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FROM THE EDITOR

THE LEHIGH REVIEW:
DEFINING IMPACT

I am proud to present the twenty-second edition of The Lehigh Review: Defining Impact. The creation of this journal was both rewarding and challenging, and it could not have been accomplished without the dedication and insight of our hard-working staff and our talented contributors.

This edition's body of work comes together under the theme of Defining Impact. Each of the essays selected seek to explore and illuminate impactful phenomena that define various aspects of culture, economics and design. The essays "Bias and Technological Changes in the Television Coverage of War" and "Watching More than The Cow in Tehran" demonstrate the defining impact that the media and film exercise over cultures worldwide. "Architecture as Both a Book and an Author" flips the conventional argument that culture determines architectural norms to suggest that architecture has a distinctive impact on defining cultural identity, while "Dissociative Identity: Bethlehem, PA After Big Steel" details the defining impact the rise and fall of Bethlehem Steel has had on the city. "Speak Now or Forever Hold Your Receipts" takes a unique approach to weddings as defining moments both economically and socially. Finally, "Blast Resistant Building Design" not only defines how buildings are constructed to withstand physical impact, but it also hints at the impact of terrorist threats on building design.

Though each piece is informed by its unique discipline, clarity of writing, originality of thought and quality of research define them all. The incredible invention and mastery of craft demonstrated in the artwork selections are equally impactful, articulating some of the defining innovation that characterizes Lehigh's art, architecture and design scene. Whatever the subject, the authors and artists whose work appears in the journal have made a defining impact on Lehigh's academic and aesthetic cultures. I hope these selections will encourage thought and discussion, inspire and, most of all, generate appreciation for the impressive work produced by the institution's undergraduates.

Jane Givens
Editor in Chief

EARLY MORNING FOG
Oliver Rye

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DISSOCIATIVE IDENTITY

BETHLEHEM, PENNSYLVANIA
AFTER BIG STEEL

Evan Orf

In 1943, Bethlehem Steel, then the second largest steel manufacturer in the United States, employed a record 283,735 workers. By 1945, the company held net assets of $880 million and had revenues of $1.1 billion. The industrial giant unified the small, incredibly diverse City of Bethlehem under one roof, one cause and one extremely proud identity. But in 2001, "the Steel" went bankrupt, and the blast furnaces that once roared and blazed all day and night went cold. Today, the city is in a state of urban renewal in attempts to reclaim a sense of unified identity in the wake of Bethlehem Steel's collapse. Though the blast furnaces still stand, the urban renewal project, called Southside Vision 2014, is steering Bethlehem in too many different directions at the same time, giving the city a sort of dissociative identity. This essay charts both of these stories — the rise and fall of Bethlehem Steel, and the renewal of the city post-steel — and the links between them.

PROGRESS: 1857 – 1901

In late 1857, American businessman and founder of the Iron Company Augustus Wolle plans to build a blast furnace near Saucon Creek, drawing upon the iron ore deposits near its banks. He intends to develop pig iron, an intermediate product that can be sold for later melting and casting. Wolle's friend, local attorney Charles Brodhead, suggests that he aim higher; rather than building a small venture on a creek, Wolle should build on the banks of the Lehigh River, and rather than pursue the dead-end marketability of pig iron, he should produce rails for the growing Lehigh Valley Railroad, a project with much higher potential profit. Wolle takes his friend's advice, and in 1861, the Bethlehem Iron Company is born.[1]

By 1873, the synthetic production of steel is gaining steam, so current Bethlehem Iron director Robert H. Sayre adopts the Bessemer process for the Bethlehem plant with the intent to continue forging rails, now out of steel, for the railroad. When the necessity for rails starts to decline in the 1880s, Superintendent John Fritz suggests expanding the Bethlehem product line to include large forgings in the shapes of gunnery and ship hulls. After stiff initial resistance from the board of directors, eventually the move toward producing heavy forgings is made. In March of 1887, the Bethlehem Iron Company wins the massive contract of the United States Navy, valued at approximately $4 million, and four years later, it wins a similar contract for the United States Army.

Despite Andrew Carnegie's entrance into the defense contract market, reducing the company's market share to 40 percent, Bethlehem continues to profit from both rail production and large forgings. By the time renowned business-mind Charles M. Schwab takes over the company in 1901, Bethlehem Iron has transformed into Bethlehem Steel. Progress has conceived an industrial giant.[2]

CLOSURE: 1999

On the evening of September 9, 1999, a gathering of over 300 people trudges out of the rain and into the old abandoned Iron Foundry on the site of the once great Bethlehem Steel Corporation in eastern Pennsylvania. Over 100 years prior, thousands of machines and tools, hot with smelted metal, filled the vast foundry, but today the structure shows its age. Stones in the wall have been chipped away, eroded by heat and weather. The cracks in the roof leak rain onto members of the audience below, but the spectators remain seated, eagerly awaiting the start of a new adaptation of the Greek tragedy of Prometheus, *Steelbound*. (Figure 1) At the center of the foundry rests a 27-ton, 9-foot-tall ladle, a miniscule artifact in comparison to the massive volume of open space enveloped by the foundry walls. Heavy rain, thunder and howling winds only accentuate the desolation of the place. This is the first of eight sold out shows.[4]

The play begins. A Cadillac pulls into the building from the rain and stops in front of the ladle. The personified characters of Brutality and Indifference weld our hero, the former steelworker Prometheus, to the mammoth hunk of steel, an eternal prison to which he has been condemned by Progress, the Steel's mortal enemy. Chained to the memory of Bethlehem Steel, he will watch the world go by, suffering the emotional agony of his purposelessness. The voices of the women's choir echo through the trusses and beams of the roof structure: "It's been so long since we heard/ the mill heave and slam/ with metal on metal."[5] The words resonate in the minds of the former steelworkers, and their families, in the audience.

The event of the play, though, is not the imprisonment of Prometheus, but the story of Bethlehem Steel, told eloquently through songs and soliloquies as the hero tries to help a young woman, Penny, regain her memory after she crashes her car into the foundry wall. (Figure 2) Prometheus, while chained to his steel torment, reminds her that her parents worked at the Steel; that she grew up hearing the sounds and inhaling the fumes of the blast furnaces; that she was supposed to carry on their legacy and work at the plant, but plans changed. A cast of both steelworkers and non-steelworkers act out the history of the company and

Figure 1. *Prometheus Welded to the Ladle in "Steelbound"*[3]

its impact on the people of Bethlehem, culminating in a symbolic piling of old tools, hard hats and steel scraps—a funeral pyre marking the demise of the industrial giant.[6]

Satisfied, Penny leaves Prometheus, saying, "I know what my parents had/ And what I'm missing/ And it's OK."[8]

Herman, a historian, enters the foundry and finds Prometheus. He explains to Prometheus that he need not worry— Herman is in the process of planning an onsite museum dedicated to the Steel and its workers. With that knowledge, and with the encouragement of all the community members, Prometheus lets go of his torment, breaks his chains and reenters the outside world, singing:

No matter how many years I
worked here,

*I still had to stop and watch every
time the oven was tapped.
It was beautiful.
I was happy when I worked here,
And I didn't think I'd ever leave.
But here I go.
So let's go.* [9]
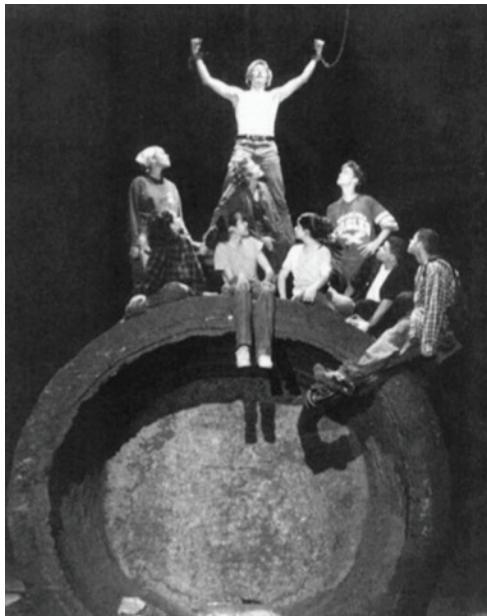
Figure 2. *Prometheus Welded to
the Ladle in "Steelbound"* [7]

Thus, the final event, the final creation of Bethlehem Steel—closure—seems as solid and as strong as the steel it produced for over 100 years. The vast emptiness of the iron foundry feels not so empty. Audience members leave with tears glistening on their cheeks, but with their heads held high, confident in the resilience of their Steel community. An old, crumbling, rusted building, open to the rain and wind and vacant from wall to wall, acts as the venue for the symbolic defeat of the scapegoat Progress. But Progress is not, nor has it ever been, the enemy. Bethlehem has indeed written and read the last chapter of its industrial identity, but its new quest for self-rediscovery has started on a very wrong note.

AMBITION: 1908 — 1930

In 1908, Charles Schwab, now a veteran in the steel industry, begins manufacturing a brand new, stronger type of structural building material: the H-beam. Developed by Henry Grey, the H-beam looks very similar to its predecessor, the I-beam, but rather than the typical narrow flanges at either end of the shaft of the "I," this new beam features flanges as wide as 16 ½ inches, strengthening the beam immensely. The forging of such a beam requires a whole new process and a whole new factory, a $5 million gamble, which Schwab takes, and which pays off immensely. Formerly, with I-beams, a building could not reach higher than 20 stories without a major spike in construction and material cost. With Grey's beam, buildings can reach more than four times that height. [10] Schwab's gamble has changed cityscapes forever.

Between 1922 and 1930, Bethlehem monopolizes skyscrapers. Steel from Bethlehem plants constructs the 70-story neo-gothic Bank of Manhattan and the 66-story American International building in New York, the 45-story Morrison Hotel and 47-story Randolph Tower in Chicago and the Cathedral of Learning, which towers 42 stories over Bethlehem rival U.S. Steel's home town of Pittsburgh. Practically every historically important skyscraper in this era is built with Bethlehem Steel. [11]

In 1929, two business moguls, auto industry tycoon Walter Chrysler and banker George Ohrstrom, are in a race to build the tallest building in the world. Chrysler's tower will reach 808 feet, while Ohrstrom's 67-story skyscraper's height will be comparable, if not taller. Chrysler, though, wants to stretch even higher. Upon hearing rumors of Chrysler's intent, Ohrstrom makes the top of his building steeper and adds a steel cap, soaring it to 945 feet. As a rebuttal, Chrysler adds a 186-foot spire, making his now 1,046-foot art deco monument not

just the tallest building, but also the tallest manmade structure (surpassing the Eiffel Tower) on the planet. Neither magnate, though, surpasses the triumph of Bethlehem Steel, which owns the contracts to build *both* buildings. [12] America's cities are expanding explosively, and Bethlehem, the new forger of American Progress, is at the center of that explosion.

DELUSION: 2003 — 2006

For eight years, the Bethlehem Steel site has been virtually abandoned; everything remains standing, untouched and neglected. Various individual groups have attempted to create plans for a redevelopment of the site, including a previously strong, now-withered attempt at opening a National Museum of Industrial History onsite. A lack of unity and assertion has proven all attempts faulty in some way. In late 2003, however, a development group out of Philadelphia called the Delaware Valley Real Estate Investment Fund has financial interest in the former Bethlehem Steel site, with plans of demolishing the existing buildings for big box retail, namely a pristine parking lot and shopping mall. Progress threatens to strike again. Overnight, groups all over Bethlehem and the surrounding areas emerge to stop Delaware Valley Real Estate from destroying the site's integrity. These groups include the organization of concerned citizens called Save Our Steel (later Friends of the Steel), who begin to disseminate information about the site and its preservation citywide, and the Steelworkers' Archives, a group of former steelworkers who, a few years earlier, began a record of workers' stories and a collection of Bethlehem Steel artifacts. Both the Historic Bethlehem Partnership, which had been involved in the preservation and integration of the historic Moravian site across the river, and the Mid-Atlantic Regional Center for the Humanities based at Rutgers University-Camden, become

heavily involved in lobbying for the site's preservation.[13]

In January 2005, the Friends of the Steel compile a forum report defining six goals for the site decided on by members of the surrounding communities: "(1) preserving the buildings and the look and feel of the site, (2) integrating the redeveloped areas with the nearby neighborhoods, (3) creating mixed uses so the site is populated night and day, (4) making room for open space and pedestrian access, (5) providing innovative transportation facilities, and (6) welcoming sustained community involvement."[14] These ambitious goals take the forms of hundreds of different suggestions, including hiking and biking trails, a pedestrian bridge over the river connecting the divided communities of North and South Bethlehem, transportation hubs to New York and Philadelphia, the promised industrial history museum in Machine Shop #2 (which, at 300,000 square feet, was once largest machine shop in the world), and an arts facility to host the popular Bethlehem Musikfest and other cultural events. When all the plans are completed, the cost calculated and the time-span estimated, Bethlehem faces a project that will cost an unjustifiable $879 million and take up to 25 years to complete.[15] Caught up in fantastic hopes, the coalition had disregarded all probability and realism. Three years have been wasted on an impossible ambition, a delusion.

With nowhere near the public funds needed and no investors willing to take the gamble, the coalition of groups, calling themselves *BethWorks Now*, step aside to let the Community Action Development Corporation of Bethlehem (CADC-B), in cooperation with the city, and their Southside Vision 2014 take over.

VISION: 1931 – 1937

For years, Bethlehem has forged the steel for countless skyscrapers and bridges, but in 1931, with the purchase of the nation's largest steel fabricator McClintic-Marshall Corp. of Pottstown, it can now build and erect the steel it sells. And with the purchase of this new subsidiary, which is renamed the Fabricated Steel Construction division of Bethlehem Steel, the corporation also acquires all its contracts, including one visionary project that will eventually become the crown jewel of the Bethlehem portfolio.

Engineer Joseph Baerman Strauss stands looking out over the San Francisco Bay in 1931. His job is to design, plan, and oversee the construction of a bridge over the Golden Gate, a 6,400-foot wide chasm filled with 100-foot deep rushing water shore to shore. If he succeeds, he, along with his team of engineers, contractors, machines and laborers, all from Bethlehem Steel, will have created the largest bridge in the world's history. For years, he has fought back skepticism from peers and San Francisco residents, who constantly tell him that the $35 million projected cost and the mile-wide channel is simply too big, the water too deep. Even E.J. Harrington, the designer of the Dumbarton Bridge on the south end of the Bay, claims that no steel mill in existence can fabricate the massive pieces of steel needed for construction. But Strauss has a vision.

And Bethlehem Steel will realize that vision. Every single step in the process of construction is planned thoroughly and thoughtfully, so that no time will be wasted and no corners cut. Between 1933 and 1937, Bethlehem forges 68,000 tons of steel at its Bethlehem and Steelton plants. That steel is then transported by rail to Pottstown, where the Fabricated Steel Construction division fabricates the pieces and builds large sections of the bridge to make sure everything fits correctly. The fabricated

pieces are placed on the train again, this time to Philadelphia, where they are loaded onto ships. These ships then travel all the way around the continent, through the Panama Canal and up to San Francisco where the pieces are assembled.

By 1937, the construction, an unparalleled feat of American ingenuity, is completed, and from planning to completion, Bethlehem Steel has surpassed all expectations. The suspension bridge, spanning 4,200 feet between its two towers and 1,100 feet on either side, is not only the longest bridge in the world, but its 746-foot towers also make it the tallest structure in America west of New York City.[16] Immediately upon completion, the bridge is revered as an icon, and the city of Bethlehem, now an industrial icon itself, celebrates its triumph.

PLAN: 2002

During the planning of Southside Vision 2014, which extends far outside the Bethlehem Steel cite, the CADC-B receives numerous grants and donations from citizens as well as the state and federal governments. The plan is ambitious, costly and disjointed, focusing on seven major re-planning principles: (1) creating a strong open space network throughout the city, (2) commercial and retail improvements, (3) identifying and reusing abandoned parcels and buildings, (4) improving the Gateway Districts at the east and west ends of the South Bethlehem community, (5) improving parking, (6) deconversion programs aimed at lowering neighborhood density, and (7) encouraging home ownership, as opposed to renting, and home improvement.[17]

These principles form a plan that, due to its disjointedness, randomness and haste, truly lacks vision. In 2001, Bethlehem Steel goes bankrupt, and by 2002, this official plan is released. Only seven months of deliberation take place before releasing said

plan, and only 70 residents out of more than 30,000 on the South Side are interviewed about what they want to change—a very short time and a very low number for a redevelopment that could change the city for generations. The "vision" is hardly visionary, but rather schizophrenic, a reflection of Bethlehem's current and many dissociative identities. In overzealous haste to do *something* in the wake of Bethlehem Steel's bankruptcy, Mayor John Callahan and the city government are just procrastinating, keeping Bethlehem busy in hopes that this procrastination will produce success. But even the city and the well-known, well-respected CADC-B cannot garner enough public support to fund the project. With no large tax revenue base after the Steel's bankruptcy, the project threatens to be dead on arrival like *BethWorks*, its predecessor, until the news spreads that the Las Vegas Sands Corporation is looking to open its first east coast casino.

PRODUCTION: 1939 – 1945

Eugene Grace, current Chairman of the Bethlehem Steel Corporation, prepares to tee off at Saucon Valley Country Club's Old Course. Grace had been handpicked by Charles Schwab to take control of the company in 1916. With Schwab having paved the way, Grace led the company through America's involvement in World War I (providing defense armaments not only for the United States, but for its allies overseas), through a massive period of expansion during Bethlehem's skyscraper monopoly and through a construction and armament-forging drought during the Great Depression. Today, September 1, 1939, his vice presidents accompany him on the course. Right before he tees off, a caddy runs up to the group to tell them that World War II has begun. Grace immediately turns to his executives and says, "Gentlemen, we are going to make a lot of money."[18]

And they do. When Japan bombs Pearl Harbor in 1941, America is launched into its Second World War, and Bethlehem Steel resumes its role as the largest defense contractor for the American Armed Forces. During the American involvement in World War II, Bethlehem Steel builds more than 1,000 ships for the Allied Forces and produces 80 percent of the parts for nearly every American fighter plane, bomber, transports, patrol planes and naval attack aircrafts. It becomes the nation's largest source of ordnance, armor plating and artillery shells. The production grows so immense that the city of Bethlehem turns off the ever-shining Bethlehem Star as an attempt to prevent a possible Axis bombing of the plant. In 1943, Bethlehem Steel employs a record 283,735 workers nationwide, and by 1945, holds assets of $881 million, revenues of $1.1 billion, and has a net income of $35 million. Even greater than the tax revenue benefitting the city is the strength of the unity in the South Side community, and its pride in the steel it has forged.[19]

STAGNATION: 2009

"We like to say that not all casino resort properties are created equal and with its advantageous location, intriguing design, and its popular amenities…we think Sands Bethlehem will become the new standard against which other regional casino properties will be judged," proclaims Las Vegas Sands Chairman on the grand opening of his new casino-resort. (Figure 3) The date is June 2, 2009, and despite a "soft" opening two weeks prior, the ceremonial cutting, not of a ribbon but of a steel chain, marks this official grand opening. Pennsylvania Governor Edward G. Rendell and Bethlehem Mayor John B. Callahan are among the important figures in attendance.[20]

And the casino certainly is intriguing. The site on which it rests is the old abandoned

THE "VISION" IS HARDLY VISIONARY, BUT RATHER SCHIZOPHRENIC, A REFLECTION OF BETHLEHEM'S CURRENT AND MANY DISSOCIATIVE IDENTITIES.

Figure 3. *Sands Casino* [21]

Bethlehem Steel Mill, surrounded by dilapidated warehouses and foundries. Directly above the ceremony stretches an old Bethlehem Steel crane, an extremely imposing structure painted matte black, announcing to gamblers the context in which the resort is set. The design of the hotel and casino themselves are distinctly and purposefully non-Vegas. They are not bright or flashy or metallic. In fact, the buildings' features—gray reinforced concrete, pitched tin roofs, steel and glass framing, cookie-cutter windows—are unashamedly industrial. The five 20-story blast furnaces rise up in the background, highlighted by a cold, cobalt blue glow projected from the ground, a perfect backdrop for a post-industrial getaway. The old respectfully steps aside for the new.

But the design of this casino, along with its place in the town's fabric, only prolongs Bethlehem's already pronounced state of post-industrial limbo. The five volcanic blast furnaces have been inactive for nearly 15 years. Once the beating, howling, smoking hearts of Bethlehem, they now stand only as monuments for what once happened there. The town clings to its industrial heritage. The silhouettes of the furnaces can be seen everywhere in the city, not only on the mill grounds, but on announcements, posters, business ads, coffee shop logos and graffiti. Practically every dilapidated shed on the 120-acre site still stands, untouched out of fear that removing a building will remove Bethlehem's history.

DIRECTLY ABOVE THE CEREMONY STRETCHES AN OLD BETHLEHEM STEEL CRANE, AN EXTREMELY IMPOSING STRUCTURE PAINTED MATTE BLACK, ANNOUNCING TO GAMBLERS THE CONTEXT IN WHICH THE RESORT IS SET.

And the new casino provides a new tax revenue base required for the redevelopment initiative, but provides few other benefits to the community. In planning the casino, Mayor Callahan has made sure that the impact of the casino on the neighborhood is as neutral as possible. The casino owns the majority of the 120-plus acre former steel mill, but for the time being has agreed to leave it standing, planning the resort complex only between existing buildings.[22] It provides a base for tax revenue, but at a cost. Unlike Bethlehem Steel, it cannot expand its clientele, its production or its operations to directly benefit the community, nor will it last another 140 years. A drug, the Sands only prolongs the south side's loss of identity after the collapsing of the Steel, certainly preventing Bethlehem from dying, but also locking it into a state of economic stagnation.

COMMUNITY: 1945 — 1960

In the 1940s and 1950s the blast furnaces continue to blaze, and the community continues to grow as more and more immigrants pour into the Lehigh Valley. The South Bethlehem neighborhood is extremely diverse. From the buses to the Steel every morning to the central Bethlehem Market, where the wives and children of steelworkers go to buy farm produce and socialize, citizens of various ethnicities from various parts of the city live and work as one community. Each ethnicity—Russians, Slovaks, Slovenes, Wyndish, Hungarians, Sicilians, Neapolitans, Pennsylvania Germans, Mexicans, Puerto Ricans and Portuguese, to name a few—has its own religious domination and its own church. People often live in ethnically defined enclaves, but they are united under one great aspect: almost all of them work for Bethlehem Steel.[23] In 1943, over 30,000 men and women, more than half the city's

population, work at the Bethlehem plant. Eight-hour shifts run all day and all night. The sound of the hammers echoes loudly and constantly throughout the South Side, but the blue collar town knows that the smoke, soot and noise mean a good living, a happy family and food on the table. Inside the Steel, the workers face terrible conditions—extreme heat, cold, severe dust and dirt and grease—and though serious injuries and death are not prevalent, they are there. But out of these conditions emerge strong, proud men and women who understand their community, who understand each other, and who know that they are lucky to be in Bethlehem.[24]

THE RESULTANT IDENTITY OF THESE GATEWAY NEIGHBORHOODS IS JUST THAT: THE "FIRST-IMPRESSION" NEIGHBORHOODS ON THE EAST AND WEST SIDES ARE PROMOTED FOR THEIR DIVERSITY IN ORDER TO SET THE STAGE FOR THE COMING ATTRACTIONS.

FRAGMENTATION: 2013

By 2013, the Southside Vision 2014 is close to completion, and the results are as disjointed and confusing as the initial intent, due partly to the introduction of the casino, which had been absent from the original plan. The community of South Bethlehem residents is not dead, but it is becoming increasingly more displaced from its original home and culture. Without the Bethlehem Steel unifier, the neighborhoods become more divided, and the 1,000 low-wage, non-union jobs provided by the Sands do little to combat this. As a consequence of the hurried Vision 2014 plan, five distinct fragments, with their own distinct pocket cultures and identities, emerge out of the once cohesive community.

I. GATEWAY

The focus of Vision 2014 (Figure 4) on the two major gateways consists primarily of cosmetic rehabilitation for tourism purposes. As entrances into the South Side, the gateways, which are primarily residential as opposed to commercial, are being redeveloped in order to present a better first impression to tourists, gamblers, or just those passing through. The new Eastern Gateway is being designed by outside planning firms Project for Public Spaces (PPS) and Phillips Preiss Grygiel (PPG), based on feedback and suggestions from small retail (restaurants and shops), big businesses (e.g. Sands Casino and Resort) and residents, as well as their own design intuition. And after compiling testimonies and suggestions, the two groups and the city decide on a unified vision for the neighborhood: "The South Bethlehem Eastern Gateway will become an active, dynamic, lively public space that serves as a physical and programmatic hub of the City of Bethlehem."[26]

An embrace of facadism—a facelift for blank building walls, street crosswalks, sidewalks and homes—will realize this vision. Benches wrapped in landscaping, outdoor café seating and brick crosswalks are among the cosmetic upgrades that will be used to attract and welcome visitors. The public art and façade treatments on the buildings, like the mural "Directions in Perspective" by Port Richmond-based design group Amber, will embrace the history of Bethlehem as well as the neighborhood's dominant Hispanic population. Other design elements include creative signage pointing to areas of interest (Sands, Lehigh University, SteelStacks), more greenery on the sidewalks and encouragement of more elaborate storefront signage and lighting. In the end, the redevelopment will "create a place that becomes a local dining destination for visitors, employees, students and
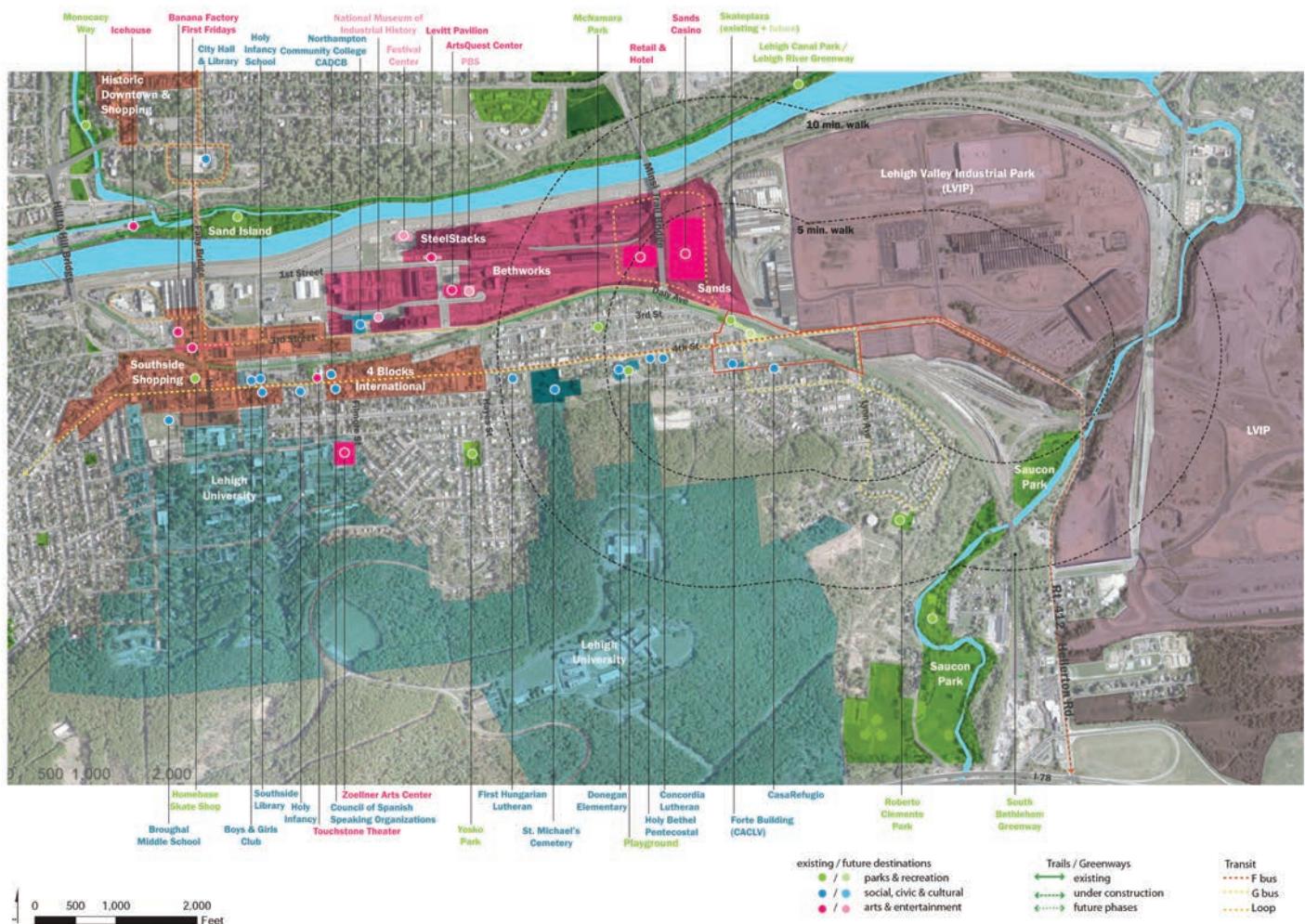
Neighbohood destinations in and around the Eastern Gateway District.

Figure 4. *Southside 2014 Vision Map* [25]

residents from other neighborhoods…and build on ethnic diversity in terms of dining and specialty retail."[27] The resultant identity of these gateway neighborhoods is just that: the "first-impression" neighborhoods on the east and west sides are promoted for their diversity in order to set the stage for the coming attractions.

II. CASINO

When the casino is opened in 2009, it garners a variety of reactions from the townspeople. Some embrace the new jobs it creates, some ruefully accept that this is the last decent option, and many vehemently oppose the casino, claiming that it is a short-term, unethical solution that will draw an outside crowd for the wrong reasons. The Bethlehem Sands is to compete with Atlantic City casinos, welcoming hoards of gamblers

from New Jersey and New York (just a 90-minute bus ride down I-78).[28] These nay-sayers fear Bethlehem will become a hub for organized vice, now simply catering to the cities it once helped build.

Empathizing with the concerns of the townspeople, the local government, Mayor Callahan in particular, does everything in its power to limit the cultural impact of the $800 million dollar casino and resort complex on the surrounding neighborhood.

This includes new zoning regulations: barring pawn shops, cash-checking vendors and adult entertainment stores within 5,000 feet of the casino. It includes widening roads to reduce traffic and upping the Bethlehem police force by a few officers each year. The results are positive; crime rate does not change dramatically, nor does traffic increase after a spike in congestion during the first couple weeks following the grand opening, and the surrounding area is free of the shadier retailers many anticipated.[29]

The result of these factors—out of town gamblers and new zoning regulations—along with the industrial, low-key design of the casino, is a completely neutral, isolated casino culture. The populations of this culture are the gamblers, the majority of whom come from out of state and stay only on the casino grounds, and the workers, who do not identify with their jobs as former steelworkers once did. Tax revenue and the prolonging of economic and cultural stagnation are essentially the only relations the casino and city share.

III. GENTRIFICATION ZONE

The Gentrification Zone, consisting of the 3rd and 4th Street shops on the blocks adjacent to New Street as well as the area around the blast furnaces (SteelStacks), is the main tourist attraction following the redevelopments after Bethlehem Steel's demise. Marketed by the city as a retail, arts and entertainment district, the redevelopment of this area focuses on general environment changes coupled with more cultural and social planned events.[30]

Cosmetic changes in the New Street area are limited mostly to the streets and sidewalks rather than the buildings themselves. Updates include strategically placed seating, planters and trees, as well as better lighting to encourage evening use. The city also has begun to more strictly enforce policies like property management

and garbage collection in order to keep the area updated and clean.[31] Redevelopment of the area around the blast furnaces has been much more extensive, made possible only through the tax revenues from the casino. At the base of the furnaces is a new, rarely utilized public square and green space circumscribing the Leavitt Pavilion, a stage for outdoor concerts and events. Also on the grounds is the arts and entertainment center ArtsQuest, a mixed-use venue containing a movie theater, shops and concessions, gallery space and event spaces. All these updates make up the SteelStacks complex, the crown jewel of Bethlehem's steel mill redevelopment.[32]

Figure 5. *Musikfest at SteelStacks* [33]

This Gentrification Zone is the center of Bethlehem's new brand of cultural events. First Fridays, Celticfest, Musikfest and gallery openings draw in the middle class from surrounding areas like Northampton, North Bethlehem and Allentown to have a genuine South Bethlehem experience—fairly generic art events to boost revenues. The local South Side population, typically of lower income, are mostly absent from these events, giving the Gentrification Zone a specifically tourist identity.

IV. UNIVERSITY

Lehigh University, built on the steep slopes of South Mountain, remains virtually absent from the South Side Vision 2014 plan despite its central location in the South Bethlehem community. Historically, Lehigh's extremely strong School of Engineering

was a feeder for management positions to Bethlehem Steel; the Steel's most profitable and influential president, Eugene Grace, graduated from Lehigh in 1899 and served as president of the board of trustees from 1924 to 1957. Much of the success and prestige of the engineering school stems from the influence of important Bethlehem Steel engineers like Grace and John Fritz, whose name is now attached to one of Lehigh's largest engineering labs. Donations from the Steel also helped to build up Lehigh's endowment.[34]

But with the absence of Bethlehem Steel, the school remains virtually disconnected from the surrounding community, other than occasional community service projects benefitting the area's children. The university retains its own student culture, with many students ignorant to the city's current dealings and its history.

V. NEGLECTED NEIGHBORHOODS

Almost entirely absent from the redevelopment plan is any attempt to integrate the larger residential areas on the western and southern ends of the hill into the new Bethlehem the city is attempting to create. The residents of these ethnically diverse neighborhoods, over 30 percent of whom have incomes below the poverty level and nearly 10 percent of whom are unemployed, remain alienated from the city's efforts to turn Bethlehem into a more tourist-friendly, welcoming place.[35] Vision 2014 makes little effort to help the residents of Bethlehem who are truly in need, instead focusing only on making these areas safer for outsiders by providing better, more pedestrian-friendly lighting conditions, and "encouraging home ownership and home improvement in all neighborhoods based on building conditions."[36] These generally poorer areas rarely benefit from the art and entertainment opportunities like Musikfest and First Fridays in which most of the

products and events cost money that the families can't spare. Their only saving grace is the Greenway, a tree-lined linear park tethering neighborhoods together, and the Skateplaza, a free and in fact nationally renowned skate park at the east end of the Greenway used heavily and enthusiastically by Bethlehem's large, growing community of skateboarders.[37] But even that is a pseudo-ploy to keep skateboarders out of the Gentrification Zone. The neglected neighborhoods retain their identity of post-industrial hardship.

LEGACY: 1970 – 2001

In 1970, U.S. Steel and Bethlehem Steel place competing bids on the contract to construct the new World Trade Center, two 1,300-foot towers designed by Minoru Yamasaki, in New York. After finding out that its $117 million bid undercut the U.S. Steel bid by $5 million, Bethlehem believes they have won the project, but instead, the Port Authority of New York and New Jersey splits the contract into 15 pieces, divvying them out to a consortium of smaller companies who integrate foreign steel and collectively underbid Bethlehem by $34 million. This sets a precedent; the years of one contractor large-scale building projects is over, and Bethlehem loses a contract it desperately needed.[38]

Despite 1979 being Bethlehem Steel's most profitable year ever, the 1980s mark the beginning of the Steel's inevitable decline in full swing. Due to overpaid executives, resistance of progress and innovation, and a massive pension plan it cannot even begin to pay, the corporation is slowly sliding deeper and deeper in debt. Unable to hook big contracts to make up for the losses, the Steel makes major layoffs in the mid 1980s to early 1990s, forcing the shutdown of six of its 11 plants, and by 1995, the company is down to 12,000 employees, whose production must profit enough to

THE HISTORY OF BETHLEHEM ENDS WITH BETHLEHEM STEEL, BUT AS BETHLEHEM CARRIES THE LEGACY OF ITS INDUSTRIAL PAST, THE QUESTION REMAINS AS TO WHETHER BETHLEHEM WILL LEARN FROM ITS PAST OR CARRY THE WEIGHT OF ITS INDUSTRIAL HERITAGE AS A BURDEN, REMAINING IN A STATE OF POST-INDUSTRIAL LIMBO.

provide pension support and benefits to 130,000 retirees. In 1995, the Bethlehem plant is forced to shut down, in 2001, Bethlehem Steel files for bankruptcy and in 2003, the International Steel Group buys the once industrial giant for $1.5 billion.[39]

The history of Bethlehem ends with Bethlehem Steel, but as Bethlehem carries the legacy of its industrial past, the question remains as to whether Bethlehem will learn from its past or carry the weight of its industrial heritage as a burden, remaining in a state of post-industrial limbo.

AUTOMOTIVE DESIGN

XIPHIAS PROJECT
James Suh

The Xiphias Project is an independent student effort to predict the evolution of performance automobiles in both their technical and creative elements. Our goal is to develop various engineering projects and integrate them into a professional-grade design package. I utilized Autodesk® Alias®, Adobe® Photoshop® and Luxion Keyshot® to create these realistic visual presentations. An interdisciplinary team of passionate undergraduate students were responsible for this project's high levels of sophistication and professionalism.

SPEAK NOW OR FOREVER HOLD YOUR RECEIPTS

Sarah Glickstein

My thesis entitled "Speak Now or Forever Hold Your Receipts," is an economic analysis of the wedding industry, including its impact on consumers as well as the global economy. Through an examination of both the United States and Indian wedding cultures, I seek to understand just how impactful this industry is in different nations. I also look at critical demand factors and how they are influenced in a cultural context, as well as how suppliers are responding to these changes in demand. This industry is growing and is largely untouched by economists, making this thesis an important beginning for future research.

ABSTRACT:

The wedding event has been redefined by global society as an industry, empire, complex and market. These categories, or titles, imply that there are new supply and demand forces composing this event. Simultaneous changes are occurring: the industry is growing, jobs are being created, and tastes, preferences and expectations are shifting. This dynamic time in the wedding industry means that there are significant factors underlying these changes, influenced in part due to the cultural phenomenon of conspicuous consumption. As an economist, this is an exciting field of study, one that is vibrant, fluctuating and reliant on consumer demand and industry supply. The goal of this thesis is therefore to examine this market from an economic point of view, attempting to understand what factors determine the demand for weddings in a particular society, how the demand is influenced by cultural factors and how suppliers are responding to these changes via business and occupational growth. It also serves to challenge traditional economic assumptions that tastes and preferences are held constant by providing anecdotes and comparative statistics from both the United States and India.

THIS DYNAMIC TIME IN THE WEDDING INDUSTRY MEANS THAT THERE ARE SIGNIFICANT FACTORS UNDERLYING THESE CHANGES, INFLUENCED IN PART DUE TO THE CULTURAL PHENOMENON OF CONSPICUOUS CONSUMPTION.

MY HISTORY:

I recently returned from a comparative study abroad program that consisted of three, separate five-week tours in India, Senegal and Argentina. At the beginning of the program, I was able to choose my own topic for a comparative analysis project to be completed throughout the semester. I sought to combine my passion for global studies with my interest in economics, and decided that global weddings would be an interesting mode of comparison between the three nations. I was lucky enough to be traveling to three different countries on three different continents, each with a unique colonial history, religion, language and culture, providing a wide net for comparative studies. Included in this comparison were vastly different wedding traditions: arranged marriage in India, polygamy in Senegal and modern westernization in Argentina.

I was fortunate enough to attend two Indian weddings as well as one wedding in a rural village in Senegal. Knowing that Indian weddings are known for their elaborate nature, I was honored to be a part of two large events. However, the idea of conspicuous consumption only became truly apparent to me during my travel to Senegal, where bride and groom's families spent well beyond their means via the barter system to achieve social mobility through a marriage. Using conspicuous consumption as the basis for my economic analysis, I was able to draft a preliminary paper outlining how wedding patterns could be seen as a microcosm of larger themes of inequality, class disparity and gender discrimination.

SUMMARY OF PREVIOUS INFORMATION:

The effect that a marriage has on income, educational achievement, social mobility and expenditure patterns has long been the subject of studies in sociology, anthropology and economics. Marital patterns are important because they have major implications for population growth, labor force participation, income, family contributions and resource allocation.[1] Typically, the wedding event was tied into these marital analyses, with the primary focus on a new distribution of resources between a bride and groom. There are many reports on marital statistics available to consumers, but the majority of sources do not discuss the wedding event as separate from marital outcomes. Sifting through

existing reports, it appears that in recent years wedding specific consumption patterns have begun to be analyzed. As this industry continues to gain global attention, it will most likely become the subject of expanded academic analysis.

In addition to marital information, scholars and academics have studied the role of the media as it has grown and become a globalizing influence. Marketing and advertising strategies, social media outlets and personal electronic devices aid in our mass transmission and sharing of information, which affects various aspects of everyday life. Media usage and influence has major effects on the tastes and preferences of typical consumers. It plays a large role in shaping consumer identities, including those consumers currently planning a wedding. I will expand upon existing studies on the media's sphere of influence over weddings in particular, focusing specifically on the way that tastes and preferences change in response to media stimulation.

The wedding industry is comprised of different sectors, which contribute to the overall execution of the event. These include but are not limited to: photographers, caterers, entertainment staff, wedding planners, dress makers/designers, printers, travel agents, florists and beauty suppliers. While some more recent businesses within these categories are created to cater exclusively to weddings, many of these sub-industries also cater to a large array of entertainment and event planning. It is relatively easy to access information on these separate players within the industry, which I will be discussing in the industry supply section. The difficulty comes when attempting to analyze how these individual players and broadly defined companies contribute to weddings specifically, and what fraction of their services should be considered in the analysis.

The last piece of existing information is the notion of conspicuous consumption. This term has been used to link the sociological and economic worlds together as a way to describe excessive monetary expenditures in order to display wealth and economic power. The flexibility of this term allows it to be applied in wedding-specific instances. It is evident that many consumers spend beyond their means to achieve higher statuses all over the world, using the wedding as an event to catapult their social mobility. However, to further expand on the idea of conspicuous consumption, it is important to change the significance based on geographical and historical contexts, as well as locate where the trail of expenditure starts and ends. I will connect conspicuous consumption to the wedding industry using existing evidence and public opinion of this term, while also attempting to challenge its original economic definition.

WEDDING EXPENDITURE

Wedding expenditures relative to income have been increasing dramatically over the last decade. "In a 2011 American wedding study, it was found that the average wedding dress cost $1,289. Only nine years earlier in 2002, the average wedding dress cost was $799."[2] This pattern holds true for the majority of aspects comprising the American wedding event, as there has been a clear spike in consumerism and expenditure patterns in recent years. Though difficult to measure, many wedding magazines and media sites attempt to calculate the average expenditure on weddings as a whole as well as on particular items as to aid in their pricing strategies.

As evident from Figure 1 on the average wedding expenditures as compared to disposable personal income as well as personal consumption expenditures, there have been waves of wedding expenditure increases and decreases from 1999 to 2013. Between 1999 and 2007, the average wedding expenditure increased over a range from $18,000 to $27,000. Between 2007 and 2008, wedding expenditures remained somewhat constant at an average of $27,294. There was again a brief decrease in expenditures in 2009 due to the economic recession, and then a pretty consistent range between $24,000 and $28,000, with the highest expenditure period this year in 2013.
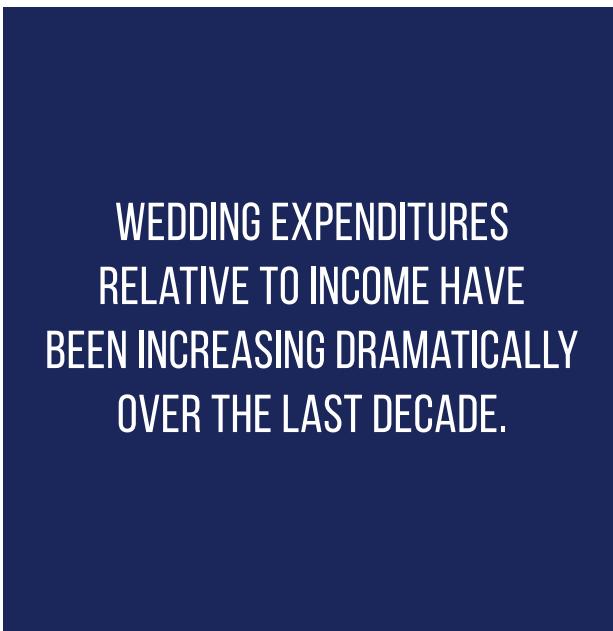
> WEDDING EXPENDITURES RELATIVE TO INCOME HAVE BEEN INCREASING DRAMATICALLY OVER THE LAST DECADE.

Source	Average Expenditure on Weddings	Disposable Personal Income - per capita (dollars)	Wedding Expenditure as a Percentage of Disposable Income	Year	Personal Consumption Expenditures - per capita (dollars)	Wedding Expenditure as a Percentage of Personal Consumption Expenditures
Parrish	$18,000	$24,356	74%	1999	22,707.00	79%
Sandusky	$20,000	$25,946	77%	2000	24,187.00	83%
Torpey	$27,000	$34,550	78%	2007	32,391.00	83%
Lesonsky	$28,750	$34,550	83%	2007	32,391.00	89%
Grant	$28,750	$34,550	83%	2007	32,391.00	89%
Ingraham	$27,852	$36,200	77%	2008	32,953.00	85%
Lesonsky	$21,810	$36,200	60%	2008	32,953.00	66%
Badgett	$29,624	$36,200	82%	2008	32,953.00	90%
Lenonsky	$19,580	$35,115	56%	2009	32,112.00	61%
Grant	$19,581	$35,115	56%	2009	32,112.00	61%
Lesonsky	$24,066	$36,090	67%	2010	33,074.00	73%
Jaeger	$26,984	$36,090	75%	2010	33,074.00	82%
Grant	$25,631	$37,035	69%	2011	34,363.00	75%
Jaeger	$27,021	$37,035	73%	2011	34,363.00	79%
Grant	$25,656	Unknown	Unknown	2012	Unknown	Unknown
Jaeger	$26,984	Unknown	Unknown	2012	Unknown	Unknown
Mohammad	$27,000	Unknown	Unknown	2012	Unknown	Unknown
The Week Staff	$28,427	Unknown	Unknown	2013	Unknown	Unknown

Figure 1. *Average Expenditure on Weddings from 1999-2013, Compared with Disposable Personal Income and Personal Consumption Expenditures* [3]

The average wedding expenditure appears to be between 56% and 83% of average disposable income per capita, and between 61% and 90% of personal consumption expenditure. Wedding expenditure is on average 72% of average disposable income and roughly 78% of personal consumption expenditure. Wedding expenditures, though occurring less often than other personal expenditures on goods and services, are still significant majorities of disposable income, and are therefore important to consider in economic demand analyses.

Many aspects of the wedding event itself are separated by media companies in terms of average expenditure. For example, the small business section of Fox News reported the average cost of a wedding from 2007 to 2010 to demonstrate the impact of the recession on the market.[4] In another example, The Knot, as part of the Wedding Channel, disclosed an advertisement with a price tag for each aspect of the wedding: $12,116 for the reception venue, $1,078 for the rehearsal dinner, and $3,122 for the reception band, for example.[5]

On a more national scale, the United States Bridal Industry as a whole estimates consumer expenditure aggregates in the billions of dollars. Though Figure 2 presents a variable range from $38 to $86 billion, it does suggest the size and scale of the US industry as a whole, implying that the industry has the capacity to grow as the number of marriages performed each year increases. According to the Wedding Report, a site devoted to statistical analyses and market research of the wedding industry, the US industry's total sale in weddings was $54,339,300 and is expected to climb to $56,340,700 in 2014.[6] Though this site is unattainable to the public without a hefty membership fee, it does provide statistics

that fall within our predicted range. If we take this estimate, roughly $55 million dollars, and divide it by the current US GDP, we find that the wedding industry only comprises 0.00035% of GDP. To understand the significance of this, we can compare the wedding industry to other industries that generate a national income. For example, in 2000 the US mining industry estimated an average national income without capital consumption adjustment of $84,400,000,000. That is 0.538% of GDP.[7] Another comparison can be made to the restaurant industry. The National Restaurant Association estimated that the US restaurant industry made $660,000,000,000 in sales in 2013, or roughly 4.2% of GDP.[8]

As a contrast, India's bridal industry shows excessive wedding expenditure, and academics and scholars have begun to study its impact on economic growth and class differentiation. In 2005, Dr. Jyotsna Kapur, a Professor at Northwestern University reported that "the minimum budget for a middle class wedding is now 34,000 rupees while the upper middle and rich classes are known to spend upward of 2 million rupees, not including cash and valuables given as part of a dowry."[9] Excessive spending, as defined as spending beyond available liquid income, continues to increase as the wedding industry grows and gains a popular following. The rate of growth for Indian wedding expenditure is estimated at 25 percent per year, with banks now offering wedding loans to many families.[10] Many in Indian families feel that a daughter's marriage is one of the most costly events in their life cycle, "often driving parents into severe debt at interest rates of over 200 percent."[11] In many instances, marriage and wedding expenses in India are measured as a percentage of annual income, indicating its severe influence on expenditure patterns and decisions.[12] According to Bloch's study, "marriage expenses average over

5,000 rupees, which is about a third of the annual income of an average family."[13] The dowry payment is around half of total wedding expenses, financially indicating its importance in the overall wedding consumption event.

As a global phenomenon, the average expenditure on weddings is in the hundreds of billions. In 2007, global aggregate wedding expenditures were estimated to be $161 billion.[14] In 2011, that number grew to $321 billion.[15] The demand for weddings is growing across the world, not just in the United States and India. As it continues to grow, economists need to identify trends in this industry that are often underreported and grouped together with other personal consumer expenditures. These trends may give way to a greater understanding of class inequality, debt and consumer behavior as well as provide a rich ground

for international comparative studies in the field of economics.

There are two patterns that are evident in wedding expenditures that need to be considered throughout this analysis. The first is that in recent years, wedding expenditures have been increasing in both the United States and India. This is caused by a major shift in the demand for weddings. The other important trend has to do with the income elasticity of demand. An analysis on wedding websites and bridal magazines claimed, "Spending on weddings is consistent no matter the condition of the economy," and later enforced, "Wedding ceremonies seem to be a consistent ritual in our culture regardless of the recent economic recession."[16] It is clear that there has been a big increase in demand relative to income with respect to the wedding industry. Though income has a large effect

Aggregate Expenditure on Weddings	Number of Marriages Performed Each Year	Source	Year
Unknown	2,450,000	Ingraham	1994
$38 to $42 billion	Unknown	Parrish	1999
$45 billion	2,400,000	Sandusky	2000
$50 billion	5,000,000	"Wedding & Honeymoon Statistics"	2005
$86 billion	2,160,000	Terrell	2006
$86 billion	2,197,000	Terrell	2007
Unknown	2,300,000	Ingraham	2008
$86 billion	2,077,000	Terrell	2008
$50 to $70 billion	2,400,000	Engstrom	2011
$40 billion	2,500,000	Mohammad	2012

Figure 2. *United States Bridal Industry*

on the demand, there are many other factors that must be considered. If the demand increases relative to income, we would have to look for other truths.

DEMAND: CRITICAL FACTORS TO CONSIDER

There are many factors that are critical to consider in evaluating the demand for weddings. In general, these factors typically fall into the category of determinants of tastes and preferences. Usually, when economists talk about a market for a product, tastes and preferences are assumed to be given and held constant in economic models. However, the wedding industry appears to be a market where changes over time and across geographic and cultural space make it difficult to maintain this assumption.

THE MEDIA IN THE UNITED STATES

Wedding-specific media has taken on the interesting role of shaping consumer identity and consumption patterns in the United States. At the same time, the desire to plan a perfect wedding creates demand for this type of media to continue to grow. Many of these sites, tools, magazines and television shows document previous wedding experiences, hoping to inspire audiences to achieve similar ideals. Bridal and women's magazines, for example "condition women to the popular representations of femininity and shape common sense about the consumption needed to imitate this imagery."[17] The media works in this way to influence consumer wants and anticipations for their wedding day. Over the years, this has developed into "popular wedding consumer culture," which emphasizes the role of consumption as a part of the wedding event.[18]

Creative marketing tactics are often employed and play a role in influencing these consumer decisions. Celebrity

WEDDING-SPECIFIC MEDIA HAS TAKEN ON THE INTERESTING ROLE OF SHAPING CONSUMER IDENTITY AND CONSUMPTION PATTERNS IN THE UNITED STATES.

weddings as featured in popular media sources, for example, demonstrate an ideal that is widely accessible to fans and the general public via global communication and networking. Bridal magazines use a number of "inclusion strategies," such as displaying photos of working brides and mixed families, to "generate the sense of a shared commonality among those currently planning their wedding."[19] The media seeks to make brides feel that they are a part of a larger community, and can therefore take control over their wedding event with support from the hundreds of other brides going through the same process. The media has the ability to make brides feel that they have control over their wedding image and experience, while ironically shaping their demand through displays of seemingly perfect photos and décor. This tactic influences expenditure, and that expenditure leads to a booming business.

There is money to be made in the wedding-media market. TheManRegistry.com, for example, "is an online resource for a grooms and is the Internet leader in

wedding tips and wedding advice for grooms."[20] Chris Easer, the CEO and founder of TheManRegistry.com, reported that his company experienced a profit growth of 300% in 2009, with new registrants growing at about 75% a year.[21] Pinterest, another popular site, received more than 30 million visitors in one month, with two out of the ten most popular boards as wedding-related.[22] Wedding pages on this site have millions of followers and represent 4.9% of popular pins. The social media explosion in general has changed consumption patterns: 78% more brides and grooms have used social media to communicate wedding details since 2008, 40% more sent out invitations online and 23% more set up personal wedding websites.[23] Beyond individual social media and consumer sites, companies within the wedding industry have been reporting findings and statistics to the general public to stir up consumer behavior. The Knot, a branch of The Wedding Channel, has a large consumer ad with each aspect of the 'typical' wedding defined by the average

price, placing emphasis on the quantitative value of wedding components.[24] For example, invitations are cited as costing $331, a videographer $1486 and catering at an average of $61 per head.[25] The wedding media market that is catered to consumers has grown with an increased use of accessible technology.

The wedding event itself has become a "mainstay of American popular and consumer culture," largely due to the media's display of wealth that encourages conspicuous consumption.[26] There is a mass emphasis to customize weddings, from gowns to design halls to jewelry. While the media wants couples to feel a part of a larger net of newlyweds, they also encourage individualized attention to detail – an example of the media's ability to display two opposing trends. A similar mixed message is that the media promotes both saving and spending money: overstating the importance of certain wedding items as obligatory, regardless of income or class.[27]

CONSUMER IDENTITY IN THE UNITED STATES

Consumer consumption patterns, which are heavily influenced by the mass media, have changed over time and are different based on cultural and geographic context. It is evident that there is a "new way of looking at a wedding" by a specific "study of consumption [and] commodification."[28] The focus has shifted toward viewing 'the wedding' as an entity that is produced and consumed as a whole.[29] Defining an event, or product, as such indicates that there is a newly associated consumer identity.

The media publicizes new terms to describe these "wedding-consumers" that have become mainstream labels. There is a concept of a "superbride," indicating that the bride is both a rational project manager as well as a seemingly childish fantasizer.[30] Media industries, and television specifically, have also coined the term "Bridezilla," encouraging irrational spending behavior as to increase wedding-related companies' profits.[31] The media's use of these labels creates self-identifying consumers

who have new pressures to consume. Brides are spending more, and in areas that they save, they may "create the appearance of having spent more money, no matter what their social class," relating again to the discussion of conspicuous consumption.[32]

Consumers in the United States are not just spending excessively on weddings. The typical funeral in the US costs around $10,000.[33] Bar and Bat Mitzvahs run around $100 - $200 dollars per guest, and are estimated around $10,000 as well.[34] For events and holidays that occur more frequently than these, with Christmas as an example, American consumers are expected to spend around $700 on gifts, of course dependent on family size and income.[35] Weddings as a life-event tend to be more expenditure-heavy than funerals and bar/bat mitzvahs, which serve as examples of two important life-events. In fact, weddings are more than double the average $10,000 spending for these two events. While all major events influence some level of conspicuous consumption, the wedding event seems to require the most excessive type of expenditure.

Many would argue that this type of excessive expenditure for a one-time event and reshaping of the wedding-consumer identity is ruining the true and traditional meaning of the wedding. Why "are Americans willing to spend seven and [a] half months' salary for a wedding day that lasts roughly five and a half hours?"[36] Perhaps consumers give in to this marketing pull because the wedding industry is selling fantasy to a large and growing audience. The pressure to conform to elite ideals while also asserting independence remains a profitable strategy for the media, but may dramatically shift consumer confidence and could create excess expenditure.[37]

INDIAN WEDDING CULTURE HAS BEEN HEAVILY INFLUENCED WITH THE RECENT INFLUX OF WEDDING CULTURE ON THE BOLLYWOOD CINEMA INDUSTRY.

GENDER AND DEMOGRAPHIC CHANGES IN THE UNITED STATES

In shaping consumer identity, gender norms are experienced and formalized. The focus of most wedding media analysis is on brides, who must conform to the media's ideals of femininity and societal pressures. Economist Robert H. Frank poses an interesting question: "why do brides spend so much money on wedding dresses, whereas grooms often rent cheap tuxedos?"[38] While there is no concrete answer to this question, it may hold true that appearance is more important for women than for men, as defined by their new consumer identities and influenced by popular media. Traditional gender roles as well as demographic changes are important to consider when analyzing the wedding industry, as they are specific to historical time period as well as cultural history.

The media plays a part in influencing traditional gender roles, where the man is the depicted financial provider and the women as the spender. This could change, however, as the average age when the American couple gets married is climbing: it was around 20 in the 1950s, but now averages about 26.[39] There is also a trend of second marriages later in the life cycle. In 2002, couples who were 55 and older made up only 8% of the wedding business and appeared to double by 2011.[40] Older couples tend to be more financially stable, and therefore more able and willing to spend money on wedding-related events. Older couples have been reported to spend about 10 to 15% more on their wedding than their younger counterparts.[41] David's Bridal, a bridal dress store, reports similarly that business from older couples doubled in the past two years, and expects that trend to continue to grow.[42] Kleinfelds, another popular and recently televised dress store, concurred that older clients' expenditure rates were on average $3,000 more per dress

than younger couples.[43] As demographics continue to change gender norms and expectations associated with wedding day expenditures, consumer expenditure patterns and demands will continue to change as a result. These changes can have major implications for the demand for weddings and wedding components.

CONTRAST WITH DEMAND IN INDIA

Indian wedding culture has been heavily influenced with the recent influx of wedding culture on the Bollywood cinema industry. The media has capitalized on celebrity weddings and upper caste weddings as showcasing the ideal Indian image. As the media's influence circulates with more ease around the world, members of lower castes are more eager to appear like their upper caste counterparts, many times spending beyond their means to achieve or appear to have a higher status. More so than in the United States, this excess expenditure has a large impact on future debt and poverty for many Indian residents. The role that gender norms play in India is also an important consideration, as the role of the dowry influences familial expenditure and increases the financial burden on families with daughters to become brides. As a more global picture, the association of a financial burden with females throughout the long history of Indian culture may change the gender expectations, relations and treatment of Indian women.

MEDIA IN INDIA

"In the last decade of the 20th century, coinciding with India's economic deregulation, the Hindu wedding became a core attraction in popular Indian cinema."[44] As a result of India's neoliberal turn, weddings in India have become more elaborate, with once informal economic workings becoming professional and commodified. Indian media has transformed

the wedding industry from the informal economy to the mainstream economy. Coining the term 'Bollywoodized' in recent years, the Indian media is able to invent rituals that are mediated by advertising and popular cinema.[45]

Like the United States, India has had an increase in various social media outlets in the wedding industry. One popular site, IndianWeddingSite.com, encourages clients to view Bollywood films for inspiration as future wedding packages include Bollywood-like elements.[46] This has allowed a Bollywood influence to enter into the world of Indian weddings. Though the wedding industry in India is still largely unorganized due to this new media and recent technological leap forward, Diivyaa Gurwaara, CEO of Bridal Asia, believes "there's going to be a big boom in the wedding industry in the sub-continent," and that the media is ready to capture the trend.[47] In my experience, it was easy to observe advertisements and billboards on every major highway in Delhi advertising different wedding services. The media's observable impact in Delhi was greater than its marketing in Ahmedabad, for example, which is a much smaller city. The more condensed the city, the greater the influx of advertisements and marketing strategies, most likely due to the overflow of wedding-related resources in heavily urbanized areas.

In Senegal, I had the opportunity to go to my host brother's house who worked at the US Embassy. He lived a very lavish lifestyle due to his connections with the wealthy elite of the country in Dakar, the capital. Because of his lifestyle, he was able to afford a large screen television and many cable channels, including more than one station for international news and advertisements. While sitting on his couch in downtown Dakar and flipping through television stations, I came across an Indian bridal services advertisement. The commercial

was advertising beauty services for brides in Dakar with an Indian influence, as portrayed through various images of Indian weddings. At this moment, I was able to experience the impact of the global wedding consumer industry in India from a different continent, and how that industry is spreading to influence similar wedding consumption in other countries. In both the United States as well as India, wedding-related media is beginning to spread globally, increasing the demand for similar services in other countries.

CONSUMER IDENTITY IN INDIA

One of the ways that Indian consumer identity is different than the United States is the way that it is shaped through interaction. In India, the tradition of arranged marriages as set up through the parents of eligible brides and grooms is very much alive, even in dynamic and more modern cities. In the United States, young adults can interact in many different types of environments, as many people move out of their parents' house after their academic careers. In India, the majority of similarly aged young adults stay in their parent's house until they are married, and many times move in with the parents of the groom thereafter. Amongst Indian relationships, those who are breaking traditional norms are the ones who partake in love marriages over arranged marriages. One of the only ways that young people can meet each other in Delhi is in an occupational setting, away from family and caste influence over traditional interaction. However according to Chandeshekhar, my Indian host brother, the inequality that exists in India's workforce means that people of a similar socioeconomic status will be working in particular environments, thus limiting who has the potential to be in a love marriage.[48]

Familiar pressures within the Indian caste system dictate how many people should be invited to a wedding, what type of clothing and accessories must be purchased, and how extravagant the event should be. The wedding as a life event is a direct reflection of a family's power and wealth as seen by others, creating pressure on the bride and groom to maintain their respective family's image. In many instances, love through a marriage is seen as a "political deal" between different families to ensure social mobility, caste maintenance and economic success.[49] The consumer identity, therefore, is largely shaped through familial, cultural and caste influence. The media's role is therefore not only to influence the individual consumer as many times the individual consumer is not the only one making the financial decision of a wedding. The media must work to create a culture and mindset of expenditure for an entire family, impacting the ideal images of all members of Indian society that must be lived up to.

GENDER NORMS IN INDIA

Beyond the sphere of familial influence over wedding-related choices is the important and changing role that women have in their expenditure and marital decisions. There is a constant pressure to maintain a traditional Indian image while also creating a lavish affair. Part of this tradition is the maintenance of women's beauty standards as well as the use of the dowry to secure a financially stable partner.

According to Mrs. Armait Dastoor who owns a beauty salon in India, the advertising side of the wedding industry plays into the fact that people "want what they cannot have," creating beauty trends to be desired.[50] The beauty industry in Delhi capitalizes on this desire, marketing and catering their services to consumers who wish to enhance their personal image. Many traditional Hindu women spend the equivalent of hundreds of dollars to achieve a bridal look, many times coming in for treatments months before the actual wedding event.[51] It is expected that the bride wear a certain amount of makeup, jewelry and attire at the event. In some instances, women fast for the entire wedding day out of respect for their husbands and families, and those who do not have pierced noses feel compelled to pierce them on their wedding day as a sign of good fortune. The Indian beauty and familial expectations put in place for brides on their wedding day are important to consider as shaping gender norms and therefore shaping gendered-consumer identities.

Another important piece of female Indian gender norms is the concept of the dowry. The dowry is a transfer payment that families of the bride must pay to families of the groom before the wedding is to take place. "A daughter's marriage is the most costly event in the life of an Indian family, often driving parents into severe debt at interest rates of over 200 percent."[52] This economic burden is a potential cause of gender discrimination and domestic violence in India.[53] Traditionally, dowries were "driven by competition for scarce men and by the quality of grooms," but are many times more symbolic in nature.[54] The existence of such an expense is largely engrained in the Indian culture and caste systems, and creates demand expectations for families and brides that are not present in the United States.

On a more optimistic note, the Bollywood culture not only redefines consumption patterns, but also produces a "re-enactment of patriarchal and caste-based identities."[55] The media is changing and challenging traditional gender roles and social statuses in Indian society. In many urban centers in India, especially the overpopulated capital Delhi, women are experiencing a new role as consumers. Given the increased presence of "love marriages" in Delhi, women are given a new role in choosing their partner and being

involved in wedding-related decisions. The challenge is to "package and present oneself as a globalized Indian who flamboyantly embraces 'tradition' as a matter of choice."[56] Given this new role and opportunity for women to act as consumers, new patterns of expenditure may result due to a new market of consumer demand.

DEMAND SUMMARY:
THE UNITED STATES AND INDIA

The Bollywood cinema market in India has transformed the previously informal Indian wedding into a spectacular consumption event. The majority of changes in the demand for Indian weddings stems from the Bollywood industry, while the changes in the United States stem from a variety of social media outlets: television, the Internet, and wedding magazines. Regardless of the origins of media's influence, both hemispheres of the world have experienced a dramatic change in tastes and preferences with regards to the demand for wedding consumption. As the media's sphere of influenced becomes more global in nature, the interplay of social media, advertisements and cinema will intertwine to influence a wider net of consumers.

The role of the bride in the United States and India is an important component of demand to consider as influenced by larger societal gender norms and expectations. In the United States, brides for the most part are very much in control of wedding expenditure decisions, making them huge players in the demand side of the wedding industry. In India, women are often under the umbrella of familial influence and must abide by traditional caste values and high standards of beauty. Though Indian women are gaining influence over their roles as wedding consumers, they are still largely sheltered from many more decisions than American brides.

BEYOND THE SPHERE OF FAMILIAL INFLUENCE OVER WEDDING-RELATED CHOICES IS THE IMPORTANT AND CHANGING ROLE THAT WOMEN HAVE IN THEIR EXPENDITURE AND MARITAL DECISIONS.

Consumer identities have been largely shaped by the media as well as gender norms in both the United States and Indian wedding markets. The media has worked to promote new definitions of consumer and gender-specific identities that influence expenditure patterns on wedding events. These factors are important components of the demand side for weddings as they explain the various players and influences affecting important monetary decisions.

DRAWING & PAINTING

UNTITLED
Hannah Han

This painting was for an independent study painting class with Professor Boothe. The medium I chose was oil paint on wood panel.

UNTITLED
Jaclyn Sands

This piece was created for Art 297: The Elasticity of Perception and Form, taught by Professor Berrisford Boothe. For this assignment, the class studied several artists, then each student chose one to emulate while preparing pieces for a gallery installation that took place this semester. This piece was inspired by the work of artist Judy Pfaff, who creates organic cut-paper collages.

CLOUDSCAPE
Savannah Boylan

This piece titled *Cloudscape* was painted during a "Painting II" course. The piece seeks to explore the grandeur of the sky. It is an oil impasto on wooden panel.

UNTITLED
Hannah Han

This sketch was for an independent study painting class with Professor Boothe. The medium I chose was acrylic on mylar.

ARCHITECTURE AS BOTH A BOOK AND AN AUTHOR

A COMPARISON OF REVIVAL GOTHIC TO MEDIEVAL GOTHIC ARCHITECTURE

Jamie Hudson

Architecture can play both passive and active roles in shaping society. For example, twelfth-century cultural beliefs coupled with technological advancements of the time drove the creation of the Gothic architectural style, while in the nineteenth century, the same style of architecture was used to influence culture and actively attempt to bring back the beliefs that the style once represented. An examination of the motives behind the creation of Medieval Gothic architecture and Revival Gothic architecture, this paper explores the different roles that architecture can play in shaping and recording history.

Architecture is not just a form of shelter. Through the years it can be seen as a book narrating the nations, cultures and societal changes that occur around it. It can also be seen as an author, affecting and sometimes creating cultural changes of its own accord. Gothic architecture is a style that has two forms. The first, Medieval Gothic architecture, narrates these changes through the architectural style that was produced in the period, while the second, Gothic Revival architecture, dictated the societal change that brought the style back to relevance. Medieval Gothic architecture rose from Romanesque architecture as something completely new and challenged the ideas of the time. It was not a planned structural form, but one that followed an idea that formed a building style around it. The Gothic Revival was not a new type of architectural style, but an idea that was brought about by and utilized the Gothic architectural form. During this period, architecture—instead of being designed by an idea born of societal change as Medieval Gothic architecture had been—became in itself a tool for societal change. The role of buildings and structural style became more highly regarded and was recognized as an important part of a culture and its ideals. It held the idea that a structure reminiscent of a better time could bring the morals and culture of that time into the present. Medieval Gothic architecture shows the mark that society can leave on architecture, while Gothic Revival architecture shows the mark that architecture can leave on society.

When one thinks of Gothic architecture, one's mind immediately jumps to churches and abbeys, immense in their verticality, with skeletal walls that are nearly nonexistent and filled with stained glass windows. One imagines the pointed arches, flying buttresses and delicate stonework rising to the heavens in sharp spires. However, the form of this architecture takes

DURING THIS PERIOD, ARCHITECTURE—INSTEAD OF BEING DESIGNED BY AN IDEA BORN OF SOCIETAL CHANGE AS MEDIEVAL GOTHIC ARCHITECTURE HAD BEEN—BECAME IN ITSELF A TOOL FOR SOCIETAL CHANGE.

its shape not necessarily because that was the way the architect wanted it to look, but because of the technology that would allow his goals and ideas, specifically about art in monasteries, to be reached. The origin of the architectural style now termed "Gothic" is often attributed to Abbot Suger of the Abbey of St. Denis, located in what is now present-day Paris, France. Installed as Abbot in 1122, Suger addressed the ongoing controversy of monastic art through the renovations he made to his Abbey. Suger's time period marked one of the greatest periods of the growth of Western medieval art and architecture, and also one of greatest oppositions to this same artistic advancement. Monasticism was responsible for much of the production of art at this time. The use of artwork in monasticism was not based on doctrine but almost wholly on tradition. Church tradition allowed the use of art to commemorate and honor God and

the saints; however, it rejected the use of precious materials or other marks of luxury. There were concerns that there would be "luxury as opposed to the suppression of the senses, materialism as opposed to spirituality and/or cost as opposed to simplicity and involuntary poverty."[2] In *Apologia ad Guillelmum*, Bernard of Angers wrote critically about monastic art saying that it could lead to "ritualism, materialism, dilution of monastic seclusion and cause spiritual distraction."[3] Suger was to counter this argument in his renovations of St. Denis and in doing so, create the incredible architecture that we now know as Gothic.

Suger's justification for his art was that there was a reciprocal relationship between the celestial and terrestrial. In his publication, *De Consecratione*, he explained: "it is necessary to proclaim God's generosity. This is essentially the returning to God of a part of what God has already given; and

one of the best ways of doing this is through art, particularly through the most precious materials possible."[4] On the door of St. Denis is the inscription:

> *Whosoever seeks to extol the glory of these doors, admire the craftsmanship, and not the gold or expense. The noble work is bright, but a work that is nobly bright should brighten minds, so that they may pass through…to the true light, where Christ is the true door…The dull mind rises to the truth through material things, and having seen this light arises from its former submission.[5]*

Suger's main focus of art in his abbey was the use of light, stemming from Dionysian writings. Use of light would become the driving force behind the architecture and structure of the building, and is the distinguishing factor that sets Gothic architecture apart from other styles both aesthetically and theologically. He agrees with Hugh of St. Victor, who writes of light in *De Sacramentis*, saying simply, "God is light."[6] Suger's goal was to reduce the matter of walls as much as possible so as to make them transparent and let in God's light.

The architectural aesthetic of St. Denis came secondary to the desire for more light and more dazzling expanses of stained glass. A skeletal structure was devised using the technology that would best allow the walls to become as thin and transparent as possible. Because of this, Suger's design of the structure can be thought of as nothing less than a practical approach to achieving his desired aesthetic. The pointed arch that is characteristic of Gothic architecture was used simply to satisfy the geometry of the vaulting. The vault rib allows the vault to be thinner and lighter and allows ease of construction.[7] A ribbed vault with pointed arches is more effective than a barrel vault, because the load of the vault is concentrated through the ribs onto piers at the corners, which can then be buttressed. This allows the walls under the vaulting to be replaced by glass. The main buttresses are pushed away from the walls of the nave in order to prevent shadow across the windows, and loads were transferred from the piers to the buttresses through small arches, now called flying buttresses. This practicality in structural design in combination with the emphasis on light created a graceful, almost skeletal architecture that was different from any seen before. A goal was set by Suger's ideas: to allow as much light as possible through the walls of the sacred space in order to be closer to God and transcend from a world of materiality to immateriality. This goal could only be achieved with certain techniques, which now define the Gothic architectural style. However, as Abbot Suger's St. Denis shows, it was not the actual building that defined the style, but the culture and ideals behind it that created the form.

Gothic architecture was termed as such in 1550, by Italian architect and painter Giorgio Vasari, who believed the Gothic style to be barbaric when compared to the classical style of the Roman Empire and the architecture of the Renaissance.[8] He associated the style to the Goths who, in his view, had been barbarian hoards that had invaded the shattered remains of the Roman Empire from the north and brought it to its end. Although the architecture had little to do with the Goths, Suger's style and the Teutonic race were forever linked by its new name. This led to a number of associations with this ethnic group during

> **WHILE PUGIN'S ARCHITECTURE MAY NOT HAVE IN ITSELF BROUGHT ABOUT CHANGE IN THE SOCIETY, HIS IDEA THAT A BUILDING COULD HAVE THE POWER TO INSPIRE SOCIETAL CHANGE IS ONE THAT TOOK HOLD AND EXPANDED THE GOTHIC REVIVAL.**

its use throughout the early Gothic Revival period along with its associations with the Middle Ages in general. The Gothic Revival displayed the use of a structure to create an idea, rather than the use of an idea to create a structure as Suger had done. During the very early revival period in the eighteenth century, Gothic ideals and architecture were used as a political tool, especially during war and rebellion. To the people of northern Europe, the Goths had not been mere barbarians, but were remembered as a "young and vigorous people opposing the empire which is moribund and corrupt." [9] This view was drawn from the sixth century work of Jordanes, the *Getica*, in which the Goths were said to have invaded the Roman Empire because of their love of liberty; they wanted to see the end of the Roman corruption and decadence, and would rather die than be enslaved by such a government.[10] They were said to be a warrior race that was nevertheless pure, with strong morals and an almost democratic system. In this way, Gothic buildings were a symbol the ideals of liberty and purity, and could be used to give heart to those taking part in rebellion.

Gothic Revival architecture did not reach its height as an object of social change until the mid 1800s when a man, Augustus Welby Northmore Pugin, brought it forward as a symbol of religious and moral purity. In his book, written in 1836, *Contrasts: or A Parallel between the Noble Edifices of the Middle Ages and Corresponding Buildings of the Present Day*, Pugin wrote that Gothic architecture is uniquely Christian, and embodies all of the beliefs of the society that produced it: all of the beliefs that were lacking in nineteenth century society.[11] It was, to him, "a sacred style infused with inner truth, an architecture that did not merely evoke 'pleasing associations,' but that embodied in its very fabric, a metaphysical, divine reality."[12] Here again was the idea that the architectural style in itself could create

social change. Pugin would work tirelessly to recreate the Medieval Gothic architecture in its purest form in order to also purify the morals and culture of his time.

In his book, Pugin contrasted the architecture and society of the Middle Ages to those of the nineteenth century. He depicted the oneness of Medieval culture, and the fractured culture of his day. He displayed the stark contrast between the splendid architecture and kind religious community of the Middle Ages and the brutal utilitarianism of a modern workhouse in *Contrasted Residences of the Poor*. He showed that "not just a style has gone, but a whole faith, a whole world," and it was his goal to bring that world back.[13] Pugin viewed the recent uses of Gothic architecture as false and insulting to the purity of its form. He wrote, "in these copying days…it is something to have an architect who has thoroughly studied the style in which he is to build that he can copy it correctly, and his buildings have not only the general form, but really the meaning and some of the spirit of the ancient ones."[14] Pugin concentrated on the details of the architecture, not just on the forms but also on their justification. He did not allow the design to stray from the necessary. In *True Principles of Pointed or Christian Architecture*, he gave direction as to how to recreate Gothic architecture. He viewed decoration and construction to be interchangeable, proclaiming, "all ornament should consist of the essential construction of the building…[Gothic architecture] does not conceal her construction but beautifies it."[15] As his buildings were to shape society, Pugin was concerned that the building should be legible to the people who use it and illustrative of its purpose. The smallest detail needed to have a purpose as, to Pugin, this architecture embodied truth.

While Pugin's architecture may not have in itself brought about change in the society, his idea that a building could have the power

to inspire societal change is one that took hold and expanded the Gothic Revival. His works, both literary and architectural, brought attention to the starkness and misery of a culture where "cash payment is the sole nexus between man and man," and brought a longing for the community and culture of the past.[16] People began to call for a campaign to secure working-class representation in parliament and for a general change in modern Britain. They saw that there was an "anti-society" instead of community, where working conditions were brutal and millions were unemployed and starving with no help from others.[17] With Pugin's encouragement, the medieval past started to become the vision for the future, and architecture held the power of reminding people of this.

Through examination of Gothic architecture and its revival, it is plain to see that architecture, in addition to being pages of a book on which one can read the history and culture of past societies, can also wield the driving force of the author to affect change on a culture. Medieval Gothic architecture was created by an idea. The architecture was built around the beliefs of its architect. The structure was created to hold the idea that God is light and can be reached through material things. In this way, the ideals of the time can be read in the architectural style. Gothic Revival architecture was built to create an idea. The familiar structure took upon a role as an author and was used as an active tool to bring about societal change. It also emphasized the important role that architecture can play in a society. Architecture, although only having the simple role of acting as shelter, holds the power to affect the world just as much as the world affects it.

ARCHITECTURE

UNTITLED
Hannah Han

This project was for my ARCH 043 class with Professor Viscardi.
A single unit was repeated on a diagonal slope to create the pattern.
The medium I chose to work with was chipboard.
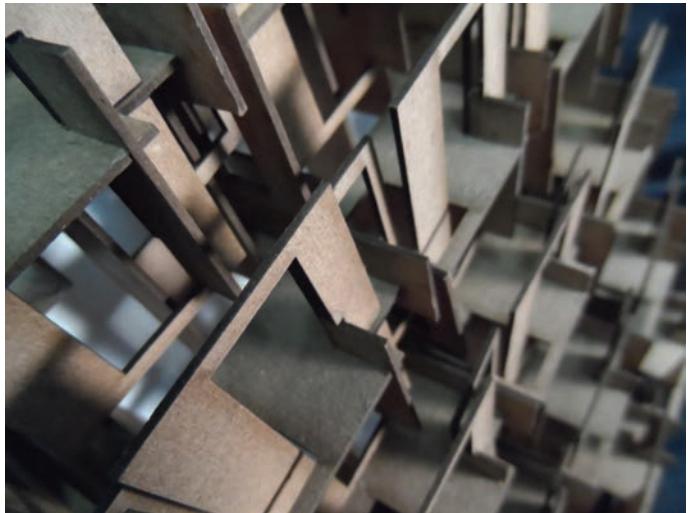
EASTON, PA
CITY HALL PROPOSAL
Justin Tagg

What is "Civic Architecture?"

It should express the values and cultural attitudes of humanity. This design uses the fundamental architectural element, the arch, to promote the notion of civic design while amplifying the arch's inherent qualities of unification and centering. By abstracting the position and size of the masses that comprise the segments of the arch, the building takes the form of a clustered, city skyline where each segment turns to face the central plaza and main entrance. The exterior reflects the dichotomy of government. Contemporary fritted glass masses collide with the traditional brick masonry that clads the main rectangular structure and base level.
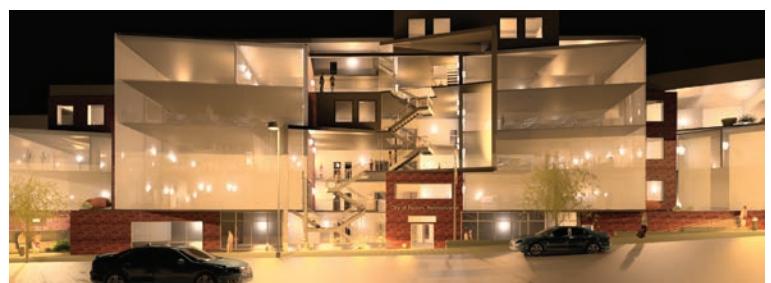
BLAST RESISTANT BUILDING DESIGN

BUILDING BEHAVIOR AND KEY ELEMENTS

Zac Liskay
Shane Rugg
Conor Thompson

This paper is a technical research paper on blast resistant building designs. Due to the abundance of information and research in this field, our primary focus was on building behavior and the key elements that contribute to the design. Blast resistant building design is the enhancement of building security against the effects of explosives in both architectural and structural design process and design techniques. As seen in the paper, there is much research to be done on this subject in the future.

ABSTRACT

Terrorist attacks and accidental explosions produce extreme and unique loading on structures and can cause widespread damage to the building, its occupants and bystanders. Blast resistant building design provides structural integrity and acceptable levels of safety for buildings. The behavior of the building during a blast event is dictated by the magnitude and location of the blast, as well as the structural properties of the building. Non-structural elements such as standoff distances, safety glass, and accessible building exits are also essential to create a level of safety. Blast resistant building design creates additional levels of safety and redundancy that protect the well-being of the occupant as well as the structural integrity of the building.

LIST OF TERMS

BRBD – Blast resistant building design
Tb – Time duration of blast
Tn – Natural period of structure
HVM – Hostile vehicle mitigation
VSB – Vehicle safety barrier
IED – Improvised explosive device

IN THE AFTERMATH OF SEPTEMBER 11TH, AND WITH TERRORIST ATTACKS WORLDWIDE, THE UNITED STATES PEOPLE HAVE MADE STRUCTURAL SAFETY A PRIORITY.

1. INTRODUCTION

Blast resistant building design (BRBD) has been a growing concern for researchers and building owners in the United States. Government and military structures, often the target of wartime and terrorist attacks, are required to design for blast loading. In the aftermath of September 11th, and with terrorist attacks worldwide, the United States people have made structural safety a priority. When a blast event occurs, the demands placed on the structure are typically beyond the design capacity for lateral loading. Buildings that are subjected to loads beyond their capacity will fall due to structure failure and create hazards for occupants. For this reason it is typically costly for buildings to be designed to encounter large explosions in close proximity. The goals of blast resistant building design are to provide acceptable safety to the occupant while keeping the overall cost of the structure within reason; however, this paper will not cover the cost-benefit ratio of blast design.

Blast load design can account for accidental explosions, such as those in chemical manufacturing plant, and also preemptive explosions such as car bombs and other explosive detonations. The Department of Defense (DoD), along with other government agencies, has been researching improved structural responses during extreme loads. The location and magnitude of extreme blast loads are difficult to make precautions for and predict. The design process must involve architects and blast consultants as well as the structural engineers. To deal with the growing demand for blast resistant structures, the designers and building owners look into nonstructural aspects of blast mitigation. This includes creating defensive standoff distances, requiring bag and personal screenings and installing safety glass to prevent casualties.

While these nonstructural design components may conflict with the aesthetic goals of building owners and architects, this construction must coexist in order to mitigate potential threat and reduce the danger to more elegant-looking, light and graceful buildings. Many injuries sustained by occupants occur due to flying debris such as glass and building fragments.[1] The flying debris can cause more damage to occupants than the actual explosion in many cases.

While all of these design aspects increase the safety and usability of structures during an explosion, the cost benefit of design must be taken into account with the risk and probability of the blast occurring. Adding protection can save lives, but in the end, the building owner must have justifiable reasons for spending the additional money.

2. BUILDING RESPONSE TO BLAST

Blast events bring about two concerns in building behavior. The first concern is the initial blast. At the time the blast occurs, the loading of the blast and the pressure waves created can cause extreme situations that were not considered in the design. The second concern is the building behavior once the blast impulse subsides. After the initial impulse has passed, the dynamic behavior of the building can also cause high levels of stress and strain as the building continues to shake back and forth.

In determining how to create blast resistant structures, the building behavior during a blast must be taken into account. Duration of an explosion is typically between 0.1-0.001 seconds. This short amount of time is often much less than the natural period of the building. As shown in Figure 1, during an explosion the blast wave initially creates an area of high pressure, followed by a vacuum wave of negative pressure. However, the negative pressure
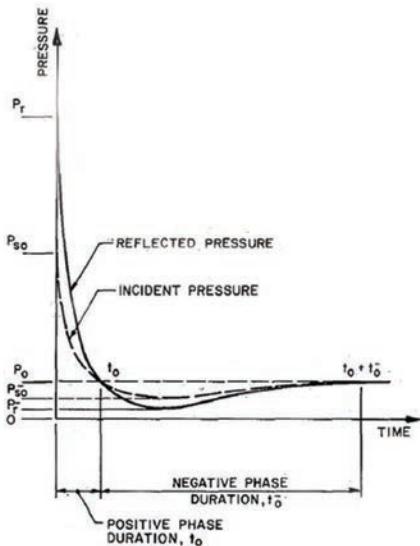

Figure 1. *Qualitative pressure-time history* [2]

can be ignored when analyzing the blast effect as it has little effect on the maximum response of the structure.

When analyzing the response of the structure, it is crucial to know the properties of the building and the predicted blast

duration. The phase duration of the blast will be known as T_b and the natural period of the building as T_n. If T_b is much longer than T_n, the building will produce a mostly static response to the blast loading. In a static response, there is a force, a reaction and a deformation. The blast essentially acts like a force that is slowly (with respect to the structure's natural vibration) applied along the structure. This means that the maximum building displacement will have occurred before the blast phase is over. When this is the case, the response of the building is dictated by the stiffness, elastic modulus and magnitude of the extreme load. A building that has been designed with a large value of stiffness will experience less static deformation. When T_b happens to be much shorter than T_n the loading is treated as an impulse load. This causes the maximum displacement to occur after the blast has subsided and the deformation will be determined through dynamic response calculation. If T_b happens to be almost identical to T_n, large deformations, similar to those caused from earthquake loading, must be taken into consideration. By analyzing these maximum dynamic responses, buildings can be designed to sustain the maximum strains that result.[3]

During the blast the nonstructural elements are also subjected to damage. As the initial pressure wave makes contact with the building facade, windows usually shatter and the building's walls and columns deflect under the immediate pressure. When the blast intensity is too great, the walls and facade may suffer permanent displacements as the strain causes plastic deformation, or even structural collapse. If the facade does not remain intact during the blast, the pressure waves may cause upwards and downwards pressure on the floor slabs and columns. These pressures may produce loading reversals that the slabs and columns have not been designed for. Figure 2 shows

WHEN THE BLAST INTENSITY IS TOO GREAT, THE WALLS AND FAÇADE MAY SUFFER PERMANENT DISPLACEMENTS AS THE STRAIN CAUSES PLASTIC DEFORMATION, OR EVEN STRUCTURAL COLLAPSE.
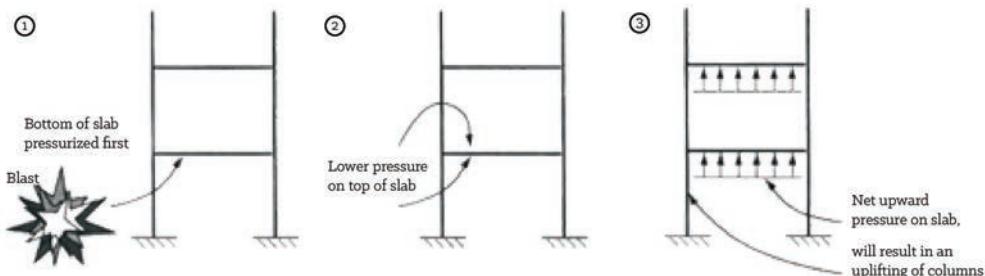
Figure 2. *Uplift pressure during a blast.* [4]
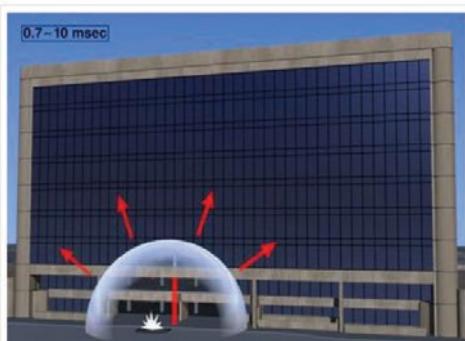
Figure 3. *Blast Expansion* [7]

a visual representation of the uplift pressure and reverse loading.

Floor slabs are typically designed with a downward gravity loading in mind. This design approach calls for placing rebar to resist flexural bending. When the moments change direction, the flexural reinforcement is no longer resisting the bending. This reverse loading may cause shear cracking in the slabs. Perez reported that this case of reverse loading was the cause for the structural collapse of the Alfred P. Murrah Federal Building in Oklahoma City.[5]

Figure 3 shows a computer simulated image of the Oklahoma City explosion. As the pressure wave extends outwards, the glass windows become deadly as the fragmented shards are projected both inwards and outwards. While the building may not collapse, a high number of casualties may still result from nonstructural elements. Approximately two thirds of non-fatal casualties in the Oklahoma City bombing were due to glass shards.[6]

Once the duration of the pressure wave has passed, the building is still in danger of further damage. The blast impulse has transferred its momentum to the building. The building responds by vibrating back and forth freely, or oscillating, at its natural frequency. The building's natural frequency, or the time required to complete one oscillation, is a structural property that depends on the mass and stiffness of a structure. Knowing the structural properties is essential in the calculation of response. These dynamic or movement calculations can be complicated and are usually left to the aid of finite element software. To model this behavior, engineers approximate the building by assuming it behaves as a single degree of freedom mass-spring structure. Designing for dynamic response makes blast response similar to earthquake design loads. A structure is typically designed to resist lateral wind loads. Wind loads may be designed for 200 lb/ft^2 but the pressure wave of a blast event can produce loading of 7000 lb/ft^2, a magnitude 35 times greater. Some engineers may think that the blast load is a static force load that is applied to the building wall. This incorrect assumption ignores the dynamic response of the building and may lead to an over-designed lateral bracing system.[8] Designing for blasts is thus often left to engineering firms that specialize in these extreme loads.

Progressive collapse, or the failure of one member, leads to the progressive failure of subsequent members, and is a common failure mechanism for buildings subjected to blasts. To prevent progressive collapse of the structure, a static design approach may be used to provide additional integrity. One method involves additional reinforcement in the flooring and roofs to allow those elements to span over lost structural elements and encounter reverse loading.[9] Another method determines the capacity of the structure when selected elements are assumed to have failed during the blast. This method determines whether or not the remaining structure has the strength to withstand the new loads and the new loading path. Building codes such as those found in *ASCE (American Society of Civil Engineers) 7 Minimum Design Loads for Buildings and Other Structures and ACI 318 (American Concrete Institute)* have addressed design requirements for structural integrity.

3. BLAST RESISTANT BUILDING COMPONENTS

To analyze blast resistant building design, it is essential to examine key physical elements within structures, the building materials and how the occupants of the structure interact with the building. Before divulging into the aforementioned topics, it should be noted that all blasts discussed in this section will relate to blast attacks coming from outside of a structure, generally from a hostile threat, such as terrorism. Within this generic category of blast attacks, events can be categorized as either standoff explosions or contact detonations. Standoff explosions are detonated at a distance away from the specific target building while contact detonations are in contact with the target structure.[10] The improvised

Figure 4. *IED Baghdad* [11]
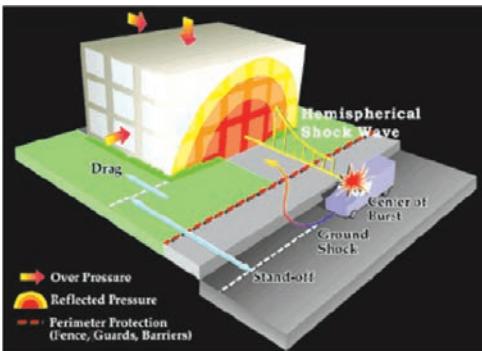
Figure 5. *Vehicle Standoff Explosion* [12]

explosive devices in Figure 4 are examples of a potential contact detonation as they are lying against the wall of a structure in Baghdad, Iraq, and Figure 5 shows a van-delivered standoff explosion.

Both styles of blast produce a powerful wave of positive pressure projected outward from the explosion. Once detonated, the pressure wave produced can travel outward at over 700 mph. Although the initial shock wave caused by both blasts are the same, the actual blast load felt by the structure is inversely related to the distance between the building and the blast. The blast load is reduced by a cubic factor as the blasts location moves away from the building.[13] The simplest way to negate the differences in these two blast attacks is to have every potential contact detonation turned into a standoff explosion, thus lessening the shock wave. Steven H. Miller said that, "for this reason, the first principle of blast resistance is to limit access to the target."[14]

Similarly, Miller went on to state the first priority of limiting access to a structure should be that of limiting access by large and convenient platforms of explosive arrival, such as cars, trucks or vans. These techniques, when utilized to remove the threat of vehicles, have come to be known in the blast resistant building design community as hostile vehicle mitigation (HVM).

As shown in Figure 6, the top left illustration shows no HVM techniques, while the other three use speed lessening, vehicle indirection or total removal of access to the building by approaching vehicles. Once vehicles have gotten within an attackable distance of a building target, it is necessary to employ vehicle security barriers (VSB). VSBs can be either passive or active in the way they mitigate blast damage. Passive barriers do not move and can include berms, water, fences or bollards among others. Active barriers include operable gates, blockers or retractable bollards. Figure 7 shows examples of VSBs used in blast design.

To measure the effectiveness of VSBs a rating system was developed and is shown in Table 1. This rating system is based on barriers ability to stop a 15,000lb truck traveling at a constant speed. For example, the barrier rated at K8 is able to stop the 15,000lb truck at a speed of 40 mph. At impact, the cargo bed of the truck must not penetrate more than one meter beyond the inside edge of the barrier.

Now that blast attack styles, hostile vehicle mitigation techniques, and vehicle security barriers have been discussed, the integrated physical security system of a blast resistant building can be addressed. As stated before, the first priority in improving a buildings blast resistance is the ability to limit the overall access to the target. This is achieved first by utilizing vehicle mitigation techniques to limit not only the ability of
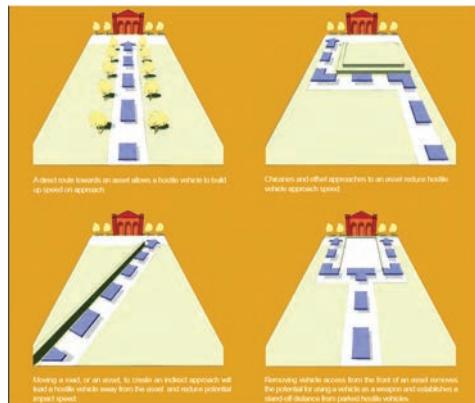

Figure 6. *Hostile Vehicle Mitigation* [15]

Figure 7: *Vehicle Security Barriers* [16]

Speed at Impact	Barrier Rating
30 mph	K4
40 mph	K8
50 mph	K12

Table 1. *U.S. Department of State 2003 Certification Standards* [17]

cars and trucks to get near a structure, but also with which the speed they can. As the threat vehicle approaches, at a reduced speed, it is met with both passive and active VSBs. Security personnel operate the active VSBs. Their job is to examine the approaching vehicle and inspect the car or truck, its occupants, and their credentials before allowing them to proceed into the structure.

The integrated physical security system can be seen in Figure 8, which shows the techniques used to increase blast resistance at a high-value government facility. Here, HVM offset techniques at A reduce speed and increase distance from structure. Once the vehicle is closer, active VSBs are utilized at B, preventing immediate entrance into the space. Throughout the figure, passive VSBs can be seen at C, D and E. Overall, these combined systems form a site that is increasingly resistant to blast attacks, regardless of the construction of the critical facility at its center due in

TO ANALYZE BLAST RESISTANT BUILDING DESIGN, IT IS ESSENTIAL TO EXAMINE KEY PHYSICAL ELEMENTS WITHIN STRUCTURES, THE BUILDING MATERIALS AND HOW THE OCCUPANTS OF THE STRUCTURE INTERACT WITH THE BUILDING.
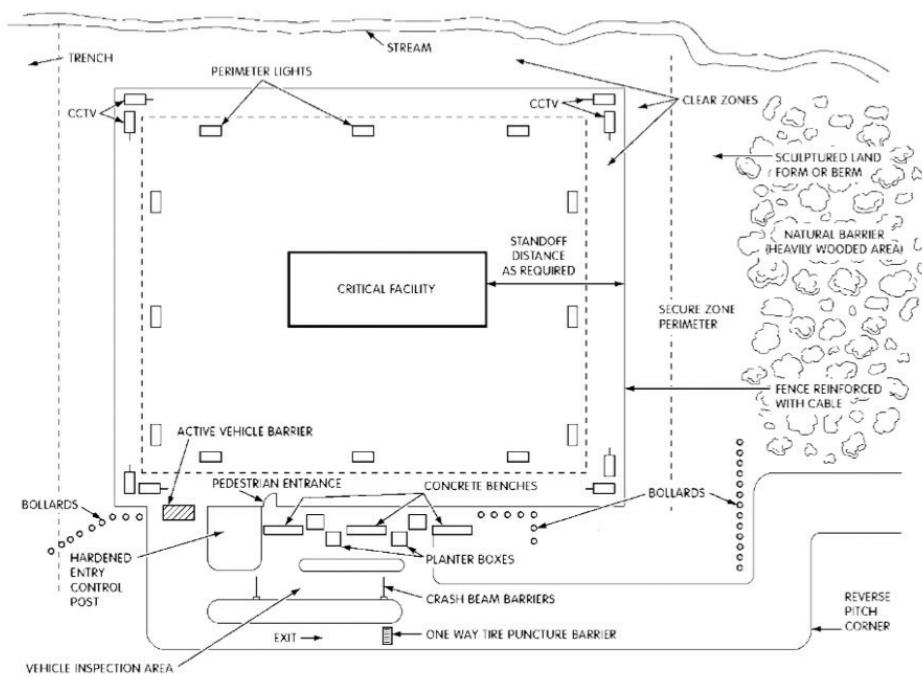

Figure 8. *Integrated Physical Security System[18]*

large part to the large standoff zone, which will negate contact detonations from large delivery devices and lessen any standoff explosions that may occur.

Most techniques covered so far have been in relation to large delivery devices such as cars or trucks; many can be modified to, or already are useful in deterring smaller delivery techniques such as improvised explosive devices (IEDs) or suicide bombing styles. Water bodies, fences, lighting, and increased surveillance techniques are also practical approaches in deterring human delivered blast attacks.

While increased standoff distance and large delivery prevention are crucial in increasing building blast resistance, it is sometimes inevitable that a blast attack will occur. This is when the construction of the target building and the materials chosen will be put to the test. When a blast

attack occurs outside of a target building, generally the walls of the structure are the first of its components to be affected by the pressure waves generated. Exterior walls must be designed to fail in a ductile

Figure 9. *Oklahoma City Bombing* [21]

manner rather than in a brittle manner. Because of this, the preferred material for exterior wall construction is poured-in-place reinforced concrete. In fact, "virtually all new U.S. embassies are constructed using this material."[19] This material is preferred because it has significant mass, unparalleled continuity between members, and extensive research and performance testing by the military as it is readily used for defensive bunkers. It is essential that the concrete be designed in a ductile manner. Ductile design allows for significant deflections of structural members before failure. These significant deflections warn building occupants of the impeding failure, allowing time for evacuation. Ductile failures also

produce less shrapnel, which can reduce the injuries caused. Buildings built with a non-ductile concrete design can have catastrophic consequences when subjected to a blast attack.[20] As seen in Figure 9, the Alfred P. Murrah Building in Oklahoma City was constructed using non-ductile concrete design and its design proved to be catastrophic.

While not as popular as cast-in-place reinforced concrete, pre-cast concrete panels are another viable option for constructing a blast resistant structure. These pre-cast panels should be at least 5 inches thick and have two-way steel reinforcement bars to increase ductility, which is still one the most necessary properties, which is similar to cast-in-place. Two-way reinforcement will aid in the prevention flying concrete debris.[22] Embedding wire mesh within the pre-cast slabs can also reduce flying concrete debris. Recently, the blast resistant building community has been addressing concrete reinforcement in nonconventional ways such as the use of embedded fiber reinforcement or textile. Lafarge, the building materials company, has produced a concrete mixture reinforced with needle-size steel fibers throughout. This new style of concrete can increase tensile strength by up to ten times by providing a better bond than conventional steel rebar.[23] The steel fiber reinforced concrete from Lafarge was subjected to blast tests at RAF Spadeadam in Cumbria resulting in cracking but no shrapnel production.

Improving concrete mixtures and reinforcement is not the only way blast resistant builders are combatting fragmentation of the target structure. Surprisingly enough, pickup truck spray on bed liners have become a mainstay in fragmentation prevention. Liner treated rooms survived a 200 pound TNT explosion at 30 feet which destroyed the same room that was left untreated.[24] The truck bed liners

DESIGNING FOR BLAST LOADS HAS SEEN AN INCREASE OVER THE LAST DECADE DUE IN LARGE PART TO THE EVENTS OF SEPTEMBER 11TH, 2001, THE PREVALENCE OF TERRORISTIC THREATS AROUND THE GLOBE AND THE UNITED STATES' AND UNITED NATIONS' INVOLVEMENT IN MULTIPLE WAR ZONES.
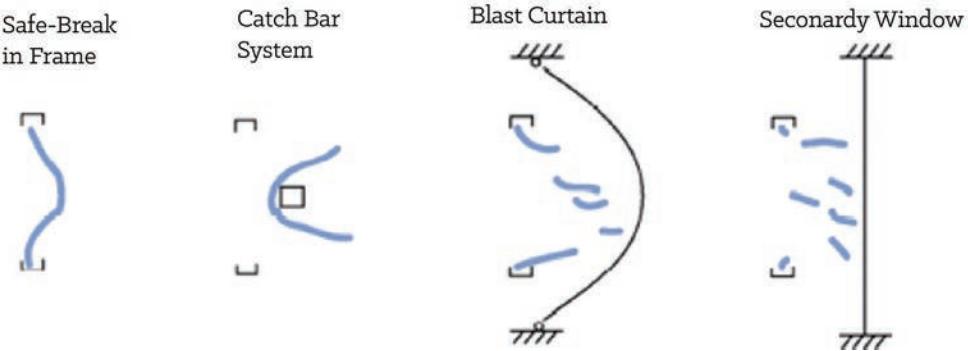
Figure 10. *Shard Reduction in Windows* [27]

are so effective at increasing a buildings blast resistance that the pentagon began a program to coat the entire building after the attacks of September 11th, 2001.[25]

Although it is essential that the outer walls of structures targeted for blast attacks be resistant, they are often limited by their weakest links, namely windows and doors. Windows are incredibly vulnerable during a blast attack and it can be hard to prevent their failure. Because of this, windows are generally designed to fail before their anchoring system, and to fail in a way that prevents excessive shards. It is imperative to prevent widespread glass shards, as this is responsible for a large number of injuries during a blast attack.[26] After decreasing the number of windows in a blast resistant building, the next step is to utilize shard reduction techniques such as those in Figure 10. Here, safety bars, blast curtains or a secondary window are used to catch shards and prevent them from entering an occupied room in a target building. For each design in Figure 11, the blast is occurring to the left and the target room is to the right. To further prevent glass shards, many designers use laminated annealed glass. The lamination holds the glass shards together when broken and the annealed glass is weaker than others preventing it from transferring further load to the structural components of the building.

In blast resistant building design, doors do not receive the attention that windows usually do, as people in target structures are generally not near exterior wall doors for extended periods of time. Exterior blast resistant doors are often double steel with internal cross bracing. They have an increased number of fasteners connecting them to the wall and secured as to not propel inwards upon a blast attack.

SUMMARY

Blast resistant design is an important aspect for high-risk structures, including public, commercial and government buildings. Designing for blast loads has seen an increase over the last decade due in large part to the events of September 11th, 2001, the prevalence of terroristic threats around the globe and the United States' and United Nations' involvement in multiple war zones. To better design structures to negate the effects of a blast attack, it is necessary to examine a structure's specific response to the initial blast pressure wave as well as the secondary building behavior once the blast has subsided. Research must be conducted to determine the buildings' natural properties (mass, stiffness, natural frequency) in order to predict the buildings' responses. Buildings' strength is essential in preventing immediate collapse from the blast magnitude, and to withstand the

dynamic response. Building damage through progressive collapse can be prevented with redundancy systems. Furthermore, a building's response is not limited to its structural elements. Designing for extreme loading involves the building owner, structural engineer, architect and blast design experts. It is crucial to mitigate the threat of hostile vehicles as well as design a structure in coordination with the integrated physical security system. Building materials and architectural elements can provide increased levels of safety and performance of structures. The first, and most important step in increasing blast resistance is the need to create a large standoff distance. This is achieved through multiple techniques of hostile vehicle mitigation and vehicle security barriers. Once a blast is detonated outside of the standoff zone, while lessened, the blast will still affect the target building. For this reason, potential target buildings must be built with extreme durable materials such a cast-in-place reinforced concrete or steel-fiber-reinforced pre-cast concrete. Once the exterior of the building is constructed from either of these, windows capable of handling specific blast zthreats must be installed as well as similarly capable doors.

FUTURE WORK

Blast resistant building design research has been growing rapidly. The prediction models are quickly becoming more advanced as technology improves. The high demand for blast resistant buildings is creating opportunities for research and development. Focused efforts will lead to finding better materials and techniques to be used in the building of protective structures. As improved methods are discovered and implemented, people will have to continually look for the most cost effective ways to adequately withstand the blasts to be expected.

GRAPHIC DESIGN

ARTIST BOOK
Hilary Weaver

The artist book was designed as a visual iPod for Professor Marilyn Jones in "Graphic Design II: Word and Image." This piece explores the monotony in everyday life as it is portrayed in the song "Down in the Valley" by The Head and The Heart. Laser-cut paper, wire, and fabric-wrapped chipboard were incorporated to create intricate details that are revealed as the accordion fold expands.
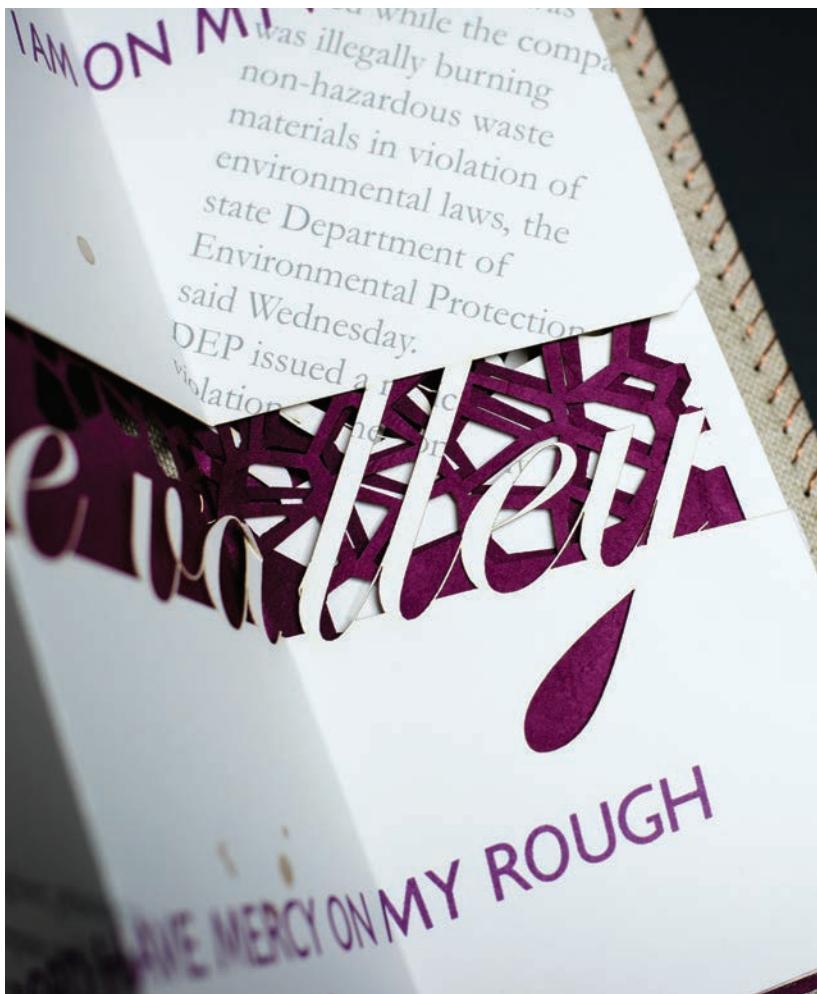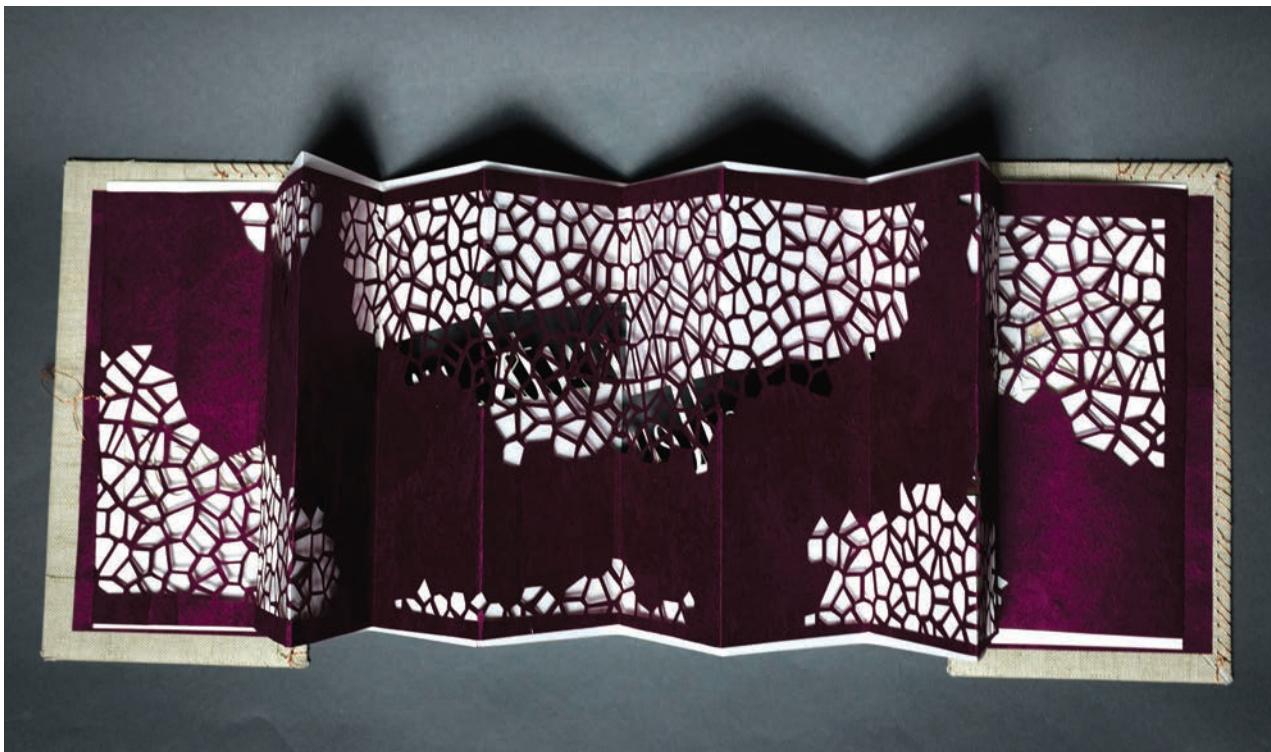
MUMFORD AND SONS CONCERT POSTER AND SAVE THE POLAR BEARS
Julia Sloane

These posters were created in the class "Graphic Design II: Word and Image" with Professor Marilyn Jones. The posters were designed in Photoshop® and Illustrator® using scanned images to provide the textures. The polar bear poster was designed to raise awareness about the detrimental effect global warming has on the polar bear population. I wanted to create a powerful image that would communicate how desperate the polar bears' living situation is becoming. The Mumford & Sons poster is simply a promotional piece advertising an upcoming concert; it was designed with the band's image and style in mind.

BIAS AND TECHNOLOGICAL CHANGES IN TELEVISION COVERAGE OF WAR

Kerry Mallett

In my paper, I sought to research and analyze how bias and coverage changed in television war coverage from the late 1930s until modern day. One focus was on how changing technology affected media reach and engagement and how coverage of the battlefield changed from propaganda to having no filter. By analyzing political climates during the wars and conflicts considered—World War II, Vietnam, the Gulf War, and the conflicts in Iraq and Afghanistan—I found that government is often the agenda setter and censors what information gets through to the public, thus changing how the public perceives the war. In my research, I found that bias is not a modern concept; it is something that has existed in television coverage of war since its inception.

Since its invention, the television has been a prime instrument to transmit moving images, along with sound, to millions of people. This has changed virtually every aspect of society and has affected the way that journalists cover wars. Prior to television, the likes of William Randolph Hearst and Joseph Pulitzer used yellow journalism to edit photos and employ sensationalism in conflicts to sell newspapers. The television did not remove sensationalism from the field of journalism, but complicated it. Not only could footage be sparingly used or edited to show one side, broadcasters' tones and script could be modified to frame an issue or perpetuate a certain idea. From World War II to the Vietnam and the Gulf War to the ongoing conflicts in Iraq and Afghanistan, war coverage has developed in terms of the kind and type of coverage, but issues of bias and framing still persist in various levels.

Melodrama and patriotism were main themes in newsreels during World War II. Newsreels, commonly shown before a feature movie at a movie theater, were one of the primary ways in which Americans received updates on the war in Europe and Asia. Often created with triumphant music and a narrator who promotes American victory and ideals, these newsreels allowed Americans to see moving footage of the warfront for the first time but were propaganda-like in nature. For example, in a United News newsreel from June 1944, the program covers the invasion of Normandy on D-Day. However, the footage only shows Allied troops advancing their position, it does not show wounded or killed soldiers or the Germans fighting back. This one-perspective type of video is typical from this time. The narrator's script enhances this singular perspective, as he recaps, "German prisoners were taken almost at once. American and British aircraft supported the shock troops magnificently, preventing the

THIS EDITORIALIZING AND EMPHASIS ON AMERICAN AND ALLIED POWER WAS CREATED TO HELP EMPHASIZE PRIDE ON THE HOME FRONT, BUT IT DETRACTS FROM THE LEGITIMACY OF THE JOURNALISM AT WORK.

Germans from marshaling reinforcements."[1] This editorializing and emphasis on American and Allied power was created to help emphasize pride on the home front, but it detracts from the legitimacy of the journalism at work.

While this coverage was carefully packaged to be broadcast at home, not all World War II coverage was sterile. CBS newsman's Edward R. Murrow, who started in radio and ended his career in television, famously broadcast from London and described the German's bombing of the city. With his famous "This is London" starting phrase, Murrow revealed the horror and destruction of the city through a first-person perspective. In a broadcast from September 13, 1940, he reports:

The silence is almost harder to bear. One becomes accustomed to rattling windows and the distant sound of bombs and then there comes a silence that can be felt. You know

the sound will return—you wait, and then it starts again. The waiting is bad. It gives you a chance to imagine things. [2]

This coverage was important because it signifies honest, but well constructed coverage of war. Murrow is not manipulated by a political agenda, nor is he trying to keep American spirits high at home by using propaganda and saying that they are winning the war. Through a candid, thoughtful explanation of observations, Murrow ensures that information is not distorted through his broadcast.

By contrast, the Vietnam War, the nation's "first televised war", was not sterile; coverage showed Americans dropping bombs and actively fighting the war. Besides the developments of Agent Orange and other weapons, the type of fighting in Vietnam did not differ much from previous wars. People at home did not originally see the gore of Vietnam, but

as the war progressed the images changed. CBS broadcasted coverage of Marines torching the village of Cam Ne and the media's spin on the Tet Offensive worsened the political climate during the war.[3] Some politicians believed that the country lost the war because it was televised. After Lyndon Johnson announced he would not seek a second term as president, he said at a meeting of the National Association of Broadcasters that if past wars had been televised, public opinion would be very different of those wars too.

No one can say exactly what effect those vivid scenes have on American opinion. Historians must only guess at the effect that television would have had during earlier conflicts on the future of this Nation: during the Korean war, for example, at the time when our forces were pushed back there to Pusan; or World War II, the Battle of the Bulge, or when our men were slugging it out in Europe or when most of our Air Force

was shot down that day in June 1942 off Australia.[4]

However, Frank Russo did research and found that NBC and CBS, the two biggest networks during the Vietnam War, did not have bias against the Nixon Administration during 1969 or 1970.[5]

While it is true that the public was not exposed to the horrors of war in the media during World War II, the Vietnam War's media coverage is not significant just because of this, but because this aspect, combined with the major protests, burning of draft cards, and social movements happening at the time, made for a different type of national mindset. Protestors were further angered by the seemingly irrefutable images that were shown on the evening news every night and used these to justify their protest. However, in "Vietnam: The Television War," Michael Mandelbaum writes that while public opinion eventually determined American policy in Vietnam, it had little influence between 1954 and

1965.[6] This is in part because the biggest atrocities and scandals of the war, like the My Lai massacre, had yet to occur. The My Lai massacre occurred in 1968 and was uncovered by investigative journalist Seymour Hersh and published in 1969. It came at a time where campus uprisings were happening and public trust in American success at Vietnam was at an all-time low, so this atrocity and the visual coverage of it really swayed public opinion of the war and disillusioned many concerning the United States government and troops. Also, a study by Elmo Roper and Associates throughout the 1960s showed that television was the primary source of news for Americans and the most trusted news source.[7] The Vietnam War's television coverage is significant because it is the first to show first-hand the cruelties of war, and thus really changed public opinion. This differed greatly from World War II because it was no longer working with government interests but working against them.

After the disaster in the media and the impact on public opinion during Vietnam, the federal government, especially President George H.W. Bush and the Pentagon were careful in the information disseminated from Iraq during the Gulf War in the early 1990s. They relied on prior restraint and limited access to information for reporters in Iraq to attain their goal. Reporters were allowed to attend briefings every day that had maps and videos for their use, but civilian causalities were never mentioned in these meetings, but smart bombs were emphasized.[8] Some reporters were allowed to travel to the battlefield to write dispatches, but their work was reviewed for security breaches afterward and released after their newsworthiness diminished.[9] A study done by the University of Massachusetts, Amherst found that "the more [Americans at home] watched TV, the less they knew about the history of

BY CONTRAST, THE VIETNAM WAR, THE NATION'S "FIRST TELEVISED WAR," WAS NOT STERILE— COVERAGE SHOWED AMERICANS DROPPING BOMBS AND ACTIVELY FIGHTING THE WAR.

the conflict, politics or the region."[10] Tight control by the Bush administration and a consequential lack of knowledge from the American people about what was actually happening in Iraq characterized the Gulf War's coverage.

One of the most notable changes in the media with the advent of the Internet and 24-hour news in the 1990s and early 2000s was the "CNN effect", which is the "power of news media to shape government decision-making in respect to international affairs."[11] This power is a precarious one, as previously the relationship was one-sided—the news reported government policy; it did not affect it. The polarization of television news, which will be discussed shortly, contributed to this so-called "CNN effect." Another important aspect that CNN brought to television news was the concept of the 24-hour news cycle. The ability to access news coverage, which was very repetitive, but could be interrupted for breaking news at any hour vastly changed the way Americans consumed news.[12] This format allowed for more commentators and analysts who were much less objective than the traditional news anchor.   It also created viewers who were increasingly woefully misinformed. *The San Diego Union Tribune* reported results of a poll conducted by the Program on International Policy Attitudes that said 52% of Americans believed evidence was found linking Iraq to September 11, 35% believed weapons of mass destruction were found in Iraq and 56% believed majority world opinion supported the war. Fox viewers were the top for believing all three, as 45% of Fox viewers believed all three misperceptions, compared to 12 to 15 percent for other networks.[13] In another study, Tim Groeling of the University of California compared Fox's *Special Report*, ABC's *World News*, the *CBS Evening News* and the *NBC Nightly News* "in their portrayal of public opinion regarding the president."[14] Groeling

analyzed the probability that each of these networks would broadcast an internal poll result and NBC, CBS and ABC had similarly trending polls while Fox had polls trending the opposite way (see Figure 1). The coverage of Fox and the other networks thus varied, causing more polarization in television news. This practice helped develop the dynamic of polarized news because these specialists and analysts were more easily able to promote the views of a certain party or faction. It is this polarization that characterizes the coverage of the Iraq and Afghanistan conflicts.

These developments vastly affected the way that the September 11 attacks and ensuing conflicts in Afghanistan and Iraq were covered by the media. The importance of television news cannot be overstated, as many surveys indicated that television news was the most used and trusted news source

for people in the United States and Great Britain during the Iraq War.[15] Thus, this skewed coverage had a crucial impact on how people perceived the war. This is also the period where Fox News topped CNN as the top-rated news channel. This can likely be attributed to the polarizing viewpoints of the invasion of Iraq and Afghanistan, and the partisan coverage by Fox News attracted those who supported the Bush Administration's decision to invade the countries.[16] This partisan approach to the news was part of a larger trend of framing the story to fit what the partisan network wanted to communicate to the viewer. One example of this framing is the coverage of the tearing down of a statue of Saddam Hussein in Baghdad's Firdos Square. What was broadcast on television (several times over, due to the nature of the 24-hour news cycle) was a zoomed-in view of what

TIGHT CONTROL BY THE BUSH ADMINISTRATION AND A CONSEQUENTIAL LACK OF KNOWLEDGE FROM THE AMERICAN PEOPLE ABOUT WHAT WAS ACTUALLY HAPPENING IN IRAQ CHARACTERIZED THE GULF WAR'S COVERAGE.
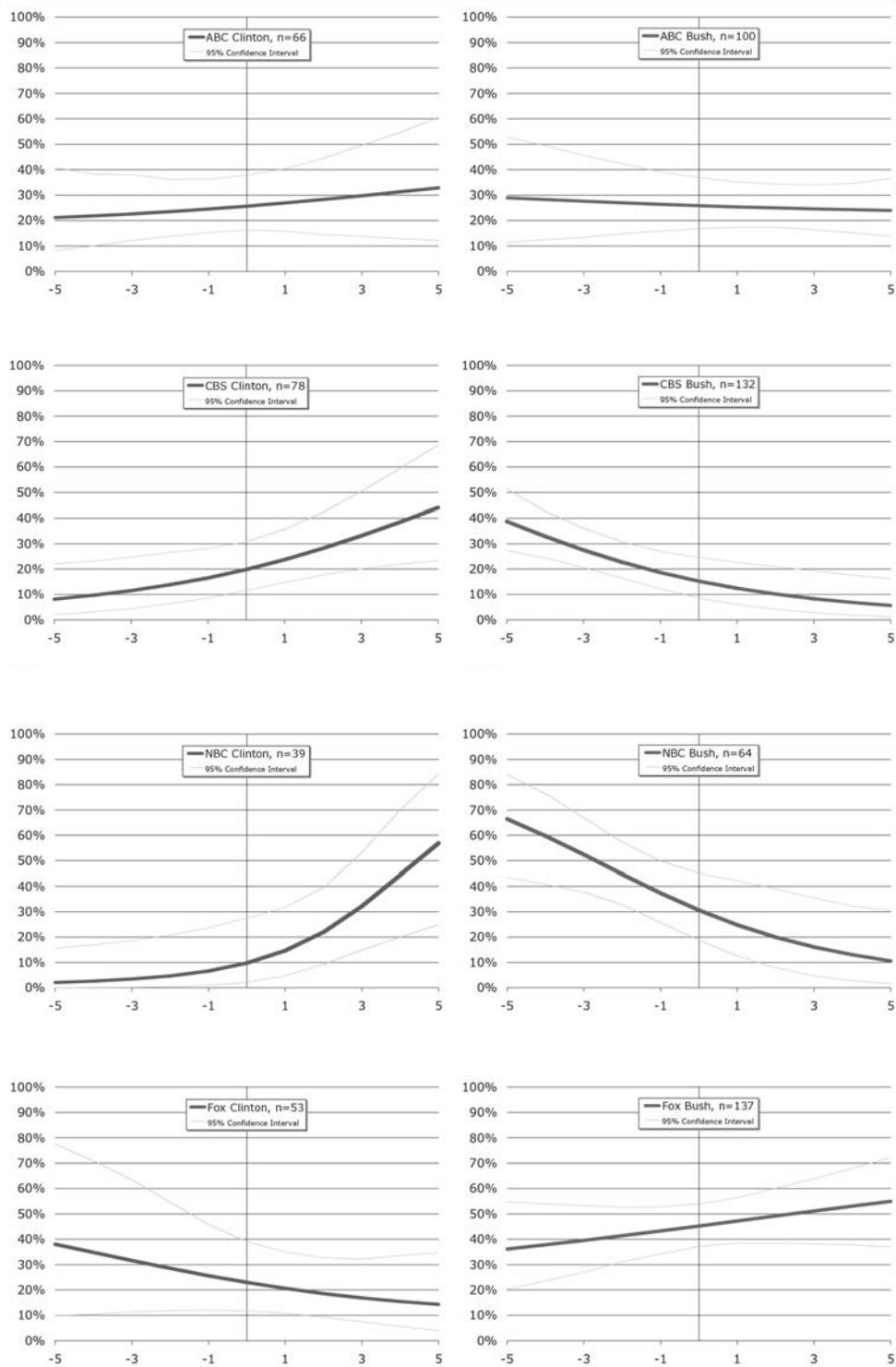
Figure 1. *Basic Model Predicted Probability of Broadcasting an Internal Poll Result, by Network, President, and Poll Difference*[19]

appeared to be a crowd of Iraqis tearing down a statue of the dictator. However, as was later revealed and discussed in "The New Yorker", this square was actually in an area where many foreign journalists were staying while covering the conflict and the statue was ultimately brought down by a United States marine vehicle that had a crane on it.[17] United States news companies, many under the thumb of the government, were eager to show what appeared to be a collective protest by the Iraqi people. Government officials even commented on the supposed success of the protest. For example, then Secretary of Defense Donald Rumsfeld told reporters, "the scenes of free Iraqis celebrating in the streets, riding American tanks, tearing down the statues of Saddam Hussein in the center of Baghdad are breathtaking. Watching them, one cannot help but think of the fall of the Berlin Wall and the collapse of the Iron Curtain."[18] With so much American opposition to the conflict, it is easy to understand why politicians and the news were eager to show an apparent victory for the nation. However, this framing brought to light how news organizations would alter the meaning or context of an event in the war in order to change public opinion.

Many people complain about the current climate of the news, with its polarization and skewed coverage, but they do not realize that this is an old phenomenon, especially when concerning war coverage. The government, news organizations under the thumb of the government or news organizations with a political agenda have manipulated images and framed stories of the fight overseas to convey a certain idea or message to viewers. This happened in World War II with the propagandistic newsreels, continued in Vietnam with traumatizing images being broadcast to the public and continues today with framing from embeds or of events occurring in the Middle East. The media

THE MEDIA DEPENDENCY THEORY DESCRIBES HOW IN TIMES OF CRISIS, PEOPLE RELY MORE HEAVILY ON THE NEWS AND THUS ARE RELYING ON COVERAGE THAT IS INHERENTLY BIASED AND MANIPULATED.

dependency theory describes how in times of crisis, people rely more heavily on the news and thus are relying on coverage that is inherently biased and manipulated. This has a profound effect on public opinion of a war or conflict and can change history. Television coverage has developed through new technologies, but its way of covering war from 70 years ago to today has stayed essentially the same at the roots.

3D & SCULPTURE

RED TOY
Jonelle Jerwick

This piece combines a female torso and toy trumpet in a dramatized pose. It is painted a cartoonish red to highlight the plasticized and objective view contemporary society has on the female body and sexuality.

JAMAICA CIGAR BOX UKULELE
Bob Mason

This piece is the most recent addition to a collection of cigar box instruments I have made since I first learned the basics in high school. All of its parts were made from scratch or recycled (its title comes from the box brand name). The only planned parts of the design were the F-style sound holes. As I decorated with a wood-burner, stain, and only two paint colors, these bits converged into an antique look which has received a lot of attention. I am very pleased with the final product, and will certainly continue my work with the success of this ukulele in mind.

YUPO LAMP
Shannon Varcoe

This piece was created out of laser cut synthetic paper with a poplar wood structure. The paper was cut into long strips of different weights that would fall and bend into forms through which light could follow. It was an interesting opportunity to experiment with light, shadows and a new sculpting material. This was a project for Three-Dimensional Design Foundations course with Heather Ramsdale.

UNTITLED
Jonelle Jerwick

This sculpture was created using an additive and subtractive process. The base piece was carved away in a fluid continuous form. The smaller triangular pieces were cast and added to create tension.

WATCHING MORE THAN "THE COW" IN TEHRAN

Bridget Joyce

The essay, "Watching More than The Cow in Tehran,"explores how, over time, Iranians have used cinema to define a national cultural identity. The title of this essay is an allusion to Fatema Keshavarz's book Jasmine and Stars: Reading More than Lolita in Tehran, *which explores misconceptions of Iranian society in the Western world perpetuated by the past Orientalist and present New Orientalist narratives. Although Iranian filmmakers were often constrained by their government, first in a monarchy and later in a theocracy, their creativity and ability to convey the emotions of a nation were not stifled. By examining the progression of the Iranian film industry, with special attention to its political and historical context, one can discern not only the ideological intentions of ruling regimes, but also the progression of how Iranain identity is interpreted domestically and the image ordinary Iranians would like to convey to the outside world.*

In the past century the culture of Iran has, like all nations around the globe, transformed. Ideologies, perspectives and voices are far different now than they were a century ago. The path of the nation's film industry through its rise, fall and incredible resurgence is evidence of such change. It was through the production of film as an art and the debate surrounding its content that Iranians came to create and embrace their cultural identity. In one interview, Iranian director Mohsen Makhmalbaf drew attention to how this particular art in its Iranian form is unique; shaped both by contemporary context and historical foundations. Political constraints may have guided the direction of the film industry, but cultural uniqueness gave Iranian film the necessary kick to succeed on the world stage. Unlike cultures historically preoccupied with images, "Iran," he says, "is a land of poets. Our images come from our poetry. We could even say that the tree of Iranian cinema found it roots in Persian poetry."[1] Film was, and continues to be, used as a medium to convey to the audiences domestically and also abroad the vitality of Iranian culture and its status as a society that can overcome perceived political barriers.

Historically, Iranian cinema has been less stifled by its censorship than may be perceived. Iranian cinema was more often used as a tool of the governing regime to promote a particular ideological framework. According to Azadeh Farahmand, "Censorship in Iran has existed in one form or another as early as the 1920s, having survived both monarchy and theocracy."[2] Before one can begin to understand how censorship has shaped Iranian cinema, it is important to identify the different methods and goals of censorship each regime sought. The initial aim of censorship in the 1920s was on film exhibition and relied on theatre owners yielding to pressure from religious

> FILM WAS, AND CONTINUES TO BE, USED AS A MEDIUM TO CONVEY TO THE AUDIENCES DOMESTICALLY AND ALSO ABROAD THE VITALITY OF IRANIAN CULTURE AND ITS STATUS AS A SOCIETY THAT CAN OVERCOME PERCEIVED POLITICAL BARRIERS.

groups concerned about exposure to the West's loose sense of morals. This informal method of censorship continued until the 1950s when committees were organized at the local level that were responsible for reviewing and supervising both imported and locally produced films before they could be shown to the public. Their stated goal was to avoid specific themes declared detrimental or morally wrong to the Islam and Shi'ism, such as in the inappropriate seduction of women and girls.[3]

By 1968 the federal government established the Ministry of Culture and the Arts, which it tasked with establishing more universal censorship requirements. The breadth of forbidden themes expanded with the creation of the Ministry as it began to not allow any subject critical to the monarchy. Throughout the 1970s, in an effort to establish a sense of government

pride and national prosperity, the Ministry outlawed any films that depicted poverty or anguish.[4]

The revolution did, of course, bring some change to the government's attitude towards cinematic material. For instance, films that depicted poverty, anguish or rebellion were allowed back into the mainstream and even sometimes celebrated. Yet, the refrain of censorship remained strikingly similar in maintaining repression of themes such as political criticism and social dissent. This link between the policies of the two regimes indicates that both realized the power and potential of cinema in Iranian society.

In the early 1980s censorship practices advanced to control films prior to production. Before even screenplays obtained permission to start production, it was necessary that the synopsis of the film be approved by the Council of Screenplay

Vetting. By 1984, the regime's policies had shifted again and rather than relying on the initiative and persistence of filmmakers to produce films, they began a campaign to cultivate domestic and local production while making importation of films less desirable.[5] The regime had come to the understanding that if film production was organic, and devoid of Western or monarchical influence, then over time it would come to meet the necessary standards because it was a purer product of Iranian society. It was theorized that because of a partial ban since the 1980s on Western movies the new films would not be corrupted by the West's immoral tastes.[6]

One former Minister of State for Cinematic Affairs, Fakhrodin Anvar, spoke directly of the methods authorities used to accomplish their goals of cultivating Iranian cinema in post-revolution Iran. He noted that the government's programs focused on filmmakers rather than film. Again, this shift in paradigm supported their revelations in how to ensure the right films were produced. They were able to do so while still avoiding the repressive act of banning films. The government launched a new training program with the intention of creating a new system of leadership in the film industry. Remnants of filmmakers from the Shah's era, they felt, would be better off outside of Iran. Essentially, the government had undertaken a mission of state training of filmmakers. According to cinema critic Akbar Nabavi, the government outlined a three-pronged approach it would use to create high-grade cinema: direct, protect and

check. Thus, authorities could play the role of guides towards acceptable films rather than have direct control.[7]

The most significant development in the post-revolution censorship timeline came in April 1989 when the government took a step back and allowed films that had previously been banned to be screened. Observers most commonly attribute this movement towards liberalization to one of two possible explanations. The first is that the regime had become confident that less supervision was necessary because it had succeeded in ingraining Islamic values in this art form. Another explanation provided was that criticism of the hegemony of authorities forced them into taking a softer stance in hopes of boosting the morale of filmmakers.[8] These liberalization measures did not last very long. By 1993 it was once again mandatory that scripts be pre-approved before production of a film could take place. Yet, the preoccupation with forbidden themes seemed to have evaporated. It was clear that throughout the 1980s restrictions on film were becoming more lax.[9]

This summation of the censorship policy timeline is helpful in understanding the political context in which films were produced in Iran. However, the social atmosphere and attitude towards the industry was important both before and after the revolution. An iconic image of the revolution is the burning of cinemas by revolutionaries. Ostensibly the cinemas were set ablaze because they represented Western infiltration into Iranian society. Mohammad-Ali Najafi posited that the 1979 demonstrations attacked cinemas as a symbol rather than as a national institution. The symbol which cinemas represented led many observers to fear an end to the cinema after reforms gave the country greater religious and moral overtones.[10]

The industry's redemption may, in fact, be attributable to a single mention

> THEREFORE, IT WAS APPEALING FOR FILMMAKERS TO PRODUCE FILMS THAT HAD INTERNATIONAL APPEAL AS MUCH AS IT DID DOMESTIC. FILMMAKERS SOON CAME TO REALIZE THAT WESTERN AUDIENCES ENJOYED THE STYLE THAT HAD BECOME CHARACTERISTICALLY IRANIAN.

of a particular film in one of Ayatollah Khomeini's famous speeches directly after the revolution's success. Acknowledging the destruction of cinemas throughout Iran during the revolutionary process, he argued that not all films were necessarily bad or immoral. Specifically, Khomeini identified *The Cow* (1969) as the model of a good film. *The Cow* had been banned during the time of the Shah because it depicted the anguish of poverty as well as fear forced modernization. Yet, in the new government, this model film contained key characteristics to its success: it was a divergence from commercial films and it represented women in a morally ideal way.[11]

Level and goals of censorship highlight what the regime felt was important or the direction in which it wished to shape cultural identity. Yet, the main driver of cultural identity is the people of Iran. By analyzing the films that were actually produced during this period, one is able to see the effect these constraints had, for better or worse. Despite Khomeini's mention of *The Cow*, directly after the burning of the cinemas, the future of the Iranian film industry in the early 1980s was not ensured. In addition to mired public opinion on the morality of the film industry, the outbreak of the Iran-Iraq War posed a major threat to the industry's redevelopment.

While in ordinary circumstances an industry like film could lose favor in government programs during wartime, the new Iranian government realized how crucial this industry could be in mobilizing the Iranian people. Yet, uncertainty about the industry's future left the private-sector in limbo, too nervous about the future to invest large amounts of money, and the industry was essentially paused. In order to revive this industry and ultimately have the capacity to create the narrative they hoped could help win the war, public-sector funding was necessary for revival. Because

AS THE STYLES OF FILM HAVE SHIFTED IN THE CONTINUOUS PROCESS OF CINEMATIC INTERPRETATION OF IRANIAN CULTURAL IDENTITY, THE GOVERNMENT HAS ALTERED ITS STANCE ON THE UTILITY OF CINEMA.

of the high percentage of films financed by the public-sector, an official national cinema was created. These films "emphasized action and violence over sensitivity and psychological depth."[12] Films that focused primarily on fighting and military operations, such as Amir Naderi's *Second Search* (1981), were never distributed in Iran because they went against the regime's agenda.[13] Other films, such as J. Shoorjeh's later piece, *The Epic of Majnoun*, celebrated the courage of heroes who fought for Islam. In these films, when the hero died for his cause, viewers actually felt envy towards them.[14]

As time passed the message and style of films began to change. By the late 1980s, films made in Iran were being selected for international film festivals. The first selection was for the film *Frosty Roads* (1987). The film's selection into the

Berlin Film Festival gave other Iranian filmmakers confidence that their work may be appreciated outside of Iran as well. One byproduct of international recognition in cinema is that international actors begin to invest in film production. Therefore, it was appealing for filmmakers to produce films that had international appeal as much as it did domestic.

Filmmakers soon came to realize that Western audiences enjoyed the style that had become characteristically Iranian. This style could be defined as low-budget films with simple plots and on-location filming. These individuals sometimes cater to the international market, which is much more lucrative than the domestic market. In recent years, Iran has not had enough theaters to even turn the same level of profit as is possible abroad. It was around this time that the style of 'Iranian neo-realism' began

to take shape. Films focused on minimalist plots that illustrated struggles of everyday life to create a connection with oftentimes more privileged international audiences. They were low-budget but set in exotic landscapes and ideologically stimulating, which contrasted sharply with the high-tech, special effect world of Hollywood cinema.[15]

This 'Iranian neo-realism' movement that characterized these films was spearheaded by the use of an experimental, semi-documentary style of filming. In accordance with this style, realistic treatment of characters and their social environment was an avenue through which filmmakers examined themselves and presented their society to the rest of the world. Famous

Iranian director Mohsen Makhmalbaf stated that documentary-style cinema "allowed us to show how we were, not how we were to be seen."[16] This shift in film style is, again, reflective of the social context through which this interpretation of Iranian cultural identity was developed.

Looking back on the evolution of film style in Iran, Makhmalbaf said that he saw this movement towards documentaries as an unconscious response on the part of the Iranian people. The media, he argued, had "reduced the Iranian people to a people capable of prayer alone."[17] The injurious discourse of generalizations and misperceptions of Iranians in the West is a central theme in Fatemeh Keshavarz's book

Jasmine and Stars: Reading More than Lolita in Tehran. In her critique of Anzar Nafisi's novel, *Reading Lolita in Tehran*, Keshavarz directly addresses the inaccurate perception of Iranian cinema by those who contribute to the New Orientalist narrative. Nafisi uses the example of cinema in Iran as an art form that fails to show love, at least in the same way Jane Austen illustrates love in her works. Keshavarz is quick to point out that Iranian film has received large international acclaim and that the subject of love is very much expressed in films. She points to two of Rakhshan Bani-E'temad's love stories, *Nargess* and *Under the Skin of the City*, both of which were well-received amongst the Iranian public and international audiences.

Keshavarz's critique of the New Orientalist narrative is that it is merely a continuation of the same Orientalist discourse, only this time with a native face. This native face, she says, is deceiving in that it is affixed to an imagined sense of legitimacy and truth which, as with Nafisi's critique of Iranian cinema, is just a misperception. Many, such as Makhmalnaf, have argued that cinema has had the most success in softening the face of the country of Iran, its people, and its culture to those abroad.

One of the first Iranian films to garner international critical acclaim was Amir Naderi's *The Runner* (1985). In the documentary *Iran: a Cinematic Revolution*, the narrator asks whether this film is famous worldwide because of its plot, or because it is "Poetry contrast with the country's fanatical image?"[18] As the styles of film have shifted in the continuous process of cinematic interpretation of Iranian cultural identity, the government has altered its stance on the utility of cinema. Noting the success of cinema in softening diplomatic tension, or at least public perception, the regime has come to appreciate the impact of film. In fact, Iranian Foreign Minister
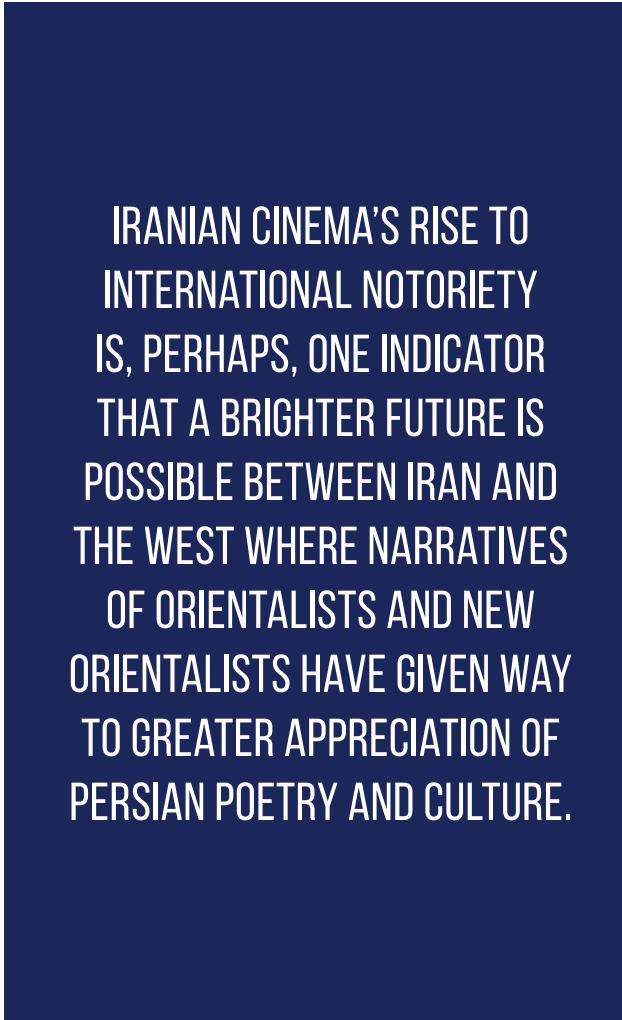
IRANIAN CINEMA'S RISE TO INTERNATIONAL NOTORIETY IS, PERHAPS, ONE INDICATOR THAT A BRIGHTER FUTURE IS POSSIBLE BETWEEN IRAN AND THE WEST WHERE NARRATIVES OF ORIENTALISTS AND NEW ORIENTALISTS HAVE GIVEN WAY TO GREATER APPRECIATION OF PERSIAN POETRY AND CULTURE.

Ali Akbar Velayati appreciated the impact of film so much that he played a key role in negotiating Shohei Imamura's 1997 acceptance into the Cannes Film Festival.[19]

The evolution of Iran's film industry was constrained by the political and social context but propelled by the genius of Iranian film makers on the path to self-discovery. The cinema provided a venue for the people of Iran to construct their own cultural identity. Throughout the history of Iranian cinema, censorship has been a constant. However, it was not necessarily a total impediment. Retrospectively, analysis of political context via censorship intentions and methods reveal a good deal about the ideological frameworks of ruling regimes. Yet, it was the social context in Iran during each specific period that allowed cinema to shape an interpretation of cultural identity. Iranian cinema's rise to international notoriety is, perhaps, one indicator that a brighter future is possible between Iran and the West where narratives of Orientalists and New Orientalists have given way to greater appreciation of Persian poetry and culture.

PHOTOGRAPHY

SPIKES
Monica Shell

This photograph was shot using a macro lens for a final project for Photography I. It shows the up close detail and beauty nature has that the everyday eye does not see.
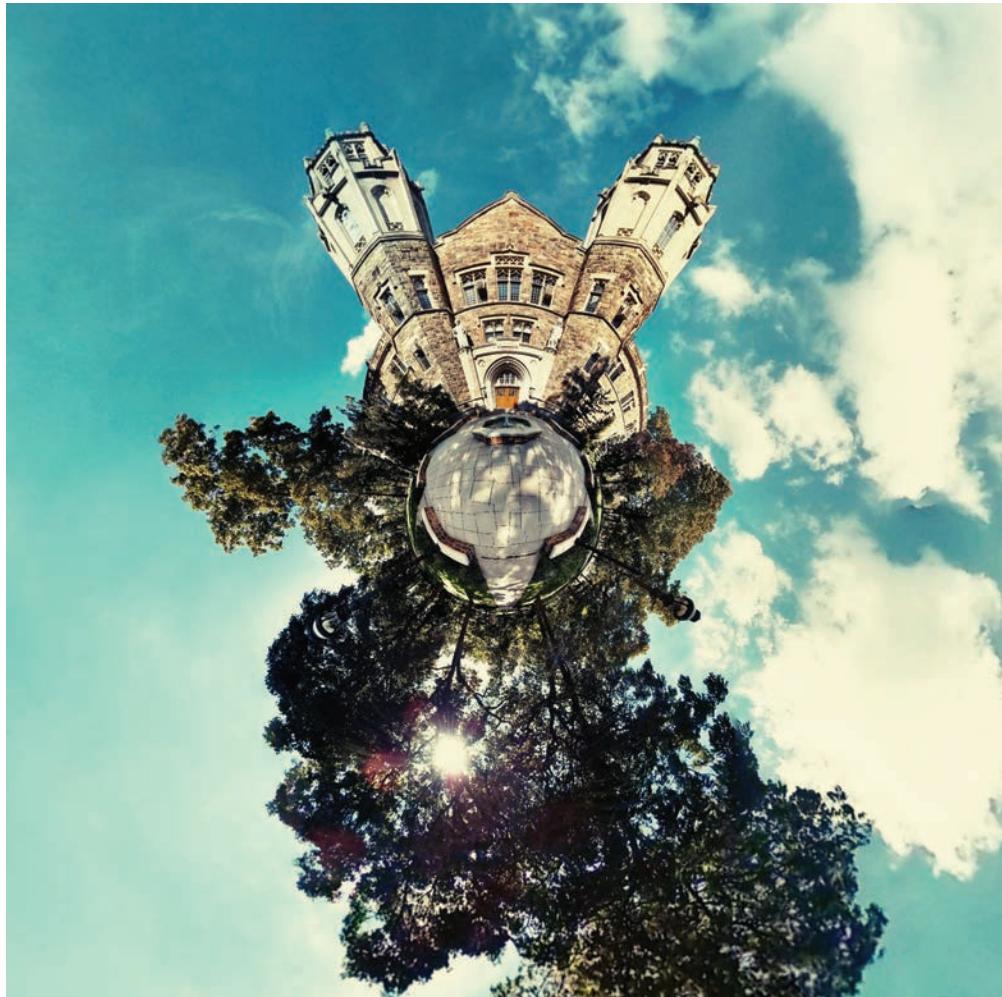
SPHERE
Andrew Law

The piece is intended to give viewers a look of a spherical earth, a view that we usually don't see. The piece is one of a collection I have taken of well-known buildings in Lehigh University. It features Packard Lab, a place where Lehigh engineering students spend most of their time.

THE PHOENIX
Kylie Grey

This photograph was taken at Knoebel's Amusement Park of Elysburg, Pennsylvania. I attempted to capture the timeless beauty and structural elegance that I love about all wooden roller coasters.
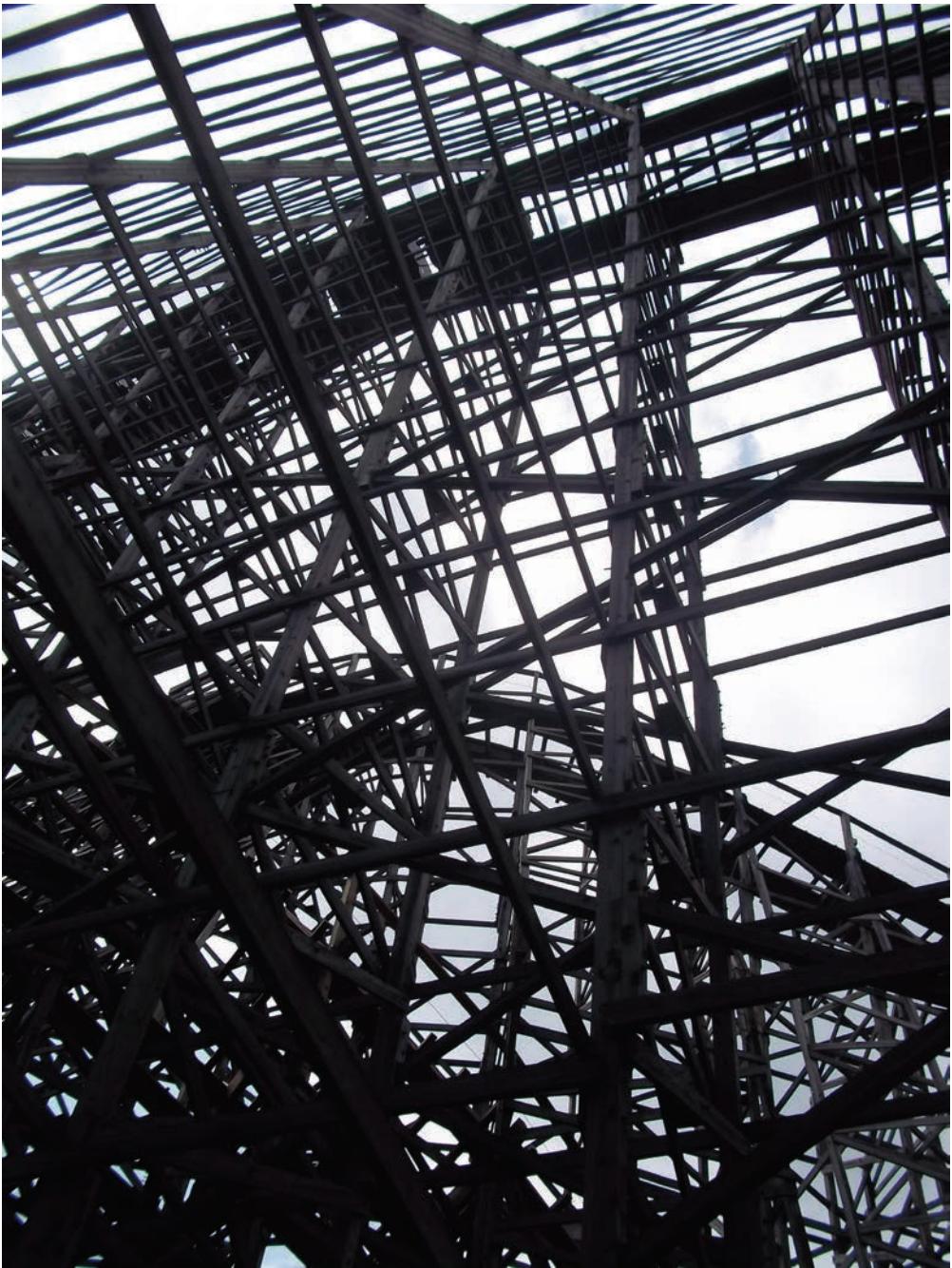
UNTITLED, 2013
Kriston Lynch

This photo explores the ideas of urban ennui juxtaposed with minimalism. I sought to capture the rebirth of the world through my lenses with the hopes of creating new meaning for viewers. This is the same reason why most of my pictures remain untitled. Growing up in New York City has had a huge impact on my life and I wanted to capture it in an organic and non-romanticized fashion.

GIRAFFE
Elizabeth Cornell

Giraffe was a photograph I took while studying on a semester abroad in South Africa. I used a Canon Rebel and then edited the image in Adobe Photoshop to convert it to a black and white photo.

PHOTOGRAPHS THAT DID NOT APPEAR IN THEIR ENTIRETY

TANGLED
Allison Motola

Tangled is a digital photograph taken with a very short depth of field in order to zoom in on the texture and detail of the subject matter. This piece was taken for my senior honors project, which had an overall theme of abstractions. When shooting this piece, my focus was to capture the texture of an ordinary object while simultaneously making it abstract to the viewer and intriguing to look at.

EARLY MORNING FOG
Oliver Rye

This is a photograph of an early morning sunrise as viewed through thick fog that had settled over some farmland in Lancaster, Pennsylvania. The photograph was taken through the rear window of a friend's car as we traveled down a highway at 70 miles per hour. I happened to have my camera handy, and was able to capture this beautiful scene as it appeared to me for but a fraction of a second. I love this shot because it shows so perfectly how landscape photography can be solely reliant on stumbling upon the right scene at the right time.

PAINTBRUSH
Sathya Ram

For my digital photography class, I was assigned to photograph a series with a central theme of my choice. Chandler Ulman, a stoic, decaying testament of architecture at Lehigh is the place where most students go for the arts. I set out to capture the rustic setting of the building in a simplistic manner. We often overlook finer details; I attempted to highlight on the naturalistic and understated elements in each of the rooms with each photograph.

EMERGING VOICES

Dwight Kessler
Domenica Massamby
David Rodriguez-Oporta
Nicholas Trovalli

Through our continued collaboration with the Office of First-Year Experience, the staff of the Lehigh Review has once again compiled a selection of talented young writers for the "Emerging Voices" section of the journal. In the summer of 2013, incoming students read Brando Skyhorse's The Madonnas of Echo Park: *a novel which follows a cast of characters indelibly linked by their experiences growing up in a once-dangerous and recently-gentrified neighborhood in Los Angeles. Students were asked to think and write critically about their own relationships to residence: to articulate the ways in which their identities have been influenced by their hometowns; to consider how moving to Lehigh's campus might impact that influence; and/or reflect on the consequences of having an identity based in the idea of "home." We are proud to showcase the winners of that effort: some of Lehigh University's best and brightest young authors, who remind us that Lehigh's superb talent exists at all levels.*

DWIGHT KESSLER

Every high school student in history cannot wait to graduate. They want to get out of their so-called "prison" and go into the world to accomplish bigger and better things. When they toss their caps up, they look to the future and it is big and bright in their gleaming eyes that may be filled with tears. Looking back, however, that time was so abrupt it was sickening. All of the things I had worked so hard for in my 12 years of schooling were thrown behind me as I was shipped away to college. All of my friends and the people I cared so much about simply vanished. Much like the abrupt changes to the environment and the people of Echo Park, my life went from perfect to nonexistent. I felt like I had nothing and, somewhat still, I would give almost anything in the world to have my old life back.

Almost all of the characters in Echo Park lost their identity with their hometown at some point in the book. When, or if, they left Echo Park, they left everything they knew behind, much like Hector in the first chapter of the book. Furthermore, the characters that remained in Echo Park saw their identities crumbling around them as their childhood and livelihoods were destroyed by outside forces bit by bit.

My world, however, crumbled instantly. During the first two months of college I was struggling with making the adjustments that were necessary. I was trying to claw my way back to my old life by talking to my friends and others from home rather than embracing what I could have here. To a certain degree, I was still home, back in high school with all the people I care about, mentally; but physically I was at college. The loss of identity and stature that I had in high school broke me to a point I wasn't proud of. My hometown and the life I left behind wouldn't leave me.

As for me, the resistance that I feel as I cling onto my past is just another obstacle

in life I have to overcome. I need to learn to be my own person against the unfathomable odds around me. I need to learn to be happy with the new things in my life rather than trying to cling to happiness in memories. I need to embrace the opportunities in the present rather than looking to the past for comfort. My hometown and its memories will never let me go, but I need to embrace whatever comes my way in my new situation with open and accepting arms.

DOMENICA MASSAMBY

Having originated from Maputo, Mozambique (a somewhat big, yet understated, less developed coastal country) and having lived in Tokyo (one of the biggest, most populated and popularly referenced cities of the world) Swaziland (one of the last remaining monarchies) and recently Zimbabwe (a country struck by political unrest and social conflict), I can definitely say I am aware of the differences that exist between my hometown and its surrogates. I remember anticipating returning home from Japan after almost six years of separation. To me, Maputo represented heritage, dynamic culture and

a place of ease. Nevertheless, I was scared to leave behind the comfort of Tokyo, its opportunities and its security. Most of all, I was scared of not finding a place for me to grow intellectually: one, because I was accustomed to speaking English, and two, because I was concerned about the quality of education. It would be the first time I clearly understood the degree and impact of change of residence.

I thought *Would a poorer education turn me dumb? Would a lack of infrastructure mean I was limited in my creativity?* Looking back I guess my ignorance as a child misled me quite a bit. Because when I returned home, everything seemed to have changed. It wasn't necessarily a bad or a good thing, but it had changed. When you live far from home for such a long time, you begin to assume nothing has stayed the same.

It was weird to finally realize how fast Maputo was developing in terms of its economy. I'd see new businesses emerge and shopping malls be erected.Despite all the changes my city was going through, both in administration and infrastructure, I wanted always to return there.

Today, living in Bethlehem, Pennsylvania—a town with a whole new climate, culture, and history—I feel that my home will only change faster and more drastically with every visit back home. I know, however, that I still want to return to the place I first called my home. Before leaving for the United States, I reflected a lot on how everything would have changed by the time I graduated. I thought about how people would change, as they obviously did and do, because nothing in the world is constant.

Recently, my country has been facing threatening political issues, which have made me really consider my home in a larger socio-economic and political context. Because I know that today I live in such a culturally and historically different city from my hometown, home will always seem to be changed. And because I am not physically in Maputo, I will not change in the same way the Mozambicans will to adapt to their new lifestyle. I think it's important to understand that as a student, the change I will perceive is different from those of the characters in The Madonnas of Echo Park. A lot of the characters were living in Echo Park throughout the changes they experienced. Additionally, I feel that characters like Duchess and Angie, who were born or still growing during the changes are more likely not to perceive the change than others. Similarly, my age makes it difficult to really determine what is changing, whether it is myself maturing or whether it is my hometown transforming.

DAVID RODRIGUEZ-OPORTA

I was born in Miami and lived there for 14 years. Afterwards I moved to different cities, but every summer I would return to my hometown and always found something different. At first, I despised the small changes I noticed because in my mind I always kept a concept conserved of what my hometown should be like, but when I returned to find things different I felt left out. Over the years, however, I realized that even though my hometown changed in small ways, I was the one who had changed the most. After moving out of Miami, I had to adapt to different schools and cities. I learned how to live in different environments and learned to become an open-minded person. Now every time I return to my hometown, I enjoy seeing the hometown that set the foundation for my identity. In Brando Skyhorse's novel, some characters move on and choose to relocate from their hometowns and feel very nostalgic when returning. Other characters feel that their hometown moved on without them. I have learned, from personal experience, that your hometown is like a second home to you and it always will feel like it does not want to let you go.

However, in order for us to be able to fully develop their characters we must detach ourselves from our hometowns and find our global identity; the type of person we are in this world, not just in our hometown. Many characters struggle with this concept: Freddy and Efren both find themselves in sticky situations but neither of them thinks about leaving the city and discovering their identities elsewhere. Hector has only known Echo Park and he closes his mind to believe that that is the only city in which he belongs.

Our identities are directly linked to the setting in which we grew up in. Our culture is a key factor when developing our identities. Language, morals and beliefs are all affected by the culture our hometown engulfs us in. For those students who have spent their entire lives in a city, coming to Lehigh will be a challenge to the identities they have already created for themselves. Because Lehigh and the South Bethlehem area have their own unique culture and are composed of diverse people from different backgrounds, each and every student's identity will be put the test and fully developed here at Lehigh University.

> OUR IDENTITIES ARE DIRECTLY LINKED TO THE SETTING IN WHICH WE GREW UP IN...LANGUAGE, MORALS, AND BELIEFS ARE ALL AFFECTED BY THE CULTURE OUR HOMETOWN ENGULFS US IN.

NICHOLAS TROVALLI

The city of Harrisburg, Pennsylvania has seen better days. Last year, Harrisburg earned the ranking of the twentieth most dangerous city in the United States, and this year's ranking falls only slightly behind. Soaring violent crime rates continue to tarnish the south-central Pennsylvanian capital, branding it as the "worst big city" to inhabit within the state. To make matters worse, the now bankrupt city has been battling financial disarray for the past few years, and its public education systems have recently garnered much scrutiny from state government officials. It just so happens that I call Harrisburg my hometown, my Echo Park.

I do not turn my back to any of the "hard knocks" that my hometown has given me over the first 18 years of my life. Rather, I feel they have sculpted my character, and I embrace them. Though it pains my heart to see young, innocent faces that I grew up with turn to mugshots on the evening news, I understand that ultimately, everything I have endured thus far in life only makes me a stronger, more diverse person.

Make no mistake about it, I feel very lucky to be here at Lehigh, arguably one of the most prestigious universities in the entire country. As my senior year progressed, I began to wonder about some of the dealings around my high school, and I became concerned about whether these anomalies would affect my chances of earning admission into a well-respected university like Lehigh. Now that I am a Lehigh student, I am experiencing a bit of trouble adjusting to certain aspects of university life. I have never stolen anything from anybody in my entire life, yet I am unaccustomed to being able to walk through the library or dining hall while wearing my backpack. I feel hesitant to walk around our entirely secure campus at night

AT LEHIGH, I FEEL THAT MY SURROUNDINGS CHALLENGE MY IDENTITY.

because in Harrisburg, you only did that if you sought trouble.

In my first few weeks here, I feel that some people have received me incorrectly. I have had people tell me that they initially saw me as "scary," "thuggish" and "stupid" A few of my peers had the guts to tell my they labeled me as "someone I wouldn't want to talk to," "someone who doesn't belong at Lehigh" and "someone who uses drugs and smokes all the time" before they actually got to know me. These startling confessions confused me. I don't quite understand why people see me like this, because I would like to think that I embody the exact opposite characteristics of the aforementioned. I am trying to figure out if the way I talk, the way I dress, or my interests have anything to do with it, but I would be very disappointed if my perceived "hip hop" tendencies tarnished my self-image in any feasible way here at Lehigh. I am concerned that I strike my peers the wrong way, and I want to prevent that from happening in the future.

I read Brando Skyhorse's *The Madonnas of Echo Park* a few months before coming to Lehigh. At the time, I felt little to no identification with any of the novel's characters because I had never felt displaced

in an alien environment before. After being here for a few weeks, I now understand the characters' problems with identity development much more easily. At Lehigh, I feel that my surroundings challenge my identity. Now that I spend most of my time in a place where Harrisburg's norms become abnormalities, I believe an external force exists that attempts to pressure me to greet people with a simple hello rather than a "yo."

You cannot throw a tiger into the lion's den and expect positive repercussions. Similarly, you cannot expect a kid born and raised in one environment to move to a completely foreign environment and adjust easily. I do not wish to assimilate because I take pride in distinguishing myself. Harrisburg made me who I am, and although its outsiders may question my devotion, I am a proud product of Harrisburg, and I would not wish for it any other way. Just as Echo Park's residents hold on to their past traditions from Mexico, I shall continue to hold on to my past traditions from Harrisburg. I wholeheartedly believe that I will find great joy in my next four years here at Lehigh, and I cannot wait to see what the future holds for me and my peers. I have emigrated from Harrisburg to Bethlehem. I cannot turn back now.

ABOUT THE CONTRIBUTORS

SAVANNAH BOYLAN is a junior minoring in studio art at Lehigh University.

ELIZABETH CORNELL is a junior in the IDEAS program. She is working towards an integrated degree in computer science engineering and digital art.

SARAH GLICKSTEIN is a senior economics and global studies double major. Her economics thesis was inspired by her study abroad trip, where she was fortunate enough to travel to India, Senegal and Argentina throughout the semester. She will be staying at Lehigh for a fifth year to pursue a master's degree in comparative and international education.

KYLIE GRAY is a senior English major from Haddon Heights, New Jersey. She enjoys multiple forms of creative expression and this is her first published photograph.

HANNAH HAN is a junior majoring in architecture and studio art with a concentration in painting. She is a founding and active officer of the Art, Architecutre, and Design Club, a Dean's List Scholar, and an avid runner.

JAMIE HUDSON is a junior majoring in civil engineering and intends to pursue a graduate degree after Lehigh. She has a passion for architecture and history and is an avid traveler with a love for experiencing and learning about different cultures and their pasts.

JONELLE JERWICK is a class of 2015 architecture major from Hagerstown, Maryland. She plans on attending graduate school to eventually pursue a career in architecture. When she is not in the studio, she is practicing with the Lehigh Track and Field Team as a pole vaulter. She enjoys working in clay when sculpting and is obsessed with the small details.

BRIDGET JOYCE is a senior international relations and economics double major from Howell, New Jersey. She is President of Lehigh's World Affairs Club and a Martindale Student Associate.

DWIGHT KESSLER is a freshman at Lehigh University.

ANDREW LAW, a mechanical engineering student, unintentionally fell for photography the year he traveled to the United States. Since then, he has viewed photography as a collection of life moments, and he believes that bold moments are meant to be captured in such way that when we look back, we can feel it again.

ZAC LISKAY is a senior civil engineer from Moon Township, Pennsylvania. He is also a member of the Kappa Alpha fraternity and a member of Lehigh's rugby club team.

KRISTON LYNCH is a senior mechanical engineering student at Lehigh University. He is from New York City, which has had an incredible impact on his development. Amidst a myriad of creative projects, photography has become a recent hobby of his.

KERRY MALLETT is a junior majoring in political science and journalism and minoring in history of the visual arts. She is an editor for The Brown and White, Vice President of Student Senate, and a member of Alpha Gamma Delta.

BOB MASON is a third year environmental science student at Lehigh. Nature, music and art are his most significant interests, and he is always trying to combine and balance the three. When he's not building his professional self, he can be found uploading artistic/musical videos to YouTube.

DOMENICA MASSAMBY is a first-year international student from Mozambique. She is a member of the Lehigh University Diplomats as well as the Black Student Association and the Muslim Student Association and hopes to become more involved in the service scene in the upcoming semesters. Having always been intrigued by the complexity of science and the innovation of art she hopes to pursue a Bachelor's degree in architecture.

ALLISON MOTOLA is a senior at Lehigh University pursuing a double major in graphic design and art with a concentration in photography. She has been studying photography since she was thirteen years old and strives to capture small nuances in her surroundings that often go unnoticed, making them aesthetically pleasing to the viewer.

EVAN ORF was born and raised in St. Louis Missouri, and is now pursuing a Bachelor of Arts in Architecture degree at Lehigh University. Currently, he is studying at the Danish Institute for Study Abroad in Copenhagen for the Spring 2014 semester.

SATHYA RAM is an avid photographer majoring in design and minoring in studio art and English. Sathya believes in clarity, color and charisma.

DAVID RODRIGUEZ-OPORTA was born in Miami but lived in Pennslyvania and Spain before coming to Lehigh. He enjoys doing active things but his favorite sport is soccer. He is a passionate worker at the Office of Student Leadership Development . He is also involved in the Lehigh Steel Bridge team and Intervarsity Fellowship.

SHANE RUGG is a senior civil engineer from Johnstown, Pennsylvania. He is a member of the Lehigh varsity football team.

OLIVER RYE is a member of the class of 2017 and will be majoring in mechanical engineering. A self-taught photographer and lover of the outdoors, Oliver can often be found wandering the Lehigh campus practicing his landscape and architectural photography techniques.

JACKLYN SANDS is a freshman in the College of Arts and Sciences who plans on majoring in art. She hopes to go on to earn a master's degree in education after graduating from Lehigh with an end goal of becoming a high school art teacher.

MONICA SHELL is currently a sophomore at Lehigh studying graphic design. She also works at Lehigh's IMRC designing websites and other graphic projects around campus.

JULIA SLOANE is a junior at Lehigh University studying graphic design and minoring in business and Spanish. She is currently interning for a graphic design firm in London.

JAMES SUH is a senior student and will be graduating in May 2014 with B.A. in design, concentrating on product design, as well as a minor in engineering. He hopes to make a considerable difference in diverse fields like automotive, digital, and service industries during his career.

JUSTIN TAGG is a senior at Lehigh majoring in architecture. He believes that architecture has the profound power to communicate ideas and as an architect, he will be able to positively affect his community. He is the recipient of the 2013 Kathryn & Thomas Pratt '35 Memorial Scholarship.

CONOR THOMPSON is a senior civil engineer from Boswell, Pennsylvania. He is a member of the Pi Kappa Alpha fraternity.

NICHOLAS TROVALLI is a freshman computer engineering major from Harrisburg, Pennslyvania. 'Nick' enjoys math, science, writing and is an avid sports fan.

SHANNON VARCOE is a junior in the Integrated Degree in Engineering Arts and Sciences (IDEAS) Honors Program with concentrations in mechanical engineering and product design with a minor in entrepreneurship. When she graduates, Shannon hopes to pursue a career in design and product development in the children's consumer products industry. She is currently creating a line of wooden building toys to improve spatial skills in children.

HILARY WEAVER is a design arts major with a concentration in graphic design. She has been a member of the women's basketball team for the past four years and is an active member of Lehigh Fusion.

ABOUT THE STAFF

EDITOR IN CHIEF
JANE GIVENS is a senior English major with minors in business and international relations. She is an Eckardt Scholar, a TRAC Fellow, a member of the Pi Beta Phi sorority and a competitive equestrian. This is her third year on the staff of the Lehigh Review, and she plans to continue on at Lehigh next year as a Presidential Scholar.

MARKETING EDITORS
MAI HANOON is a senior majoring in journalism and minoring in music industry. She is a member of the Lehigh Melismatics A Cappella group, she loves to play guitar, and she is a member of the Gamma Phi Beta sorority.

CORY TUCKER is a senior majoring in journalism and minoring in business. This is her second year on the staff for the Lehigh Review, but first time as an editor. She is also a lifestyle writer for the Brown and White, an avid foodie, a member of the Pi Beta Phi sorority and a TRAC Fellow.

DESIGN EDITOR
ELIZABETH PHILLIPS is a junior double majoring in graphic design and English with a passion for all things creative. This is her second consecutive year as an executive editor for the Lehigh Review; she is also a member of Fusion Design Studio, a Dean's List scholar, and plans on pursuing a design career in the publication industry.

STAFF EDITORS

RAVEN ATKINS is a student at Lehigh University.

KAAMILAH FURQAN is a sophomore majoring in finance with a double minor in French and business information systems. She is on the executive board of the National Association of Black Accountants, a features writer for the Epitome Yearbook staff, and has been playing classical piano for 17 years.

JUSTINE GAETANO is a sophomore majoring in graphic design and minoring in art history. She is a Dean's list scholar, a member of Lehigh's Art, Architecture, and Design club, and secretary for Lehigh's belly dancing team. She plans to pursue a career in art directing.

CATHERINE PREYSNER is a sophomore majoring in Mathematics with a minor in English. She plays the French horn in the Lehigh University Philharmonic Orchestra and is a member of the Summer Reading Selection Committee.

JACOB SILBER is a senior English and psychology major with a minor in health, medicine, and society. He is current president of the Association of Student Alumni, program coordinator in the Office of Student Leadership Development, and spends an uncomfortable amount of time watching Netflix.

THE STAFF OF THE LEHIGH REVIEW WOULD LIKE TO THANK NORMAN GIRARDOT FOR HELPING ESTABLISH THE LEHIGH REVIEW 22 YEARS AGO AND HIS CONTINUOUS SUPPORT EVER SINCE. WE WISH YOU A HAPPY RETIREMENT & EXTEND OUR GREATEST THANKS FOR YOUR PART IN ESTABLISHING THE TRADITION OF EXCELLENCE THAT CONTINUOUSLY EVOLVES WITH EACH VOLUME OF THE LEHIGH REVIEW.

ENDNOTES

DISSOCIATIVE IDENTITY
BETHLEHEM, PENNSYLVANIA AFTER BIG STEEL

1   Robert Hessen, "The Transformation of Bethlehem Steel, 1904-1909," The Business History Review 46, no. 3 (Autumn 2007): 340.

2   Ibid., 341-343.

3   http://www.jstor.org.ezproxy.lib.lehigh.edu/stable/1146834?seq=2&Search. Courtesy of Sara Brady.

4   Paul Willstein, "Steel Play Opens: Spellbound Audience Braves Tough Weather For Moving 'Steelbound'," The Morning Call, September 10, 2004.

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