role as Chancellor to take on the ad hoc role of Chancellor for Academic Advancement.

Grimson’s new job will be to “[make] the case for MIT’s fundraising priorities with alumni and donors around the world,” Reif outlined in a letter to the MIT community. The role of leading MIT’s capital campaign requires extensive travel, which make fulfilling the responsibilities of Chancellor on campus difficult. The last MIT capital campaign rose over \$2 billion in 2005. When Susan J. Hockfield was president from 2004 until 2012, almost \$3 billion was raised, though no official capital campaign was conducted.

As Chancellor, Grimson was already involved in fundraising from MIT alumni. “That experience is just going to naturally flow into the new position,” he told *The Tech* in an interview. “I’ve had the chance to meet alumni around the world, and that gives me a base on which to build as I think of how MIT’s message gets out to our potential donors. We need to persuade them that supporting MIT is one of the best

things we can do, not just for this generation of students, but for students and faculty to come.”

During his tenure as Chancellor, beginning in 2011, Grimson led campaigns such as “MIT Together,” which promoted the wellbeing of the community, and helped pioneer MOOCs, teaching 6.00x on edX alongside Professor John Guttag.

Other senior leadership changes

The changes to the senior leadership do not end with Freeman, Kaiser, and Grimson.

Reif appointed Edmund Bertschinger, former Physics department head, to the newly created post of Institute Community and Equity Officer (ICEO) on July 1. According to the MIT News Office, “the new position will focus on matters of community, equity, inclusion and diversity on campus.” As ICEO, his role is to “lead MIT to make practical progress ... toward cultivating a caring community focused on MIT’s shared values,” according to the Institute’s organization chart. He currently oversees the Dr. Martin Luther King Jr. Visiting Professor Program.

Also in 2013, Vice President for Human Resources Alison Alden and Vice President for Resource Development Jeffrey Newton announced their intentions to retire. Alden, who began working at the Institute since 2007, was responsible for launching an initiative to inform employees of their benefits and for implementing a more cost-effective pension plan for new hires. She will retire in Spring 2014.

Similarly, in September, Newton announced his intention to retire and continued in an advisory role until January 2014. As VP for Resource Development, Newton secured funding for a number of construction projects, including the Media Lab’s E14, the David H. Koch Institute for Integrative Cancer Research, the Sloan School of Management E62, and the David H. Koch Childcare Center.

Other new appointments in the past year include Steven Glass as the interim Director of Libraries, John Charles as Vice President for IS&T, and Michael Sipser as interim Dean of the School of Science. Glass replaces Ann Wolpert, who passed away in October at the age of 70. On Dec. 16, Sipser succeeded Marc Kastner, the Donner Professor of Physics, who was nominated by Obama earlier in 2013 to head the Department of Energy’s Office of Science. On Dec. 10, Charles replaced Marilyn T. Smith, who resigned in January last year. ■

position	previous	current
Chancellor	Eric Grimson	TBD announced October
Provost	Chris Kaiser	Marty Schmidt (acting) announced September effective November
VP for Resource Development	Jeffrey Newton	TBD announced September
VP of Human Resources	Alison Alden	TBD announced September
Dean for Undergraduate Education	Daniel Hastings	Dennis Freeman announced January effective July
VP for IS&T	Marilyn T. Smith	John Charles announced January effective December
Institute Community and Equity Officer	NA	Edmund Bertschinger announced July
Dean of School of Science	Marc Kastner	Michael Sipser (interim) announced December
Director of Libraries	Ann Wolpert	Steve Glass announced October

'Boston ban' imposed on Boston FSILGs

Social gatherings effectively banned, assembly limits set at residency limit

By Tushar Kamath
ASSOCIATE NEWS EDITOR

In late October, the Boston Licensing Board (BLB) put assembly limits in place for MIT's Boston-based fraternities, sororities, and living groups (FSILGs), effectively restricting social gatherings by setting the assembly limit equal to the residency limit. These limits have continued into IAP. There are hopes for Boston to approve the licenses by the beginning of the Spring semester. The restriction continues to impact all FSILGs on the Boston side, including 19 of MIT's 27 fraternities, 3 of the 6 sororities, and 2 of the 6 independent living groups.

The Boston licensing issue came right after an incident at Phi Sigma Kappa fraternity, in which a pledge member fell four stories through their roof skylight. According to the Boston police, at the time, the student was witnessed "jumping up and

down" on the plexiglass skylight when it broke. While the student was not hurt, the Boston Inspectional Department followed up on the incident, citing illegally knocked down walls, constructing an unsafe and illegal roof deck, and not installing rails or any other protection on the roof. MIT administration, however, stated that the Phi Sigma Kappa incident was not the sole reason for the licensing issue. In a previous interview with *The Tech*, Henry J. Humphreys, Senior Associate Dean for Residential Life & Dining maintained, "the concerns around assembly numbers are not related to a particular incident, but rather a number of FSILG-related issues."

The Phi Sigma Kappa incident occurred after rush and recruitment period ended, on Sept. 11, 2013. Shortly thereafter, the Boston Licensing Board (BLB), an arm of the City of Boston municipal government in charge of licensing dormitories in Boston, including fraternities, issued a hearing in which the FSILG Office and BLB came to an agreement on limiting assembly, or the maximum number of people in a house at a given time, to three times the occupancy, or the number of people that could reside in the house.

Soon after, when nine MIT houses submitted a routine yearly re-inspection application, the BLB conducted a second hearing in which all the assembly licenses were revoked from all MIT FSILGs on the Boston side of Charles. According to Brian L. Alvarez '15, former Vice President of MIT's IFC, in a comment to *The Tech*: "Many years ago the assembly limit calculation transitioned from a formula based on square footage of the assembly spaces to a limit based on the emergency exit capabilities of each house. When this permitting code changed, however, Boston FSILG assembly limits were not updated." This brought about what was informally known on campus as the "Boston ban." From then on, the assembly limit conservatively equaled the occupancy number for those FSILGs in Boston. The FSILG Office first notified the MIT IFC Executive Board of the news when the initial email was sent out on Oct. 18, 2013.

In response to the license revocation, the MIT administration offered to help with the required renovations by hiring two architects to help with the inspection process of the FSILGs in question. Thus, for the past semester, these architects, along with the Boston Inspectional Department toured the FSILGs in Boston to evaluate the capacity limits of each of the houses. Further, not only did some fraternities have to reapply for licenses, other fraternities who use sleeping lofts had to ensure they were up to regulation standard, which entailed creating 36-inch wide stairs with handrails to reach up to any loft that was physically attached to the building structure.

The licensing issue also created a host of problems for social life at MIT, in which most Boston fraternities hosted a number of large social gatherings when allowed. In the wake of this social turmoil, Marlena Martinez Love, Assistant Director of FSILGs, stated soon after the ban, "[Dean Chris Colombo] has already asked his leadership team to work with the AILG and our student leaders to find solutions to allow Boston FSILG social events to proceed in compliance with the ISD restriction, including working to provide space on campus to host events." Despite this, a number of students remained unsure about the possibility of having large social events. *USA Today* quotes Alex G. Heifetz '16 in saying "It's having a huge impact... Since there are so few houses in Cambridge, there could end up being too few social events to satisfy student demand."

In hindsight, the Boston bans took a toll on the social aspect of MIT life. "The limitations have made it difficult to have social events on the Boston side of campus, whereas fraternities in Brookline and Cambridge have remained largely unaffected", states Haldun Anil '15.

Looking forward, MIT still has not heard back from the BLB, as of the time of publishing. Haldun Anil '15, current IFC president, said, "We are hoping for a response by the end of IAP/beginning of the spring semester." ■



TAMI FORRESTER—THE TECH

An 18-year-old MIT student fell four stories through a skylight at fraternity Phi Sigma Kappa shortly after 11:30 p.m. on Sep. 11. The student did not sustain any life-threatening injuries.



ARTS IN REVIEW

2013 has been an exciting year for arts both on and off campus. As always, there have been plenty of performances and exhibitions at MIT, running the gamut of creative endeavours from Senegalese drumming, to experimental theater, to ballroom dancing. In addition, for the first time, there has been a push to promote entrepreneurship in the arts at MIT, with a new category in the 100K competition for art/design-related ventures and a hackathon event.

The Council for the Arts at MIT granted Olafur Eliasson the 40th Anniversary Eugene McDermott Award for his multi-faceted practice. The Award, which is one of the most generous cultural honors in the United States, gives Eliasson a \$100,000 cash prize, campus

residency, and a gala held in his honor. Eliasson will therefore be on campus in 2014 to collaborate with the MIT community.

In Boston we're blessed with many concerts, and this year visiting musicians included Muse, Drake, P!nk, and Crystal Castles. Among museum exhibitions, there were two fantastic exhibitions at the MFA: *New Blue and White*, which featured contemporary interpretations of classic porcelain, and a stunning collection of John Singer Sargent's watercolor paintings. In the Fall, there was a performance by the Boston Ballet Company on Boston Common to open their 50th season, which was wildly popular and attended by over 45,000 people. The same weekend, jazz enthusiasts flocked to the annual Bean-

Town Jazz Festival organized by the Berklee College of Music. For the first half of October, British artist Luke Jerram's interactive installation "Play Me, I'm Yours" encouraged people to show off their skills on 75 pianos that were placed across the city.

In film, the best offerings were a stimulating mix of the new and familiar, including a film from famous director Woody Allen, and sequels such as *Catching Fire* and *Before Midnight*. The same mix is true for music, with albums from established artists like Drake and Vampire Weekend standing alongside newer ones such as HAIM. Read on for more, as *The Tech* presents the highlights of arts in 2013.

—Angelique Nehmzow
Arts Editor



COURTESY OF A. R. SINCLAIR PHOTOGRAPHY

Left to right: Kurt Diebner, Carl-Friederich von Weizsäcker, Otto Hahn, Werner Heisenberg, Paul Harteck, Walther Gerlach, Max von Laue, Horst Korsching (seated on floor), Karl Wirtz, and Erich Bagge in *Operation Epsilon*.

ON CAMPUS

MIT's vibrant arts community

2013 was no exception for MIT's wide variety of arts events

By Grace Young

ARTS EDITOR

"MIT has arts?" I can't count how many times I've heard that question! But it's only from people who don't go to MIT. MIT has a vibrant arts community, especially in dance, theatre, and music. This year was no exception. Every week in 2013, there were at least half a dozen arts events on campus, from student performances to an arts-focused hackathon.

Dance

MIT's dance scene scored a coup in Feb-

ruary when The ArchiTEKS, the hip-hop troupe that made itself a legend on YouTube and was a finalist on MTV's America's Best Dance Crew competition, visited MIT to hold workshops that were part of the Chinese Students' Club Lunar New Year celebrations.

Walker Memorial saw its fair share of dance in April. First, MIT Ridonkulous hosted the Footwork showcase, in which Ridonkulous, MIT Mocha Moves, MIT Fixation, and MIT Imobulare performed along with other Boston-area dance groups. Just two weeks later, the MIT Ballroom Dance Team hosted its open competition, one of the largest collegiate ballroom dance com-

petitions in the country.

Asian Dance Team performed "Inspirasian" in the spring and "Illusions" in the fall, with guest performances from MIT Lion Dance, Bhangra, Syncopasian, and Ohms, as well as other Boston-area performing groups.

DanceTroupe filled Little Kresge many times over with their spring, fall, and winter performances #DTME, Kittens with Angst, and DTWERK!

MIT also hosted Ring the Alarm dance competition in the student center again. Numerous MIT groups competed, including Bhangra, Chamak, Fixation, Mirchi, and Ridonkulous, going up against Boston-area's best collegiate dance talent. MIT gave up its reigning first place to Northeastern's Kine-matrix in the dance-off.

Theatre

The Musical Theater Guild had a year of seasonal productions, with the *Rocky Horror Picture Show* in IAP, the *Wedding Singer* in the Spring, *Avenue Q* in the Summer, and *Young Frankenstein* in the Fall.

Dramashop killed it. In February, they started the 2013 season with performances of *Margo Veil*, a non-linear action-romance-comedy-drama. In April, they performed a Greek myth-inspired tale of heartache and revenge, *Elektra*, produced and directed by Professor Jay Scheib. In May, they continued their annual tradition with *Playwrights in*



SUBRAMANIAN SUNDARAM

Orestes (Paul E. Kreiner '12) embraces his sister Elektra (HyoJeong Choi '12) in the final scene, while a chorus member (Hrant Gharibyan '13) lifts an elder woman (Jennifer Wang '13) to an upper tier of the stage.

Performance, featuring plays written, directed, and acted by MIT students. In the fall, the troupe performed *No Exit*, based on the work of existentialist playwright Jean-Paul Sartre. They finished 2013 with *One Acts*, another annual tradition, a series of short plays directed and performed by students.

Shakespeare Ensemble performed Shakespeare's "Complete Works," a hilariously condensed version of the Shakespeare canon. In the spring and summer, they sided more with tradition, performing *Julius Caesar* with only a few modern refinements and then *Hector and Achilles*. Their pinnacle work of the year was an abridged version of *Hamlet*, deemed "Halved Hamlet, twice the fun" by *The Tech*.

The Gilbert and Sullivan Players, an MIT group that performs the works of Sir William G. Gilbert and/or Sir Arthur Sullivan, transformed La Sala de Puerto Rico into a stage for the highly entertaining, 19th century comic operas *Iolanthe* and *H.M.S. Pinafore*.

MIT theatre arts extended beyond campus as well. The Nora Theater Company collaborated with Catalyst Collaborative@MIT, a program promoting collaboration between science and art, to produce *Operation Epsilon* at Central Square Theater. The stellar performance, telling the story of the German scientists detained in an English manor house after World War II, was connected to MIT in many ways. Not only did MIT help produce the play, but it the playwright, Alan Brody, is an MIT professor and he first learned of the play's premise through fellow MIT professor Alan Lightman. Also, alumna and professional ice dancer Jessica Huot '06 returned to the area to perform with the Ice Theatre of New York. Professor Jay Scheib's group performed new productions in New York and at the Institute of Contemporary Art.

Music

MIT's core ensembles, the Festival Jazz Ensemble, Symphony Orchestra, and Wind Ensemble, did not disappoint with their seasonal concerts. In the summer, PBS aired the television world premiere of MIT-produced documentary *Awakening: Evoking the Arab Spring Through Music*, featuring the MIT Wind Ensemble performing a composition by MIT alumnus Jamsheid Sharifi '83. The piece encouraged listeners to contemplate the movement that swept Tunisia, Libya,



1. Jazz vocalist Beth Logan Raffeld performs in Killian Hall on Feb. 14, 2013 as Keala Kaumeheiwa supplies the bass line.

2. The characters played by Noah M. Arbesfeld '13, Illan F. Halpern '13, Cathy T. Zhang '13, and Johari Frasier '13 die at a party in Dramashop's production of *Margo Veil*.

3. Mark Antony (Zachary D. Tribbett '13) stands over the dead body of Julius Caesar (Christopher D. Smith '13) in the MIT Shakespeare Ensemble's performance of *Julius Caesar*.

4. Allison M. Schneider (left) confronts Chris D. Smith '13 and Emily K. Lydic '14 in Dramashop's dark comedy, *No Exit*.

Egypt, and other Arab countries. It was the 50th Anniversary of MIT's Jazz Program, and the 80th anniversary of MIT Women's Choral Group.

Guest artists also graced campus. Highlights were La Scala Chamber Orchestra performing *Fantasies* from Verdi's Operas in Kresge, the Alash Ensemble, Masters of Tibetan Throat Singing, and the guest performers of CAST's Spring Sound Series. A highlight was the CAST Marathon concert, featuring multi-everything artist and alumna Julia C. Ogyrdziak '96.

In addition, WMBR Radio and the List Visual Arts Center teamed up for the Amper-sand Concert Series in the ACT Cube.

Visual Arts & Film

The List Visual Arts Center, recently deemed "the most interesting gallery in town" by the travel site *Fodor's Travel*, featured solo-exhibits by Amalia Pica, Oliver Laric, and Chris Marker. The cutting-edge

modern works all brought up an existential questions such as what is an impulse, and how do self-reflection and critical thinking emerge in human consciousness. All the exhibits featured a mix of images, sculpture, and video.

Across campus, the MIT Museum showcased the photographs of Joel Tettamanti. OrigamiMIT, MIT's origami club, hosted its annual origami competition to great success. In addition, MIT hosted a french film series entitled "Films on the Green @ MIT" during the warm months, and then a European Short Film Festival in October.

Entrepreneurship in the arts

Arts transcended disciplines as well. In the fall, Arts at MIT launched the first annual \$10K Creative Arts Competition, awarded to an arts-focused start-up in \$100K Launch Contest, and Sloan students put on the first ever Hacking Arts event, a hackathon geared towards arts projects. ■

The Tech's top 10 music albums

AM — Arctic Monkeys

With their characteristic defiance and refusal to be defined by anyone but themselves, English indie rock band Arctic Monkeys showcases their willingness to take risks and experiment — and it pays off. Their haunting and gritty fifth album features more manipulation and new instruments than their previous albums, and blends together a compelling combination of musical styles, from punk, funk, and rock to R&B, soul, and hip hop. The terse, poetic, and fervent lyrics by lead vocalist Alex Turner relate of late nights filled with frustration, desire, and loneliness. Add these in and it makes a listen you'll want to repeat.

—Angelique Nehmzow

Days Are Gone — HAIM

Los Angeles-based sisters Este Arielle, Danielle Sari, and Alana Mychal Haim have been one of the media's sweethearts throughout the last year. Together with drummer Dash Hutton, they entered the music scene as HAIM, a soft-rock band that draws influences from pop, folk and R&B music. Their favorable spotlight in the world of fresh music acts is mostly a result of their fun and lively debut album *Days Are Gone*. The album provides enough of rock basis for the listeners who are searching for the new embodiment of female-driven rock, but also sends out pop and R&B vibes for those who are looking for catchy and entertaining melodies.

—Denis Bozic



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Modern Vampires Of The City — Vampire Weekend

Three years after the release of their album *Contra*, the Ivy League alumni are back with their third and musically very different album *Modern Vampires of the City*. Adopting a more modest approach to their sound, this time the band delivers warm and accessible songs that somehow manage to create a slightly nostalgic and ghostly atmosphere, which is complemented by the album cover art, a photograph taken by Neal Boenzi of the smoggiest day in New York City history, which killed at least 169 people in 1966. Despite the presence of upbeat tracks, *Modern Vampires of the City* is a record that is still filled with intangible and mesmerizing stillness.

—Denis Bozic

Nothing Was The Same — Drake

Ironically, Drake opted to refine his previous formula rather than try something completely different on *Nothing Was The Same*, but the decision was a good one. Money, fame, women, relationships, and family are all discussed at length, but the varied production give these old themes new life. Drake's versatility is again a highlight — he's not afraid to switch from rap braggadocio to tender crooning as soon as a track changes, and he does very well at both. The result is a complete, mature, comfortable hip hop/rap/R&B package from a confident artist in his prime.

—Bryan Williams

Pure Heroine — Lorde

Following a path to stardom similar to her elder Lana del Rey, Lorde — a teenager from New Zealand — went from online demo to top-ten album within months. Her LP *Pure Heroine* can be better understood as a delivery vehicle for her two super-hits: first and foremost the ubiquitous "Royals," a catchy song that seemed for weeks to be in continuous replay in every radio station, and which reached #1 spots in charts worldwide, and its lesser known sibling "Team," which more transparently reveals that Lorde is — much to her chagrin — building upon the languid vocal style and dark, born-poor image of Lana del Rey (c.f. "National Anthem"). With a newly cast image as a global superstar, it remains to be seen if Lorde will continue to develop her style into something more unique but equally successful. For now, she has an advantage — audiences seemingly can't get enough.

—Roberto Perez-Franco

Reflektor — Arcade Fire

An album that's 75 minutes long might sound like an endless and dull experience, but Arcade Fire's fourth album *Reflektor* is far from being such. Drifting successfully from baroque pop to dance and rock, *Reflektor* is an album that requires dedication and full attention. While it is a record that grows on its listeners with time, tracks like "Reflektor," "Here Comes The Night Time," and "Joan of Arc" provide instantaneous quality that will surely captivate anyone who decides to explore the album.

—Denis Bozic

The Bones Of What You Believe — CHVRCHES

One of the newcomers in 2013, the Glasgow-based band CHVRCHES skillfully unite intriguing and catchy lyrics with dance-oriented synth-pop music. Their debut album *The Bones of What You Believe* gave rise to quite a few outstanding tracks, such as "The Mother We Share," "Recover," and "Lies." With their Depeche Mode-like sound and Lauren Mayberry's unique voice,

CHVRCHES have delivered what the music industry has been yearning for — fresh psychedelic dance music.

—Denís Bozic

The Electric Lady — Janelle Monáe

Following her traditional mixture of sci-fi motifs with eclectic music genres, Janelle Monáe returned last September with her sophomore album *The Electric Lady*. While being musically less diverse than its predecessor, the new 19-track album contains some of her best work so far. New topics regarding sexuality and feminism are explored with the help of Monáe's own idols, such as Prince and Erykah Badu, but the album's overall theme is the same as the one of *The ArchAndroid* and *Metropolis* — finding love and equality through music. As Monáe's fictional radio host DJ Crash Crash says: "Don't throw no rock, don't break no glass, just shake your ass."

—Denís Bozic

Settle — Disclosure

UK-based brothers Guy and Howard Lawrence, otherwise known as the electronic music duo Disclosure, were one of the most talked-about music projects in 2013 after the release of their debut album *Settle*. For an album that consists mostly of collaborations with other artists, *Settle* has a distinct Disclosure-like flavor and still seems remarkably unified. Most of the album's tracks are superb dance hits that elegantly combine house and UK garage music with soulful vocals, and even the less stellar tracks (like "Grab Her!") still serve to prove that *Settle* is one of the best dance records of the last year.

—Denís Bozic

Yeezus — Kanye West

Yeezus is angry — there are angry lyrics directed at corporations and glass ceilings, angry, minimalist beats composed of only heavy drums and a couple of dark synths, and a very angry Kanye willing to literally scream to get his point across. Whether by record companies, the Grammys, or the media, Kanye has spent a lot of time in his life getting unfairly snubbed or laughed at, and you get the feeling he's tired of being marginalized. So he makes his points hit harder, and after a of couple listens he'll have you yelling along too. ■

—Bryan Williams

2013 ARTS IN OUR COMMUNITY



JAX KIRTLEY



MELISSA RENÉE SCHUMACHER—THE TECH



STEVEN KEATING



GREG STEINBRECHER—THE TECH

1. From left: Kate Monster (Caroline B. Aronoff '15), Nicky (David Wright), and Princeton (Matthew S. Peairs '15) in the MIT Musical Theater Guild's production of *Avenue Q*.

2. Gamelan Galak Tika performs a traditional warrior dance in Kresge auditorium.

3. A *Bombyx mori* silkworm deposits silk fiber on a digitally-fabricated scaffolding structure.

4. Painted entirely gold for his performance, Avetik Karapetyan performs Florence Clerc's Golden Idol variation of Marius Pepita's *La Bayadère* in Boston Common.

BEST OF 2013

The Tech's top 10 movies

12 Years A Slave

Based on Solomon Northrup's autobiography of the same name, *12 Years a Slave* follows Northrup (Chiwetel Ejiofer) as he is kidnapped and sold into slavery. While Northrup is eventually freed, the plight of fellow slave Patsey (Lupita Nyong'o) shows the terrifying, incessant horror inflicted by slavery.

—Chennah Heroor

Before Midnight

Nine years after *Before Sunset*, Richard Linklater is back with the third (and possibly the most dramatic) sequel of the series. The movie takes place in Greece, where Jesse (Ethan Hawke) and Céline (Julie Delpy) are on a vacation with their twin daughters. The seemingly relaxing vacation soon becomes a pivotal and turbulent period for the couple as unresolved conflicts and disregarded emotions bring their relationship into a state of lability. The movie's witty dialogues and heart-felt performances will provide an outstanding cinematic experience for those viewers who appreciate ingenious screenplay without much theatricality.

—Denis Bozic

Blackfish

One of the best documentaries of 2013, *Blackfish* is the story of an orca, Tilikum, who has a record of attacks against handlers, trainers, and trespassers, and of a corporation, SeaWorld, trying to explain this record away in terms of trainer error or human mistakes. Underneath Tilikum's drama runs an even more shocking story: one of how we are being lied to, on a daily basis, for the sake of profits. *Blackfish* poses deep questions, with bleak answers, about us as a species, the role of whistleblowers in modern life and our future as a civilized society.

—Roberto Perez-Franco

Blue is the Warmest Color

An intimate, heart wrenching story, *Blue is the Warmest Color* depicts the life-changing coming together and falling apart of a charming young woman (Adèle Exarchopoulos) and a more experienced one (Léa Seydoux). A beautifully performed movie on the pains and

pleasures of love, loving and having loved.

—Edwina Portocarrero

Prisoners

When Keller Dover's (Hugh Jackman) daughter is kidnapped, he's left with only a single clue, a dilapidated RV parked on the street. The owner, Alex Jones, is acquitted and released, forcing Dover to take matters into his own hands. Simultaneously, Detective Loki (Jake Gyllenhaal) investigates the kidnapping and discovers terrible secrets in a seemingly sleepy town. This terrifying thriller turns the tables, asking us what we would do to protect the ones we love.

—Chennah Heroor

Gravity

When an orbiting debris field destroys their shuttle and leaves them stranded in low earth orbit, astronauts Matt Kowalski (George Clooney) and Ryan Stone (Sandra Bullock) must use their technical know-how to find a way back home with only fragile human technology to help them in the harsh environment of space. Director Alfonso Cuarón's everyman story shows the triumph of human ingenuity over incredible odds with gorgeous views of our planet and brilliant special effects.

—Kristen Sunter

Blue Jasmine

Broke and homeless former New York socialite Jasmine (Cate Blanchett) flies to San Francisco to live with her adopted sister and try and rebuild her life, but she struggles to face her new reality. Blanchett gives a fantastic performance as the Blanche DuBois of Woody Allen's newest film, which draws strong parallels to *A Streetcar Named Desire*.

—Angelique Nehmzow



UNIVERSAL STUDIOS

James Hunt (Chris Hemsworth) and Niki Lauda (Daniel Brühl) in *Rush*.

Rush

With a satisfying combination of suspense, drama and action, *Rush* depicts the intense rivalry that developed throughout the 1970s between two very different Formula One racers, playboy James Hunt (Chris Hemsworth) and calculating Niki Lauda (Daniel Brühl). Based on a true story, the film culminates in the climactic events of the 1976 Formula One season, as Hunt and Lauda vied for the title of Champion.

—Angelique Nehmzow

The Wolf of Wall Street

Martin Scorsese's *The Wolf of Wall Street* depicts the rise and fall of Jordan Belfort (Leonardo DiCaprio), a young stockbroker who earns a fortune in a very short period of time, and enters the world of excessive drug use, orgiastic adultery and stockmarket manipulation. Based on the memoirs of Jordan R. Belfort, the movie delivers very explicit scenes and dialogues that will surely appall conservative viewers. However, the three leading actors — DiCaprio, Jonah Hill, and Margot Robbie — give such spectacular performances that it's impossible not to enjoy this three-hour long lavish black comedy.

—Denis Bozic

Catching Fire

In the sequel to 2012's *The Hunger Games*, Katniss Everdeen (Jennifer Lawrence) must deal with the fallout of her victory during the last Hunger Games, where 24 teenagers are forced to fight to the death in a yearly game dreamt up by the ruling Capitol. Her actions are viewed as a symbol of hope to the repressed people of Panem and an act of defiance by the Capitol. The Capitol forces Katniss to participate in a second, more brutal Hunger Games, where she must once again fight for her life and decide whether to accept her role as a leader in the brewing revolution. ■

—Chennah Heroor

CAMPUS LIFE IN REVIEW



DAVID DA HE—THE TECH

Goodbye, 2013. We've had our ups and downs, and it's finally time to leave you behind. I've met someone new: 2014.

Before we end things for good, let's take a look back at our Campus Life experiences this past year. We've tackled some incredibly diverse topics: research, religion, nature, fashion, food, technology, etc. There are too many interesting cases to list. The following are just a few of our most memorable experiences — I hope they inspire us to prepare for an even more extraordinary 2014.

—Kali Xu
Campus Life Editor

What's on the menu?

By Davie Rolnick
STAFF COLUMNIST

Exotic recipes from around the animal kingdom

Appetizers

Assorted small rocks

Many birds eat rocks. That sparrow pecking away at the sidewalk may be after sand and gravel, not just crumbs. The reason for this geophagy is that birds don't have teeth, so they grind up their food using an organ called a gizzard, which is right next to the stomach. The gizzard must be filled with grit and small stones to break up the food while the gizzard churns.

Sunlight

In general, animals can't photosynthesize. But there is at least one exception: a sea slug of the species *Pteraeolidia ianthina*. Sea slugs (also called nudibranchs) may be the showiest creatures on Earth. They look like a cross between a slug and a snowflake, and many species have such bright colors that they appear to glow. This particular one is blue-green, and it is filled with little algae that photosynthesize for it. Like a plant, it can sit in the sun all day and simply make its own food.

Poison ivy berries

Don't try this at home. Most people are allergic to the chemical urushiol, which is found in all parts of the poison ivy plant, including the ghostly white berries. Surprisingly, however, urushiol is only a problem for us humans, as well as for some other primates. If you are a bird, poison ivy berries are tasty and nutritious, and a great way to stock up on food before the winter.

Entrées

Your eyelashes

Disquieting as it may be, your own body is food for a large number of tiny creatures. The eyelash mite is one of them, a microscopic organism (1/3 of a millimeter long) that is found exclusively in the hair follicles of humans, especially around the face. About half of the population has them, and they don't generally do any harm. But they are there, eating, sitting around, having sex on your eyebrows, and eventually dying. Curiously, though, they don't poop at all; instead, they store up all their waste inside their bodies.

Frozen caterpillars

Birds in New England have a hard

time during the winter. It's cold and the food options are limited. There are some seeds and berries, but the insects have mostly gone into hiding or will hatch from eggs in the spring. The golden-crowned kinglet is a tiny bird whose song is a high-pitched squeak. It eats only insects, and it sticks around for the entire winter, rather than migrating south. This seems like a bad combination, but the kinglet is saved by a moth called the one-spotted variant. The caterpillars of this moth want to get an early start on eating leaves in the spring, so they hatch from their eggs in the fall and then stay out all winter on the branches of trees. Unlike most caterpillars, they can freeze solid with no ill effects, and they are camouflaged to look like twigs. Kinglets rely on these frozen caterpillars for food, hunting them diligently until spring, when the menu diversifies once again.

The shell of a dead tortoise

In Florida, there is a kind of tortoise called the gopher tortoise. The males fight with each other if they want the same female, and in these fights, one of the tortoises can get flipped over onto its back. In the sun, sometimes a flipped tortoise will die of heat and exhaustion before it can right itself. Now is the moment when the moth *Ceratophaga vicinella* steps in. It flies over and lays eggs on the dead tortoise, and little caterpillars hatch. They don't eat the body of the tortoise. Instead, they work away at the shell. If you tried to pick up the tortoise at this point, you would discover that it is anchored to the ground by a network of silken tubes, within each of which a caterpillar is hiding and munching on tortoiseshell.

Beverages

Seawater

A number of birds live their whole lives at sea, eating things like fish and the carcasses of whales that float to the surface. Such birds, including albatrosses, petrels, and shearwaters, don't come to land at all except to nest. As Tennyson's Ancient Mariner discovered, the sea contains "water, water everywhere, but not a drop to drink." Why isn't this a problem for the albatross? Turns out that seabirds have

a special organ called the salt gland, which concentrates the salt in seawater and excretes it through the nostrils at the base of the beak. This allows the albatross to drink nothing but saltwater.

A butterfly

There is a group of insects called "true bugs." They include the stink bug, cicada, and aphid, and are technically the only insects that one should refer to as "bugs." What sets them apart from other insects is their mouthparts: they can feed only through a stiff straw, which they normally keep folded away underneath the body. In most bugs, the straw is used for drinking the sap of plants, which is why gardeners hate aphids. However, some bugs drink the juices of animals instead. The ambush bug hides inside a flower and grabs any butterfly or other insect that happens by. Since most insects are not naturally drinkable, the ambush bug injects them with liquefying enzymes before inserting its straw and sucking them up. What's left is a shriveled carcass that is barely recognizable.

A few of these carnivorous bugs attack mammals, including humans. Darwin experimented with one of these, an assassin bug from South America. He was curious to see what happened when the insect bit him, so he let it bite him repeatedly. As it turned out, that particular species carries a nasty illness called Chagas' Disease, which is speculated to have caused Darwin's death.

Fog

The Namibian desert is an unspeakably dry place. It never rains, but the desert is next to the ocean, which means that fog appears once or twice a month, rolls over the desert without condensing into droplets, and disappears again. There is a beetle in the genus *Stenocara* that manages to live here. To obtain moisture, it waits for the fog to come, then uses its own back as a water-gathering device. Hydrophilic bumps on the beetle's carapace serve to condense water, and hydrophobic troughs then channel the water into the beetle's mouth. The technology on this beetle's back is so advanced that the U.S. Army is working to replicate it. ■

With tenure but not without troubles

Professor John Belcher's experiences handling depression

By John W. Belcher

The April 10, 2012 issue of *The Tech* carried an article by Grace Taylor '12 that I greatly admired: <http://tech.mit.edu/V132/N17/depression.html>.

It was about her depression and how she dealt with it. Her article inspired me to write an article on the same topic from a faculty point of view. Why? Because there is a stigma attached to having been clinically depressed and being on anti-depressants (as I am). That stigma is undeserved, and many people who should embrace such treatment instead avoid it. The more open people like Grace and I are about our experiences in dealing with depression, the more acceptance of those treatments there will be.

Near the end of the 80s, I was doing well. I had a stable marriage and two wonderful children, 8 and 11. I was a tenured Physics Professor, and Principal Investigator on an instrument on the Voyager Outer Planets mission to explore Jupiter, Saturn, Uranus, and Neptune, with a Neptune encounter coming up. Then I was diagnosed with a malignant melanoma. Its thickness was such that the chances it would metastasize were about 1 in 4. At that time, metastasized melanoma was a death sentence. I became hyper-vigilant about my health. A bit later, my then-wife and I started a major renovation project on our home, which did not go well. Because of the stress of that situation, and my own preoccupation with my health, our marriage collapsed. At the beginning of the summer of 1989, I was trying to figure out how to get divorced, what the custody arrangement for my children would be, how to prepare for the upcoming Neptune encounter in August, and because of the melanoma, still panicked about my mortality.

It was the perfect storm. My physical coordination went. My thought processes became disordered. I had a hard time, for example, simply reciting the Pledge of Allegiance. I became lethargic, and had a hard time getting out of bed in the morning. Sleeping all the time seemed like a good option. I retained a certain detachment as I was sinking into

depression. "So this is what it feels like to become clinically depressed" I would say to myself. You cannot imagine what it is like unless you have been there. I have always had hyper-active thought processes—juggling a million things at once in my head. For the first time in my life I could no longer do that. I soon realized what "living in the day" meant. The best I could do each morning was make a sort of ranked list of the things I had to do to get out of the situation I was in, and then just forget everything except the one on the top of the list. Considering the full list for even a second was just overwhelming.

I was reluctant. I was raised in Texas and had a macho attitude. Real Texans don't take Prozac.

I started seeing a psychiatrist, who immediately diagnosed depression and recommended an anti-depressant. I was reluctant. I was raised in Texas and had a macho attitude. Real Texans don't take Prozac. But I sank further into depression and became less and less functional, and I realized that I had no choice. I had to do something. The well-being of my children depended in part on my being a reasonably functioning adult, and I was far from that state. So I started taking Prozac.

I know that there is a lot of popular press these days about anti-depressants not always being effective. Maybe that is true for some people, but nothing could be further than the truth for me. I could immediately see the difference in my mental processes two days after I started taking Prozac. I would describe it as like being in a room full of a huge amount of static background noise, that makes it impossible to think, and then someone walks into the room and turns the volume way down. I could think logically again. I could recite the Pledge of Allegiance. My physical coordination returned. Life became tolerable. Not great, but tolerable. That made it possible to

slowly start dealing with the situation I was in.

These events took place more than 20 years ago. I am now happily remarried. My children are now 34 and 37. I am permanently on Prozac, as a prophylactic. Since I am a Texan and by definition should be able to whip depression all by myself, I have on two different occasions in the last 20 years gone off of Prozac. In both cases after about six months I lapsed back into clinical depression. I think once having been depressed, your body chemistry is such that you are more susceptible to a recurrence. Watching my descent into depression again those two times was really enlightening. I would do fine with a certain level of stress, but if one additional, not so big, stressor was added, I went from flying high above the waves to being right at sea level, and then even the slightest additional thing could cause me to go down. And it could be really fast, like stepping off a cliff. My body chemistry could change in a few days from more or less normal to clinical depression, with all the symptoms I mentioned above. So I just stay on Prozac. Luckily for me, it has always remained as efficacious as the first time I used it.

This term I am teaching in and co-administering 8.02, a class with 830 students, along with Peter A. Dourmashkin '76. We both know from long experience that it is statistically inevitable that a handful of our 8.02 students will get into trouble this term, with their own perfect storm, and that clinical depression is one of the possible outcomes. I am no doctor, but I do recognize the symptoms of depression. If a student comes to me with troubles of any kind, I always tell them to go to S³ or Mental Health. In case depression is the cause of the trouble, I also share with them that I have been clinically depressed and am on Prozac, and that there is no shame in that.

We should all be thankful that we live in this day and age, when these medications and treatments are available. We should not avoid them. In the words of Grace Taylor, "It's not you, it's a disease." ■

John W. Belcher is a MacVicar Faculty Fellow and a professor in the Physics Department.

Do science and religion conflict?

Where do we draw the boundaries between the two types of thinking?

**By Aaron Scheinberg
and Stephanie Lam**

STAFF WRITERS

Ask A-theist is a column by Aaron L. Scheinberg G, an atheist, and Stephanie S. Lam G, a Christian, which uses contrasting worldviews to explore questions and misconceptions about philosophy and religion.

Q: Is there a conflict between scientific and religious thinking? Where do we draw boundaries between the two?

Aaron's answer:

It seems to me that the major religions consist of cultural tradition, claims about reality, and a philosophy of living guided by those traditions and beliefs. Having spent time in Jewish and Christian traditions, I think such traditions enrich us and I am happy they continue, provided they harm no one. We all seek to contentedly lead our lives; our predecessors' approaches are invaluable guides.

However, claims about reality must be evaluated carefully whether the source has religious affiliation or not. Making claims, while enjoyable, is only Phase One of finding truth. Phase Two is more daunting: distilling true statements from a sea of unfounded assertion.

Claiming something doesn't make it more likely to be true. If the claim regards reality, our reasoning must somehow reference reality, which we call "using evidence." Over centuries, we've established what constitutes reliable evidence and fallacy-free reasoning. Claims gain some legitimacy only after their reasoning and evidence withstand scrutiny.

We shouldn't treat "why" claims differently. Though nonmaterial, motivations still either affect observable reality or are unfalsifiable. Unfalsifiable claims fail automatically — some quick math shows they cannot have supporting evidence, so they can only be unfounded speculation.

Phase Two is the core of scientific thinking. It's not about lab coats or explosions, it's about distinguishing fact from unfounded

speculation. Science isn't close-minded, it's inclusive: any new methodology that can be shown to make that distinction with even slight success becomes part of science.

We associate scientific thinking with the study of natural mechanisms only because it's more easily applied there. The great influence that historical and cultural forces exert on our lives spotlights the need to distinguish fact from speculation in those domains too.

In starker terms, "unfounded speculation" means "stuff someone made up." I love exercising my imagination, but when we don't distinguish imagination from reality, we run a serious risk of imperiling our common goals.

So when someone professes to have a path to truth separate from science, but their Phase Two is less demanding than science's, let's ask why their claims deserve such leniency. It's no coincidence that those advocating "other ways" to determine the truth about reality often also advocate claims that would fail reasoned scrutiny.

In starker terms, "unfounded speculation" means "stuff someone made up." I love exercising my imagination, but when we don't distinguish imagination from reality, we run a serious risk of imperiling our common goals. After all, one who conjures up facts can justify any action.

Stephanie's response:

How do we know what we know? The primary way we gain knowledge of the external world is through our observations and interaction with it. This is true whether in science or faith. What might seem troubling is that, whereas science seems carefully controlled and reproducible, religion in contrast seems like an arbitrary set of beliefs accepted unquestioningly. Presented in that way, the two ways of thinking are incompatible. But I don't think that's an accurate picture of "religious thinking."

How do people become Christian and

thereby get inducted into "religious thinking"? How do we become convinced that the "Christian hypothesis," so to speak, is true? By looking at the evidence. Central to the Christian faith is the existence of a loving God who wrote himself into human history in the actual historical figure of Jesus Christ. In order for Christianity to be true, Jesus must have existed, been crucified, and then been resurrected. But this happened once in his-

tory; it is not reproducible. Same goes for the Big Bang. Therefore the evidence available is indirect and more akin to legal testimony. We examine the historical records, which includes but is not limited to the Bible, and we draw our conclusions in the same way as for anything else.

Christianity also goes beyond mere historical facts. There are far-reaching implications for our own lives as well. We look at the data we have and ask if it is consistent with the hypothesis. Do we see evidence of changed lives in those we know? Do we see evidence of a God loving us, intervening throughout history, and speaking to us even now?

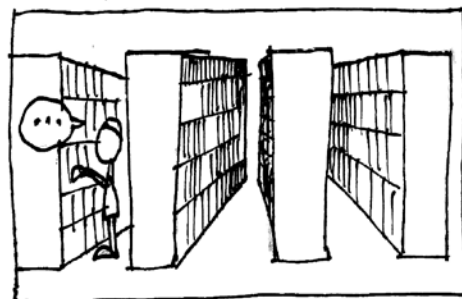
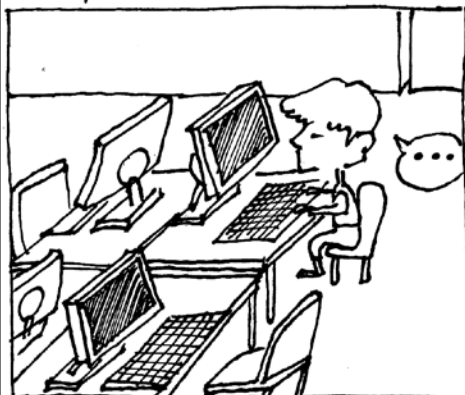
If, after evaluating the evidence, we conclude that Christianity makes the most sense of the world, does that still make us arbitrary and dogmatic? I would argue that science similarly exercises such faith. Have you personally tested every theory in your chemistry textbook? Or have you just seen enough proof to satisfy you that chemistry is true and your textbook will not mislead you? The nature of the evidence might be different between science and religion, but the fundamental process of obtaining knowledge is similar. Both begin with evidence and end with truth. ■

A YEAR IN COMICS

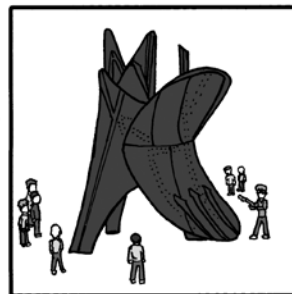
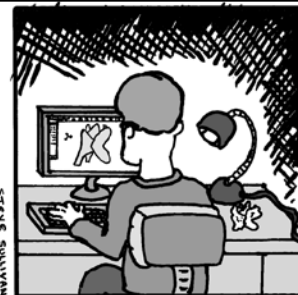
SKETCHY

by Dohyun Lee

- HAYDEN LIBRARY IS POPULAR



UPPERCUT by Steve Sullivan



Q.E.D. (QUITE EASILY DONE)

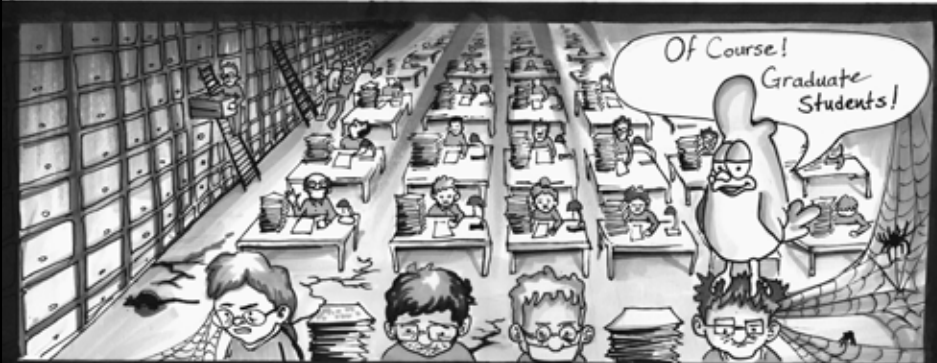
BY ERIKA TRENT

PREVIOUSLY
ON Q.E.D.:
HARDWARE MALFUNCTION!
BOOBY PRISMS!
ETERNAL SHUTDOWN!



(THIS COMIC STRIP ACTUALLY OBLIVIOUS TO YOU FROM YOUR LOCAL SPENDING QUARTER)

Pigeon Comics





HO YIN AU—THE TECH



JESSICA L. WASS—THE TECH



JOSEPH MAURER—THE TECH

A Campus in Celebration:

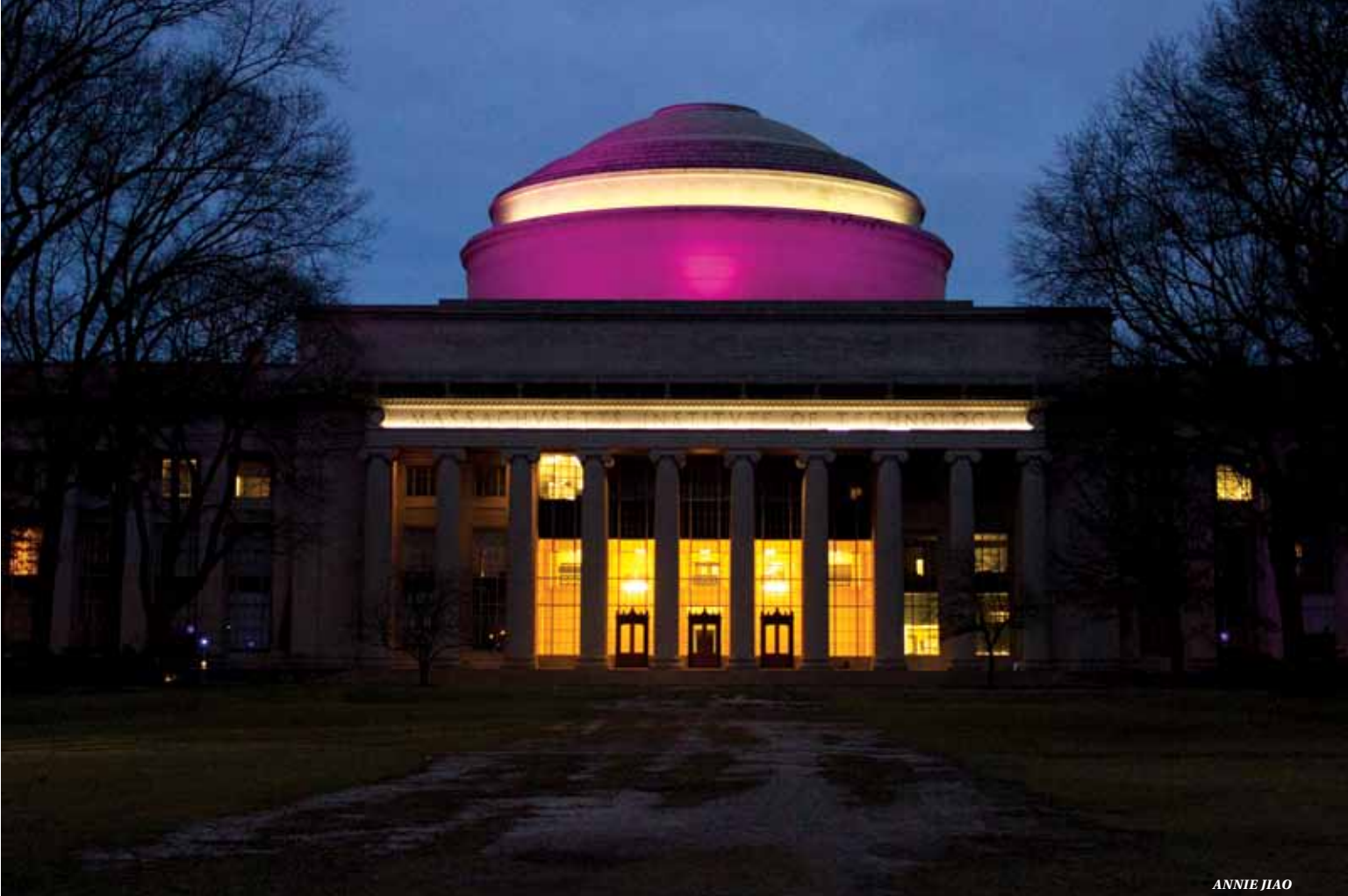
Amidst the never-ending p-sets, the grueling hell weeks, and the harrowing all-nighters, it can be easy to forget that this campus is not just a place of work, schedules, and obligations. When one is able to step back from the firehose, if just for a minute, it's not too difficult to see that MIT is home too to countless moments of joy, beauty, and celebration.



GREG STEINBRECHER—THE TECH



HENRY TAREQUE—THE TECH



ANNIE JIAO

OPINION IN REVIEW

As scientists and engineers, MIT students constantly balance harsh realism with eternal optimism. On the one hand, we must be machines — poring over facts, figures, and data, determining what is infeasible, and eliminating it. On the other, we must maintain unwavering faith in the possibilities of discovery and the limitless potential of imagination. While we're here, one of the most important lessons we learn is how to grapple with this duality — how to keep the faith despite setbacks. We learn to be resilient.

But in 2013, the word “resilient” was used to describe us — and our surrounding community — for entirely different reasons, as disruption and tragedy struck Boston and then our own campus.

The word was everywhere — in sermons,

eulogies, and the speeches of politicians, from the President on down. Was it used too easily? Was it really just a way to say that Americans have become sadly accustomed to frequent acts of senselessness and destruction? Were we able to return to our daily lives so quickly because we have become hardened in ways we may not fully comprehend? Or perhaps we used the word to help ourselves believe that we had grieved long enough, that we had appropriately internalized tragedy, so that we could return to our normal routines.

In 2013, the opinion section reflected how MIT students navigated the usual duality between realism and optimism — but in an extraordinary year of shock, lockdowns, and grief. Our readers won't be surprised by the side we fell on: We kept our faith in the possibilities of innovation and imagination. Just

as the student body does every day, opinion contributors focused on how the world can be improved.

Among other questions, they asked: To what extent should we balance our individual need for some measure of financial security with a selfless drive to solve the world's problems? As our society becomes more and more disenchanted with our government, how can we incentivize more effective public service? As online education proliferates, what can we do to make it even better?

Whether our ongoing pursuits signified true resilience in the face of tragedy isn't easy to know. But what can't be questioned is our resilience in the face of intellectual explorations that challenge us every day.

—*Jacob London*
Opinion Editor

Why the career fair is a disappointment

Is MIT losing its way in its service to the world?



RACHEL E. AVILES—THE TECH

Undergraduate students, graduate students, and alumni waited to enter the Fall Career Fair on Friday, Sept. 20, in a line that went from the Z-Center, down Mass Ave and onto Amherst Street. The career fair provides opportunities to find internships and full-time positions, as well as collect lots of free “swag” from companies.

By Madeline O’Grady

STAFF WRITER

Editor’s Note: This column original ran on Sept. 20, 2013, the day of the Fall Career Fair.

When I applied to MIT in 2012, I pictured a brilliant haven filled with talented, driven, and passionate young people, striving to learn and apply their knowledge to solve the world’s greatest problems. Across this square mile of Cambridge, I pictured ten thousand minds working toward global improvement, and an institute that wants nothing more than to see its students facilitate change. At the time, being able to join this community seemed like a remote possibility.

As a senior in high school, I hoped to study biology because I genuinely cared about learning how the world works; I was fascinated by the way the human body interacts with its surroundings. I figured that of all places, MIT, this grandiose institution for higher learning, could teach me how to solve the problems associated with this delicate symbiosis.

Two years later, I’ve joined several student groups that are working toward these goals, though they were a challenge to find. During my first semester, I began to grow disheartened because I couldn’t find a single group working seriously on climate change. I was both sad and excited to say that such a group (Fossil Free MIT) was founded during my first semester.

A large part of our outreach occurred dur-

ing orientation, when freshmen are still enthusiastic and open-minded. At the activities midway, I spoke to an upperclassman about climate change, giving her my somewhat impersonal and dry spiel (as I’ve become jaded after two semesters here). I asked if she was concerned about climate change, to which she replied: “To be honest, not really. I don’t really care about anything outside of my immediate universe.”

What? You don’t care about anything?

How is it possible that at MIT, an institution founded on principles of service and intellectual rigor, there exists a single person who doesn’t care about anything outside of his or her own immediate universe? We have all of the potential and resources necessary to change the way the world works. There are so many problems that we have the brains and the willpower to solve — we just need leadership. We need guidance, and currently we are being guided in the wrong direction.

Three weeks after this encounter, nothing has changed. The career fair is approaching, and students are preparing for a day of “opportunity.” MIT’s Global Education & Career Development center (GECD) is holding extended walk-in hours to help students perfect their résumés and interviewing techniques, their firm handshakes and conversation skills, in order to maximize job offers from companies like BP, Chevron, Quizlet, P&G, Intel, GM, TripAdvisor, and Morgan Stanley. There are daily information sessions with Microsoft, AQR, CRA, and Exxon. MIT’s Society of Wom-

en Engineers is holding a career fair banquet with opportunities to network with representatives from L’Oreal, Bank of America, Merrill Lynch, Shell, and Schlumberger.

I’ve been told by upperclassmen that career fair is an opportunity. Classes are cancelled. There are hundreds of companies. They’re waiting for me to come up and talk to them, waiting for me to drop my résumé, waiting for me to apply for an internship. And I need to impress them.

Really, MIT? We need to impress *them*?

The career fair serves as an effort to funnel some of the world’s brightest minds into lives of comfort and apathy. When did solving the world’s problems mean drilling for more oil than we can afford to burn, coding the next “original” iPhone application, designing more products for consumers to purchase, or consulting these companies so that they can make even more money than they already do?

MIT, I thank you for the exceptional and objective education I’ve received over the past two semesters. But now I need more. I need guidance; I need empowerment and reassurance that despite the current sentiment that finding a “good” job is the most important return from an education, I can still make a difference. I need to know that we are better than Exxon, than TripAdvisor, than P&G, than Quizlet, than BP, than Facebook, than Yelp, and collectively that we have more of a potential to shape the world. I need to know that we are better than career fair. ■

An illusory trade-off

Is working for a corporation a selfish or complacent use of an MIT education? Not necessarily.

By Jacob London

OPINION EDITOR

Editor's Note: This column originally ran in the Sept. 24, 2013 issue of The Tech as a response to Madeline O'Grady's column published in the previous issue.

In Friday's issue of *The Tech*, Madeline O'Grady '16 asserts that MIT students should be "better than the career fair." Instead of settling for comfortable, lucrative jobs with corporations, she writes, we should aspire to solve the world's most challenging problems.

O'Grady goes on to lament the fact that students are not only settling for these jobs, but many even seem to prefer them to more altruistic career paths.

The problem with O'Grady's argument is that it ignores the contributions corporations have made to expanding opportunity for millions of people and also the role corporations have played in trying to solve the problems that have come with expansion.

Have the interests of large corporations and private companies always aligned with the best interests of society as a whole? Of course not. But what should not be overlooked is the fact that profit-driven companies and industries have contributed in significant ways to addressing many of the challenges that have confronted societies since the onset of the industrial era.

Just a cursory browse through the career fair brochure yields a variety of companies that are all addressing important societal challenges. Google has transformed the way people and businesses connect and share information. IBM has driven hardware and software innovation for over a century. And in the face of dwindling public investment in spaceflight, SpaceX has grabbed the baton in an attempt to sustain our collective reach for the stars.

True, some major investment banks exploited lax regulation and consumers' lack of information to trigger the great recession. But one must look at the bigger picture. Investment banks have been critically

important in fostering entrepreneurship, economic growth, job creation, and products (think pharmaceutical and medical products, fuel-efficiency technology, irrigation systems) that have improved life for untold numbers of people in the last two centuries. Even the banks that were entangled in the 2008 financial crisis played key roles in accelerating global economic growth and opportunity over the past 50 years. Furthermore, these companies are often the only ones equipped to provide tailored expert advice as firms take on the challenges of an increasingly globalized economy.

Students shouldn't be condemned for trying to provide a better future for themselves and the families they may one day start.

Fossil fuel corporations are certainly contributing to the alarming advance of climate change, but should they really shoulder all of the blame for our international dilemma? They are supplying a commodity that the world demands, but at the same time, they have been pouring resources into alternative energy research and development. In their own self-interest, they are diversifying — perhaps later than they should have — but diversifying and investing in new technologies nonetheless. They are part of the problem, for sure, but also increasingly part of the solution.

Corporations address problems indirectly as well. I'd imagine that O'Grady would applaud those students who elect to pursue careers in academia. After all, that's where she would suggest that many real world problems are solved.

But money for this research has to come from somewhere. Between corporate research and development, and private contributions to universities, businesses do a great deal to support applied research —

all the more important at a time when federal funding (the lifeblood of post-war scientific research) is being eviscerated by the sequester. Moreover, universities are built and funded by major gifts from corporations and wealthy capitalists who become philanthropists.

But for the sake of argument, let's assume that corporations never help to solve important problems, and that they don't fund applied research. Should students still be "better than the career fair?" A large and growing portion of college students face enormous student loan debts, and they are under incredible pressure to begin repaying those debts as soon as they graduate. Should they be condemned for pursuing well-paying jobs to pay off those debts? Should students be condemned for trying to provide a better future for themselves and the families they will one day start?

Granted, not all corporations are helping to solve important problems; and even if a corporation is providing value to society, it isn't necessarily motivated by a sense of social responsibility. The challenge for those students who do decide to take jobs in the private sector is to look for ways to influence corporate cultures from within, to push them in the direction of social responsibility. Today's job-seeker will be tomorrow's business leader. And through enlightened leadership, companies large and small can do more and more to mitigate the adverse by-products of business, and to contribute to the solution of social, economic, and environmental problems.

Ultimately, O'Grady raises an important question — to what extent should we balance our individual need for some measure of financial security with a selfless drive to solve the world's problems? I commend O'Grady's idealism, but the answer isn't always a trade-off.

Unfortunately, there is so much in this world that needs to be improved. Fortunately, there are plenty of ways to go about improving it. ■

The unquestioned assumption of online education

The current model must do more to account for different learning styles

By Sam Shames

STAFF COLUMNIST

Editor's Note: This column originally ran in the March 5, 2013 issue of The Tech.

Online education is growing rapidly. Recently, six new universities have been added to the edX platform. Each new university plans to develop its own set of MOOCs (Massive Open Online Courses). Between the big three — edX, Coursera, and Udacity — there are now hundreds of MOOCs from universities all over the world. Advocates are quick to highlight that these MOOCs have already served millions of students, enabling anyone with an Internet connection to receive a world-class education.

Online education advocates assume that MOOCs are the best way to teach students. On the surface, the MOOC appears to be very different from its classroom counterpart. Short videos replace a traditional lecture, sprinkled with interactive demos and instant feedback. MOOCs are supposed to reflect the ability of technology to make the learning process more interactive and effective. But underlying a technological interface is the very same teaching structure as a traditional classroom, where the instructor decides the order of the material and presents it in a linear sequence.

Part of the promise of online education is the ability to accommodate different learning styles. The best way to accommodate as many learning styles as possible is to structure the course material such that students and teachers can adapt to the content for their own specific use. Today's MOOCs make this specificity impossible.

A new, non-linear structure would allow students to develop their own learning pathways, and to learn material in the order that feels most natural to them. A new structure would also allow students to get a better sense of all the concepts and topics within a subject along with the connections between them. The third important benefit is that by giving the student access to all the material, it allows the independent learners to identify

which parts of the material they find most interesting — the essential concept, equation, or code that is relevant to their own particular interests.

One model for this new non-linear structure is concept and learning webs. There are two levels of learning webs: a subject level and a topic level. The subject level contains modular lessons about all the different topics within that subject. Within each topic are short videos, practice problems, online labs, case studies, and interactive demos — all the material normally presented in a MOOC — available at any time for students to use. Because each topic is modular, students are free to either focus only on one topic, or define their own learning pathway.



Perhaps the most exciting thing about this structure on the concept level is that it breaks down the barriers between majors. In addition to covering traditional topics like mechanical engineering and economics, there will also be similar modules for topics like robotics and green energy, which will contain concepts and ideas from many different subjects, from materials science to electrical engineering to cognitive science. In a sense, this represents a new paradigm for organizing content.

While concept and learning webs offer a new structure for online education, I do not believe they should replace MOOCs. Instead, concept and learning webs should be created in parallel and offered both as an additional tool for students enrolled in MOOCs and as independent way to learn without having to enroll in a MOOC. Much of the same material already developed for a linear MOOC can be recycled into the concept web model.

The real benefit of concept and learning webs is that they will catalyze the residential revolution promised by advocates of online education. MOOCs alone will not change the residential experience; they are just an online version of the linear lecture style students have today. On the other hand, the concept and learning web creates a new structure where all the material in a course is available from day one, where students are encouraged to learn the material in the order that seems most relevant to them, instead of in the order the teacher decides is most appropriate.

The concept and learning web makes the problem-based classroom possible, because instead of having to provide the concepts and answers, the teacher is now free to create an interesting project or problem and let the students solve it. This is what the multiple learning pathways that the concept and learning webs offer; the most effective order for teaching the concepts depends on the nature of the project or problem. Students may choose to work on different steps of the project and will therefore learn the material in a different order. This would never be possible in a MOOC or a traditional classroom where the teacher sets the learning pathway for the entire class.

MOOCs have already begun to disrupt the education system. Education will change more in the next five years than it has in the last fifty. The promise of online learning is that new technology can be used to teach more effectively — part of this promise means reexamining our deepest assumptions. Technology enables fundamental new structures and models for education, of which the concept and learning web is only one. One goal for online education should be to create a platform that accommodates as many learning styles as possible. That platform opens online education to the world, allowing each user to find the content that is most important to them and to create their own learning pathway. When this platform exists, online education will have arrived and the residential revolution will follow. ■

Remembering Bexley

One more take

By Jocelyn Gonzalez

Editor's Note: This letter was originally written in May 2013, following the announcement of Bexley Hall's closing due to structural problems.

Just over a year ago, I discovered what it felt like to return to Bexley. It was 5 a.m. and the freezing wind was slicing through the air as I stepped out of a cab under the little dome. I knew that no one was awake, but I ran across the street toward the brick building anyway. I had just pulled my suitcase out of the cab's trunk, slamming the

lid hastily. My suitcase was rolling — no, bouncing — across Massachusetts Avenue, and I could feel my backpack swinging behind my shoulders, but my eyes could only be fixed ahead.

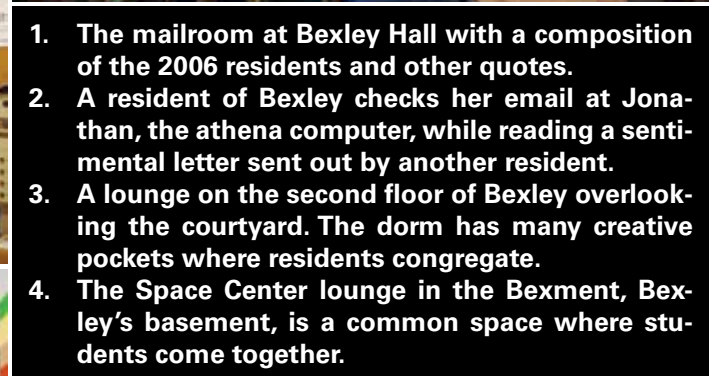
The archway above the courtyard's entrance — this threshold I'd crossed every day of my freshman semester — welcomed me once more. I could feel its warmth. I always could. My eyes lit up as they passed over the lone tree rooted in the center of the courtyard, its branches bare but for the white snow stacked on top. Then, as always, I'd look up and hold my gaze over the three

brick facades that enclosed the courtyard. They towered four stories high, and the snow upon the ledges highlighted the windows overlooking our tree.

The smell of the air hadn't changed. I'd never turn around and look back at Mass. Ave., for I never questioned the notion that I could almost hear the archway's rusty gates closing shut after me — creaking — welcome back.

Nobody was awake to hear me, but it was not to them that I shouted. "Home!" ■

Jocelyn Gonzalez is a member of the Class of 2016.



2

VANESSA TREVINO—THE TECH

1. The mailroom at Bexley Hall with a composition of the 2006 residents and other quotes.
2. A resident of Bexley checks her email at Jonathan, the athena computer, while reading a sentimental letter sent out by another resident.
3. A lounge on the second floor of Bexley overlooking the courtyard. The dorm has many creative pockets where residents congregate.
4. The Space Center lounge in the Bexment, Bexley's basement, is a common space where students come together.

1

VANESSA TREVINO—THE TECH

3

VANESSA TREVINO—THE TECH

4

VANESSA TREVINO—THE TECH



Zoidberg says

How we create career politicians and why we should stop

By Aaron Hammond

STAFF COLUMNIST

Editor's Note: This column originally ran in the Friday, Oct. 4, 2013 issue of The Tech, following the U.S. government shutdown on Tuesday, Oct. 1.

As I type this article on Monday morning, a government shutdown seems inevitable. In a little under 18 hours, barring a congressional Hail Mary, legislative intransigence will mean the shutdown of the National Parks, freeze on pay for troops, and furloughs of governmental employees.

My slightly anarchistic sensibilities should make me want to sit back and watch it all burn. Still, I am overtaken by disgust. After all, we elected these folks; we symbolically passed them the key to the country to represent our wants in the preeminent democracy of the world. This is the result of our votes of confidence.

How did we end up in this portentous state of affairs? Ask anyone, and their political leanings are sure to shine through; the right blames the left, the left blames the right, and independents are left shaking their heads. Toxic rhetoric flashes across television screens, and parallels to Nazi Germany and the Civil War are drawn on the most tenuous of bases. Partisanship is just the proximate cause of the latest crisis, however; the ultimate issue lies in the fundamental character of the political system at present.

Despite two-year terms in the House of Representatives and biennial elections for a third of the Senate, length of service averages 9.8 years and 11.4 years for representatives and senators respectively. Some skew this average up, with some veteran members

of Congress serving for decades. Considering as well the relative sociocultural homogeneity of lawmakers, it is clear that legislative power is concentrated in the hands of a sort of elite political class.

We task our politicians with an almost Herculean task: to govern altruistically for the betterment of the nation. The dynamics of life of the professional politician is antithetical to this goal, however. Some sectors posit that increasing pay for lawmakers might remove their personal biases, but conventional bribery isn't the problem. After all, given the momentous cost to launch even a congressional campaign, politicians aren't in it for the paltry salary (even when supplemented by corporate kickbacks).

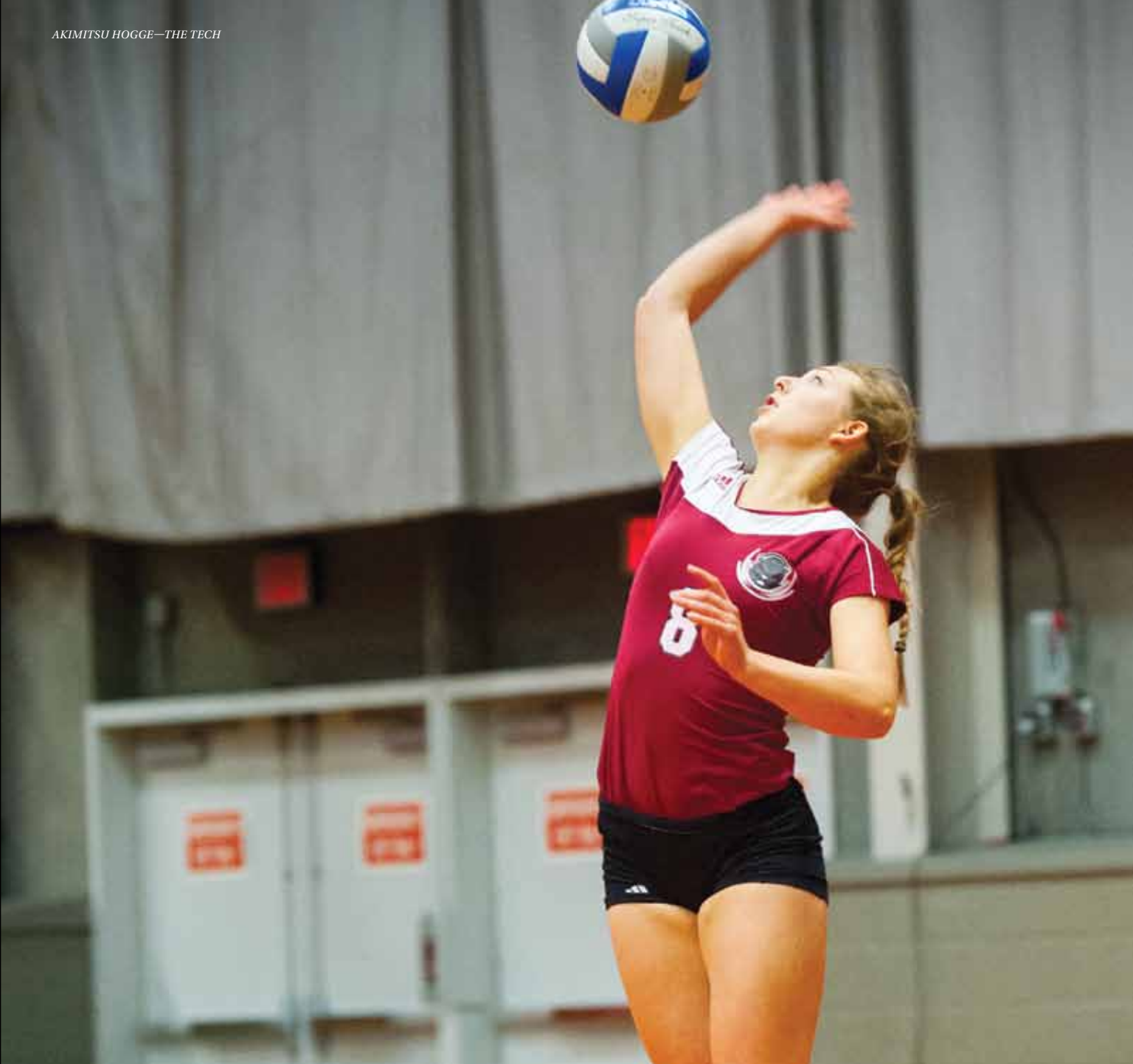
Instead, the principal reward for service is prestige; successful politicians have it, and retirees from office do not. In our current political system, politicians must therefore be constantly plan for the future, lest they be forced to retire incognito to their mansions. By scribbling letters next to each politician's name, we give the problem a new face; we call it "partisanship," as if to imply it is loyalty, not selfishness, that drives our representatives' and senators' actions. But casting the issue in such terms implies monolithic Republican and Democrat parties, a notion that empirically holds no water (see Richard Tisei). We cannot keep pointing to super-PACs and national conventions when the problem is created at the neighborhood ballot boxes.

Although the gridlock in our political system is created at home, it can't be solved there. But by imposing term limits on all elected office at the national level, it is possible to erase the compulsion to legislate in accordance with long term personal goals

and encourage politicians to govern, not rule.

Why do we limit the President to two terms? Although the precedent was not codified constitutionally until 1947, the tradition arose among the earliest Commanders-in-Chief as a conscious decision to avoid the earliest steps down the path to monarchy. Rather than monarchy, however, the greatest threat to democracy is now oligarchy. Politicians wheel-and-deal with promises of future reciprocation — perhaps an essential vote on a future bill or support at the next convention — precisely because we encourage them to plan for their futures by making a career out of political office. Our political system furnishes the means to create dynasties.

I think Zoidberg (of *Futurama* fame) succinctly outlines one of the few legitimate objections against term-limits for members of Congress: "[Nixon] may not be perfect, but do we really want some new guy? I'll stick with the evil maniac I know, thank you!" Fresher politicians might mean legislative inexperience, but it also means comparative purity; I would be content to accept greenhorns if we could wrest political power from the hands of a shadowy, Ivy-educated elite. Given that only Congress could establish term-limits for members of Congress — an irony of constitutional amendments — such a change in the political system is unlikely in any of our lifetimes. In that regard, voters hold the ultimate power. Only we can vote for the underdog, the unknown. We must ignore names and vote on the basis of platform instead. Otherwise, we are doomed to bide our time until the next crisis emerges and wonder why politics never changes. ■



SPORTS IN REVIEW

2013 was a year full of athletic achievement for the Boston region as a whole, with the upstart Red Sox winning the World Series and the Bruins winning the NHL Eastern Conference championship.

MIT also had a successful year in sports,

as the men's and women's soccer teams both earned a bid in the NCAA Division III tournament in 2013, while the men's basketball team tied for the NEWMAC title.

Going forward into the new year, we hope the MIT athletic program will repli-

cate the success it found in 2013. To celebrate their success, *The Tech* recounts some of the most memorable moments from the last year in Boston and MIT sports.

—Austin Osborne
Sports Editor



AKIMITSU HOGGE—THE TECH

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AKIMITSU HOGGE—THE TECH

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SARAH LIU—THE TECH

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Alabama wins national championship

JAN 2013

The Alabama Crimson Tide showed why they were the best team of the 2012–2013 season when they completely dominated then-ranked #1 Notre Dame Fighting Irish in the BCS National Championship game, 42–14. Alabama running back Eddie Lacy was the offensive MVP, while C.J. Mosley was the defensive MVP. Notre Dame's defense, led by star linebacker Manti Te'o struggled all night to slow down Alabama's offense led by Lacy and quarterback A.J. McCarron. It was the Crimson Tide's second consecutive national championship victory.

FEB 2013

MIT men's basketball team ties for NEWMAC title

After an impressive 20–6 season, the MIT Men's Basketball Team tied WPI for the NEWMAC title and earned an NCAA Division III bid for the fifth year in a row. Additionally, Will Tashman '13 was named NEWMAC Athlete of the Year.

JAN 2013

Lance Armstrong scandal

In January 2013, Lance Armstrong confessed to doping while a member of the United States Postal Service professional cycling team. His confession, which came after months of public denial, greatly disturbed the cycling community and revealed that many other cyclists were also guilty of doping at the time. As a result of the confession and allegations, Armstrong has been stripped of his Tour de France titles and disqualified from all future professional cycling events.

JAN 2013

Ravens vs. 49ers Super Bowl

The 2013 Super Bowl between the Ravens and the 49ers began with Baltimore taking early control of the game. Momentum changed completely, however, when an electrical failure caused the stadium to lose power, and allowed the 49ers to mount a furious comeback. San Francisco fell just short on the final drive of the game as Colin Kaepernick attempted a pass to Michael Crabtree in the endzone that fell incomplete. Ravens quarterback Joe Flacco was the MVP.

FEB 2013

2013 Sports TIMELINE

By Austin Osborne and Sarah Weir
SPORTS EDITORS



1. Nicholas J. Locascio '16 pitches in an MIT baseball game against Babson College.
2. Elizabeth A. Dethy '15 shoots during a field hockey game against Lasell College.
3. Racers sail downward to the finish during MIT Sailing's Midweek Firefly Regatta.
4. Tucker T. Cheyne '17 kicks for an extra point during a football game, helping the Engineers secure a win 56-36 against Maine Maritime Academy.
5. Sarah G. Wilson '16 prepares to shoot over a Wellesley College defender in a Women's Water Polo scrimmage.



Chicago Blackhawks beat Bruins for Stanley Cup

JUN 2013

The Chicago Blackhawks faced off against the Boston Bruins in the 2013 Stanley Cup Championship, and although the series was very close throughout, highlighted by a triple-overtime matchup in Game 1, the Blackhawks emerged victorious in 6 games. 2013 was their 5th championship as a franchise and their first win since 2010 over the Philadelphia Flyers.

Aaron Hernandez

JUN 2013

The New England Patriots started off the season with a wave of controversy, after star tight end Aaron Hernandez's home was searched in connection to an investigation into the murder of his friend, Odin Lloyd. He was subsequently released by the Patriots, and charged with first-degree murder. He is also currently under investigation for a 2012 double homicide that occurred in Boston.

MIT men's soccer earns NCAA bid

NOV 2013

After making it to the NEWMAC finals and barely falling to Wheaton College, the MIT Men's Soccer Team earned a spot in the NCAA Division III Tournament for the second year in a row. Although the Engineers fell to Western New England University in the first round, they ended their spectacular season with a 13-5-2 record.

Heat win Championship

The San Antonio Spurs were seconds away from defeating the Miami Heat in 6 games in the 2013 NBA Finals, but LeBron James sank a clutch 3 pointer, followed by another by Miami shooting guard Ray Allen to tie the game with 5 seconds remaining. The Heat went on to win the game in overtime, resulting in a Game 7 showdown in Miami, which they went on to win, 95-88. LeBron James was the Finals MVP as he won his second consecutive championship.

JUN 2013

Red Sox win World Series

For the first time since 1918, the Boston Red Sox won the World Series at home, in Fenway Park. The Sox beat the St. Louis Cardinals 6-1 in a riveting Game 6, which was pitched by Red Sox starter John Lackey. The win comes after an embarrassing last season in which the Red Sox were last in the American League East standings.

OCT 2013

MIT women's soccer earns NCAA bid

The MIT Women's soccer team tied Wheaton College for the NEWMAC regular season title and made it to the NEWMAC tournament finals where they narrowly lost to Springfield College in penalty kicks. Despite the loss, the Engineers were given a bid to the NCAA tournament, where they lost in the first round to the Rochester Institute of Technology. After an amazing season, Ambika M. Krishnamachar '15 was named to the NCAA Division III All-America Team.

NOV 2013

DEC 2013

