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**Values-Based Decision-Making**

**In the Treatment of Objects from the 9/11 Memorial & Museum**

## INTRODUCTION

A principal assumption underlying conservation is that cultural heritage is in some way valuable; if it were not considered valuable, time and resources would not be spent on preserving it (Clavir 2002; Cutajar et al. 2016; Mason 2002). When investigated more deeply, however, this seemingly straightforward claim gives rise to a series of complex questions. Where is value located in an object? For whom is the object valuable? How do values affect treatment decisions? This paper presents two case studies that explored these questions within the context of a discussion class where values were applied to objects conservation.

Traditionally, conservation is practiced within a materials-based values system. Foundational documents such as the Athens and Venice Charters put forth core conservation values based on principles of authenticity and material preservation. In this approach, a work of art is considered to have universal, intrinsic values embodied in its material form that are identifiable by experts. Conservation treatments, guided by the object's physical condition, aim to reveal and preserve the integrity of the 'authentic' or 'true' object (Appelbaum 2007; Cutajar et al. 2016). Within a materials-based system, the universal values and true nature of an object are determined by expert analysis. It can be argued, however, that an object has no single, unalterably true nature (Appelbaum 2007). The authenticity of an object can refer to its state at any number of points throughout its life, such as its original state or its state during a significant moment in its history. An object's physical condition and meaning are constantly shifting; as such, any determination of its 'true nature' and subsequent treatment decisions are preceded by subjective interpretation and value judgments (Appelbaum 2007).

By contrast, a values-based conservation framework explicitly acknowledges the alterable nature of objects and their contextually attributed meanings. Such a framework seeks to make the value judgments underlying conservation decisions explicit. While experts still make the decisions, their determination of values derives not just from physical examination and historical research but also from community consultation. By engaging with multiple stakeholders to determine what they each find valuable, a broader range of opinions is incorporated into the decision-making process (Burra Charter 2013; Cutajar et al. 2016). The values of an object can stem from

both its tangible and intangible aspects. For example, aesthetic value can be derived from its physical form or sentimental value can come from personal association. Rather than preserving the physical fabric of an object's 'true nature,' values-based conservation seeks to sustain and enhance the object's cultural significance (Cutajar et al. 2016).

Values-based conservation approaches employ standardized semantic categories to identify and categorize types of value. These categories represent a reductionist system aimed to facilitate the examination of complex cultural significance (Avrami et al. 2000; Cutajar et al. 2016). The typologies of various scholars and disciplines within conservation vary, but most tend to consist of broad categories that are further divided into subcategories. This type of categorization of cultural heritage values has a long history dating back to the Austrian art historian Alois Riegl. His essay, *Der modern Denkmalskultus, sein Wesen und seine Entstehung (The Modern Care of Monuments, its Character and Origin)*, published in 1903, divides values into two main classifications: commemorative values and contemporary values. Commemorative values are further subdivided three categories: age value, which appreciates the marks of time rendering an object's history visible; historical value, which privileges a specific point in the object's history; and deliberate commemorative value, which focuses on the intentional associations of an object. Contemporary values are also further subdivided into two categories: use value, which attaches importance to an object's continued functionality; and newness value, which privileges a contemporary aesthetic of modernity (Riegl 1903). Cultural heritage preservation charters and theorists have correspondingly expanded this list to suit their own typologies (Marincola and Kargère, forthcoming). For example, Cutajar et al. (2016) describe a classification system of four main categories: evidentiary, associative, sensory, and functional values. Within these four categories are further specific descriptors of value, such as: informational, educational, scientific, research, symbolic, social, spiritual, communal, sentimental, and aesthetic value.<sup>1</sup> An object may be ascribed multiple simultaneous values. The sum of all of these values amounts to what the conservation community terms an object's cultural significance (Avrami et al. 2000).

Within a values-based framework, conservators compile a formal statement of significance that provides a comprehensive assessment of the object's cultural significance. Once an object's

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<sup>1</sup> For other theorists and charters that describe their own value typologies, see the bibliography.

significance has been established, a condition assessment identifies how significance has been damaged or is likely to be damaged in the future. The plural and often contradictory nature of a significance statement arises from the divergent values that can be at play in an object. As such, significance statements can be difficult to write and conflicts can arise when one set of values must be prioritized over another. The significance statement is used as a reference point from which to consider the impact of proposed treatments and explicitly negotiate decisions about prioritization. The statement provides a focal point for the development of a justifiable conservation treatment plan (Avrami et al. 2000; Cutajar et al. 2016).

Though there is an abundance of literature on the importance and application of values assessments in cultural heritage preservation, many objects conservators are unfamiliar with values-based decision-making in their daily practice (Cutajar et al. 2016; Pearlstein 2016). Objects conservation students at the Conservation Center of the Institute of Fine Arts, New York University put these theories into practice during the Fall 2016 semester. In a course entitled *Applying Values-Based Decision-Making in Objects Conservation*, they treated objects from the 9/11 Memorial & Museum.

### *The 9/11 Memorial & Museum*

The 9/11 Memorial & Museum rests on the original footprint of the World Trade Center in downtown Manhattan. The memorial commemorates the victims, survivors, and communities affected by the events of September 11; the museum aims to document the historical context and explore the continuing impact of the events. The museum's collecting policy centers around history and memory. It includes photographs, videos, and sound recordings from the day, along with personal objects from victims and survivors, remnants of the original buildings, and response objects (9/11 Memorial & Museum, Collections Management Policy, 2013).

The objects the students treated during the course were all associated with the response to the events of September 11, such as items worn by first responders during their service or artworks created from emotional reactions. The students, including the two authors, spent the first few weeks discussing how a values-based methodology could be applied to approach such daunting,

emotionally charged objects. The following two case studies will discuss how the same methodology was used for both national and personal response objects, and what the students learned in the process.

## **AMERICAN FLAGS**

When writing their statements of significance, the students started with the contexts of the objects. Two students, author Chantal Stein and Joy Bloser, jointly examined and treated a collection of 20 American flags (fig. 1 in *Appendix I: Images*).

### *Historical Context*

The events of September 11 introduced the new threat of large-scale terrorism to the United States, which profoundly affected the nation's psyche. The World Trade Center was in the heart of one of the world's largest cities. Thousands of people witnessed the events first-hand, and millions watched on live television. The emotional distress caused by the attacks was overwhelming. The nation's collective psychological state ran the gamut of emotions from horror, to anguish, to outrage (Bergen 2017; Bush, Remarks to the Nation, September 11, 2002). Collective trauma pulls people together, and the shocking events had a "gravitating power" that connected Americans with each other (McLean 2004). The collective trauma galvanized the United States into a more positive, productive response. Americans recognized the greatness and heroism of their rescue workers, and set themselves apart from the terrorists by bonding over their own shared ideals and beliefs (Bush, Remarks to the Nation, September 11, 2002).

An upwelling of patriotism ensued, first as collective grief for the lives lost and then as a celebration of the heroism of the United States and its beliefs (Denzin 2007). Patriotism was made visible by an "ocean of flags" that appeared across the country; they were placed in store windows, on school campuses, and on highway overpasses. The flags served as a conduit for the expression of sympathy and solidarity throughout the city and nation. In the first week after the attacks, over 80% of Americans displayed a flag (McLean 2004).

In New York, local artist and restaurant owner Ziggy Attias collected approximately 150 of the flags that had blown to the shoulder of Sunrise Highway on Long Island. He first noticed these flags on the highway during the winter of 2001-2002. Patriotic and a collector by nature, he stopped to pick up each one that he saw. He would go to great lengths to collect them; he even gathered one that was frozen into a block of ice and snow, which he let thaw on the front seat of his car. He collected them throughout the winter, until eventually there “just wasn’t any flags anymore” because the surge of patriotism had passed. He felt that the flags were not for him to keep, so in 2009 he donated them to the 9/11 Memorial & Museum (Z. Attias, interview, December 6, 2016).

### *Establishing Significance*

When writing the significance statements for the collection of flags, Stein and Bloser first identified stakeholders and values. Stakeholder categories were broad and varied. Individuals like Attias projected their own personal values onto the flags. The owner of the flags, the 9/11 Memorial & Museum, had its own sets of values related to the institution’s mission statement. The broadest category of stakeholders included the public; this could be further divided into specific subcategories such as relatives of victims, visitors to the museum, those who witnessed the events firsthand, the rest of the American public, and even the global public. Each stakeholder associated different values with the flags.

Stein and Bloser interviewed Attias about why he collected the flags. For him, collecting them was an act rich with historical value. The soiled American flags been flown before eventually landing as refuse on the highway. For Attias, this marked a moment in history in the wake of the events of September 11. Because of his patriotism and recognition of the historic moment in which was living, Attias collected them for sentimental value. The flags were visual symbols of the tragedy New York City had just encountered and was continuing to experience. Attias found the evidence of use and wear layered over the symbol of the American flag to be highly aesthetic. As an artist, he originally wanted to employ the found flags into his own artwork. Everything he tried, however, made the flags seem like less than what they were on their own.

The flags were “marked by history” and existed “within a much larger context.” For Attias, their historic importance surpassed everything else (Z. Attias, interview, December 6, 2016).

In addition, Stein and Bloser spoke with curators and conservators from the 9/11 Memorial & Museum to determine their goals for the treatment. The museum emphasized the flags’ educational value. As objects on display within a museum context, the flags serve as a visual aid with which to educate visitors about Long Island’s response to the events of September 11. The large number of flags enhances their educational value. Exhibiting a collection of American flags together, each with their own unique characteristics, can educate visitors about a number of topics: the depth and breadth of the response, the variation that can occur within a symbol such as a flag, and the parameters that define such a symbol (M. Merrigan, personal communication, October 19, 2016).

The 9/11 Memorial & Museum curators and conservators also discussed the informational, evidentiary, and research values of the flags (M. Merrigan, personal communication, October 19, 2016). September 11, 2001, was one of the first times a massive global audience watched a terrorist attack unfold in real time over live television. After the attacks, countries that were allied with the United States rallied to support the nation. The French newspaper *Le Monde* even ran a headline titled “We are all Americans now” (Bergen 2017). Global manufacturers produced American flags such as those collected by Attias to satisfy the high demand. In doing so, they both showed their company’s support for the nation while also commodifying the national tragedy. September 11 as an event was “folded into the flag” (Denzin 2007). As a collection of flags original to this period of proliferation post-9/11, these flags serve as evidence of the materials and techniques used in rushed mass production under a tight timeframe. Their research value stems from their similarities and variations; as a collection of many different flags, they represent the range of manufacture post-9/11. Their plurality value, as opposed to the more commonly applied rarity value, increases their collective informational value.

To examine what the last category of stakeholders—the public—might value, Stein and Bloser considered themselves as part of the public. They contemplated what they personally valued, and explored each other’s opinions and those of their fellow students. As discussed earlier, the

‘public’ as a category could consist of a variety of subcategories. Through empathy and an open-minded approach, Stein and Bloser tried to imagine the range of associations that different groups of people might feel towards the flags. While it would be impossible to consult with every member of the public, some commonalities across groups are likely, and were summarized by the students treating the flags.

The flags are important because of their manufacture as a sign of solidarity. They are equally important, if not more, because of their use. The flags were flown as public displays of support. Their evidence of wear attests to their intended function, their use, and the time span of this response. Embedded in their use are all of the broader values associated with the flags: sympathy, solidarity, commemoration, and patriotism. Their use is made visible by the significant fraying on the fly ends of each flag, due to flapping in the wind. The extent of their fraying attests to the extent of their use, and therefore to the duration of the response on Long Island. Their age value, seen in their evidence of wear, is thus what creates and enhances each of the other values bestowed upon this symbol.

During the post-9/11 period, the flags commemorated the people affected by the events: the victims, the heroes, the responders, and the American nation. As the surge of patriotism dwindled, so too did the display of flags. Those flags once flown on cars and overpasses were damaged to the point that they lost both their symbolic patriotic value and their physical moorings. They landed on the side of the highway as refuse, where they accumulated further damage before Attias collected them and reestablished value. The dirt embedded in the fibers is therefore a testament to both the use and the abandonment of the flags. This shows that values are not static; they ebb and flow with time. The values now associated with the flags are slightly different to those in the immediate post-9/11 period. The flags originally commemorated the people directly affected by the events; now they additionally commemorate the overall historic response by providing a link to a time period that has passed.

Finally, the flags also contain the symbolic and political values embedded in the symbol of the American flag. These are described by Supreme Court Justice Kennedy: “The flag is constant in expressing beliefs that Americans share, beliefs in law and peace and that freedom which



sustains the human spirit” (*Texas v. Johnson, 1989*). The flags in this collection carry with them the political value bestowed upon them as symbols of the nation.

### *Treatment Decisions*

In a values-based conservation framework, the goal is to reveal and preserve the cultural significance of an object. To that end, “damage” can be defined as undesirable changes that result in the loss of significance. Changes that do not relate to the identified significance are not necessarily considered damage. In theory, cultural significance is first established and then condition is assessed *relative* to the significance (Cutajar et al. 2016). What the students learned, however, is that condition issues also affect significance. It became necessary to reassess the significance statements and condition assessments iteratively and continuously. Rather than an ordered linear process, the workflow became a complex and iterative web. Each step had the potential to alter the other steps.

For example, technical examination of the flag led to complications in the significance statement. A technical examination of the flags was conducted to realize their latent research value. Stein and Bloser examined construction, dye techniques, and fiber identification to better understand the materials and methods of manufacture during the post-9/11 period of rushed mass production. Analysis of dye techniques showed that flags were typically printed with stripes running parallel to the warp, which allowed for a continuous production of flags. The proportions of the flags’ design elements were measured and compared to standard proportions defined in the US Flag Code, which was adopted in 1923 with later amendments. The code prescribes proportions for the width and length of the overall design, the stripes, the stars, the blue field of the union, and the distances between stars (4 U.S.C. § 1 et seq.) (see fig. 2 in *Appendix I: Images*). The flags in this collection each followed the proportions enough to be recognizable as an American flag; not a single flag, however, followed the prescribed proportions exactly. The widths of the overall design, the union, and the stripes were correctly proportioned. The diameters of the stars and the lengths of the union and overall design, however, were not; in almost all cases they only measured 60-70% of the standard proportion. The material evidence

indicates that manufacturers modified the flag design to produce more flags at a faster pace in order to meet the high demand.

The US Flag Code also discusses the appropriate actions to take towards damaged flags. According to the code, when a flag is in such a deteriorated condition that it is no longer a fitting emblem for display, the flag should be destroyed in a dignified way. This complicated the significance statement for the 9/11 Memorial & Museum flag collection. On one hand, the deterioration visible in the flags provides evidence of their use and enhances their historic and associative values. On the other hand, the deterioration damages the symbolic and political values of the flags. A further complicating factor arises from the difficulty of distinguishing deterioration due to use and deterioration due to abandonment.

When developing a treatment plan, these contradictions had to be weighed. The deterioration of the flags is directly related to their historical use. Although their tattered condition means they are no longer fitting emblems for display according to the US Flag Code, they can still be retained as relics according to the US Army Code. One of the most famous examples of a flag maintained as a relic is the Star Spangled Banner. This flag, flown over Fort McHenry during a battle of the War of 1812, inspired the words to the song that has become the national anthem of the United States. When conservators at the Smithsonian National Museum of American History treated it, acknowledged United States citizens as major stakeholders and took their interests into consideration (Thomassen-Krauss 2001; Trupin 2011). For the 9/11 Memorial & Museum collection of flags, Stein and Bloser decided that their most significant values came from their use and so their evidence of use should be preserved.

The treatment goal for the flags was to preserve the values associated with the deteriorated appearance while maintaining material stability. Potential future damage to the flags had to be considered; abrasive and hygroscopic dust and dirt can act as agents of deterioration and accelerate material degradation (Rendell 2010). Since this degradation would not be associated with historic use, it could be considered damaging. Removing potentially harmful loose particulates would decrease the risk of future damage while preserving the evidence of wear through stains, tears, and matted fibers. This would also allow the treated flags to retain visual

consistency with the other flags in the museum's collection. To that end, the flags were lightly surface cleaned with a low-speed HEPA-filter vacuum; a screen was used to mitigate damage and prevent the vacuum sucking up loose threads. Housing was constructed for transport and storage.

This collection of flags formed part of a holistic, national-level response to the events of September 11. Each individual flag was a unique object, but they all had a united significance. The next case study will discuss how the same approach was used to look into personal history and identity for personal objects.

## **HARD HATS**

Two hard hats worn by FEMA first responders were brought to the Conservation Center for examination and treatment by author Christine Haynes and Joy Bloser (fig. 3 and 4 in *Appendix I: Images*). The hard hats were donated by the owners: Thomas Kenney, the current captain of Hyannis Fire Rescue and team manager at FEMA's urban search and rescue Massachusetts Task Force 1; and Gerry Giunta, current Salem Deputy Fire Chief and Deputy Chief in FEMA's urban search and rescue Massachusetts Task Force (MA TF1, 2017). As part of their service with FEMA, both men "worked the pile" at Ground Zero—a phrase coined to describe the process of rescue workers searching for survivors (9/11 Memorial & Museum, Loan Documentation, 2016).

The 9/11 Memorial & Museum retains photographs, sound recordings, and videos related to the contexts of their accessioned objects. For Kenny and Giunta, this includes photographs of them working the pile in their hard hats, audio recordings of their oral histories, and video interviews. The collection of multimedia aids the museum's goal to share and preserve memories and experiences.

### *Materiality and Manufacturing*

Both hard hats were manufactured by Pacific Coast Ltd. in New Zealand in the late 1980s. The shells are fiberglass with resin (possibly polyester resin), created in a mold and then covered with

a white UV- and heat-resistant coating. Two strips of rubber edging are mechanically crimped around the base edge of the shell. The blue interior foam was likely made using a mold and then inserted into the shell. The harness is made of eight orange synthetic-fiber straps, looped and sewn around a central dark red braided cord. The interior black and white plastic headband is wrapped in a black faux leather (polyurethane) liner and secured with Velcro. A woven substrate is visible from the interior. The back of the headband has interior yellow polyurethane foam. The headband is adjustable with a black plastic dial at the back of the hard hat. There are two black synthetic fiber chinstraps, consistent with tubular nylon webbing, with black plastic quick-release clips and adjustable fasteners that are mechanically secured. The straps each form a 'Y' shape and are attached to the interior with a metal screw and washer.

The goggles attached to Kenney's helmet are Visorgogs™, manufactured by Jones and Company. The blue plastic is polyethylene cast into a mold, as evidenced by visible seam lines. Mesh metal filters were fitted at the top for ventilation. The clear plastic, likely polymethyl methacrylate (PMMA), was also formed by a mold and fitted into place. The straps are woven elastic webbing with white, red, and blue threads. They have been cut and currently hang at the sides. The goggles are attached to the hard hat with a handmade round turn and two half hitches knot, using black cord. The cord is consistent with a shock cord, a type of bungee cord with elastic interior and polypropylene thread.

The decals are associated with various manufacturers. Most are polyvinyl chloride (PVC)-based; they are composed of a layered structure with PVC and an adhesive. Others are composed of decal paper: a thick paper with an attached adhesive.

### *History*

Opening the box with the hard hats, one immediately smells their history; there is a faint rubber smell mixed with sweat and ash. Scrapes and layered decals that tell the stories of the men who wore them are also evident upon examination. Haynes and Bloser contacted both first responders, Kenney and Giunta, in order to learn more about their lives and the lives of their hard hats.

Kenney and Giunta were issued their hard hats from FEMA in 1990 and 1991, respectively. Kenney explained the detailed history of how these types of hard hats from the New Zealand company Pacific Coast came to be used in the United States: previously, rescue workers had worn fire helmets, but the large brims did not fit in the tight spaces they needed to access and so the fire helmets were replaced with Pacific Coast hard hats. The early 1990s marked the beginning of this style in the United States. For Kenney, these new hard hats were historically significant long before they even came to Ground Zero (T. Kenney, interview, 2016).

Giunta and Kenney regularly wore their hard hats for training and work. They both personalized their hard hats with decals. Giunta painted on black stripes so that his team could quickly locate him among a sea of white hats. Kenney added his own blue goggles, secured with a black elastic cord.

Both went to Ground Zero on September 12, 2001, as part of the first out-of-state group to join the New York City Fire Department. At Ground Zero the helmets endured new damages and collected new decals. Both Kenney and Giunta talked about receiving decals while they were in New York. Logistics workers would pick up stacks of stickers along with supplies and pass them out onto everyone's cots (T. Kenney, interview, 2016).

After working the pile, Kenney "retired" his hard hat, placing it on a shelf in his home. Giunta, however, continued to wear his on subsequent missions, proudly displaying remembrance decals and even adding new ones. Both Kenney and Giunta donated their hard hats in May 2016 after the opening of a photography exhibition at the museum entitled "Hope at Ground Zero," in which they were both prominently depicted in images taken by FEMA photographer Andrea Booher (T. Kenney, interview, 2016).

### *Establishing Significance*

As previously described, the first step in the values-based conservation workflow involved identifying the stakeholders. When working with art sculptures, the main stakeholders are often

the creators and the current custodians. Therefore, the manufacture companies for the hard hats and decals likely have invested interest in the preservation and display of their products. The museum has a variety of professionals concerned with the histories, aesthetics, and materiality of the hard hats.

However, as the two hard hats were historical artifacts their full timeline needed to be considered, including the original users and future viewers. Users included Kenney and Giunta. The viewers include expanding circles of people connected with the events of September 11: survivors, victims' relatives, first responders, New Yorkers living in the city in 2001, people who watched the events on live television, tourists, and everyone affected by the global ramifications.

Viewers may also connect with the institutions and symbols promoted on the decals, such as the digging and rigging companies and the Savannah College of Art and Design. However, do all of these people attach the same values to the hard hats? Should the values of all of these people be given equal weight? What types of judgment decisions are made by prioritizing some over others?

Recognizing their own perspectives and limitations, Haynes and Bloser mapped the values that these stakeholders might apply. They determined that most values were overlapping and repetitive, and related to the physical intactness and visible damages. This damage is a testament to the harsh conditions at Ground Zero and other rescue sites. Specific scrapes are historic evidence of specific moments of a search, and the overall damage is associated with the overall event. The evidence of use is universally valued by the stakeholders considered. For viewers, it invokes and creates a memory. For the search and rescue teams, it shows experience in the field.

Kenney explained: "You see a guy's helmet and you know what he's been through—a burn, a scrape... You see an old guy in a new helmet and you wonder what happened to the old one" (T. Kenney, interview, 2016). When Kenney "retired" his hard hat, the object changed from functional to historic and symbolic.

Although Giunta kept wearing his hard hat, he retained the deteriorated decals in order to honor his rescue mission. Firefighters usually remove damaged flags in accordance with the US Flag Code, as discussed earlier. Giunta, however, explained: “I felt like it was more of a dishonor to scrape it off my helmet and throw it in a barrel. Keeping it was kind of like the Star Spangled Banner—torn and battered” (G. Giunta, interview, 2016). Giunta realized that the damaged symbol of the flag had conflicting values, much like those collected by Attias. Similarly, he felt that the historic nature of the deterioration enhanced the patriotic value rather than detracting from it.

The intactness of the hard hats shows the protective use they served and the dangerous conditions their wearers survived. The intactness, the fact that the objects still exist, provides evidence for their history, and the history of the first non-New York responders to arrive at Ground Zero, marking how this local event evoked a national response. Although the damages are acceptable and valued for their historicity as tangible evidence of the trauma of September 11th, a completely degraded object could not successfully impart the protective function it once served. Mainly, the relative intactness of the stickers and the wholeness of the hard hats commemorate Kenney, Giunta, and all of the first responders. The applied decoration tells their stories. Giunta’s “zebra” stripes made him instantly recognizable, which was important for his role as day shift commander. Kenney’s decals show the rescue training programs he led and his daughter’s university, the Savannah College of Art.

While the casual viewer of the hard hats may get a small insight into the wearers’ lives, other rescue workers can share a deeper understanding. Hard hats are commonly understood by firefighters as individual records, so firefighters or search and rescue workers who visit the museum display may feel another connection to the wearers. Kenney explained, “Helmets are your identity—every sticker tells a story about where he’s been and what he’s done... Even in a hundred years from now, someone in the business will really understand. There is a sense of pride” (T. Kenney, interview, 2016).

Giunta mentioned that he added a firefighter's decal to his FEMA helmet in his early days to identify himself as a fellow firefighter and to show support. He said, “I put it on early while I was down there... to try and help break the barrier between the government team and

firefighters” (G. Giunta, interview, 2016). Continued legibility of these decals was a primary concern in the conservation treatment.

### *Treatment Decisions*

Treatment focused on stabilization and housing in order to align with the evidentiary and commemorative values across stakeholders. The main priority for the preservation of the hard hats was to commemorate their wearers. To do so, the deterioration, as evidence of the history and trauma of the events of September 11, needed to be preserved. In addition, the physical integrity of the hard hats needed to be preserved so that they could remain legible to viewers. This treatment goal was first translated to standard maintenance: dry cleaning and removal of surface dirt, and setting down the lifting decals to mitigate loss.

The plastic components were identified with FTIR to determine future risks. The plastics most susceptible to degradation included polyurethane foam inside the head strap, the vulcanized rubber edging, and the elastic cords securing the goggles. Aesthetics of wholeness were important to the commemorative and functional values of the hard hats. Although the best preservation of these malignant plastics would be to segregate them, this would undermine the integrity of the commemorative objects (Shashoua 2008; Williams 2002).

The polyurethane foam was crumbling and slightly sticky, posing a risk of attaching to the interior fabrics. Additionally, degradation of polyurethane involves off-gassing that can affect neighboring materials such as the other plastic components. Consolidation of the foam using Thea van Oosten’s techniques outlined in *PUR Facts* was considered, however the foam was already severely degraded on both hard hats. Ultimately, and after consultation with the museum, Haynes and Bloser decided to remove the already degraded interior foam and replace it with Volara. The outer polyurethane fabric was stiffly conformed to the shape of the wearer’s head, making the replacement foam easy to incorporate without changing the aesthetic. The fabric did not exhibit evidence of the same degradation mechanism as the foam, so it could be retained safely.



Although replacement is seen as acceptable in other treatments performed at the 9/11 Memorial & Museum, Haynes decided to keep the original goggle straps to retain the aesthetic appearance and the evidence of Kenney's handmade fisherman's knot. The elastic was beginning to stiffen and was at risk of continual brittleness and loss; however, this could be mitigated with careful handling and storage. Supports can allow the shape of the material to be retained, even if embrittled. The strap and the fisherman's knot were documented in photographs so that they could be reproduced if in the future these elements become too damaged for display. Replacement blue Visorgog goggles were also given to the 9/11 Memorial & Museum for use in future treatments.

Haynes positioned the goggles on top of the hard hat as she saw in photographs, and she created a mount to cradle the straps into place (fig. 5 in *Appendix I: Images*). She asked Kenney about the placement and he liked the idea of keeping the goggles on top. He told her, "That's how I went in there and that's how I went out" (T. Kenney, interview, 2016).

Lastly, the 9/11 Museum was given recommendations for storage, including low light levels, low temperature and relative humidity, and (if possible) anoxic conditions (Lavedrine 2012).

## CONCLUSION

What did this values-based approach to conservation actually add, and was there any benefit to doing it this way?

After much discussion and debate over the course of the semester, the students concluded that their treatment decisions did not significantly change through doing a values-based assessment. For the most part, they were already subconsciously approaching objects this way and implicitly making similar value judgments.

The mapping of values and continual class discussion, however, helped in the approach to these emotionally charged objects. This framework helped students assess the relative aspects of each object's significance, condition, and priorities for treatment in a more straightforward,

systematized way. It helped them clearly and succinctly consider how specific values could be altered by a treatment, and allowed them to clearly convey their thought processes and justifications in their treatment decisions. This decision-making workflow is paramount. When implementing a series of micro-decisions within a treatment, conservators must be aware of what is shaping those decisions.

Applying values to conservation forced the students to critically evaluate their own perspectives and limitations, as well as those of stakeholders. The students also concluded that while stakeholders provide a deeper understanding of the object, they do not create a clear, correct answer. Consulting multiple stakeholders does not result in objectivity—a myth that still persists in the conservation field. Rather, consulting stakeholders opens a complex web of subjective interpretations that conservators must sift through. Acknowledging subjectivity and the impact of their own personal perspectives encouraged the students to be self-critical and to challenge their own beliefs.

Even if materials-based and values-based approaches result in similar treatment decisions, making thought processes explicit in this way provides contextually substantiated and richer documentation. Treatment decisions are justified and made accessible to future conservators (Cutajar et al. 2016). Conservation decisions need to be openly discussed and evaluated so that conservators can grow as individuals and as a field; a values-based assessment provided an effective framework for open discussion and growth.

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**APPENDIX I: IMAGES**



Figure 1. 20 American flags from the 9/11 Memorial & Museum's collection, treated by conservation students Chantal Stein and Joy Bloser. Before Treatment, Obverse.

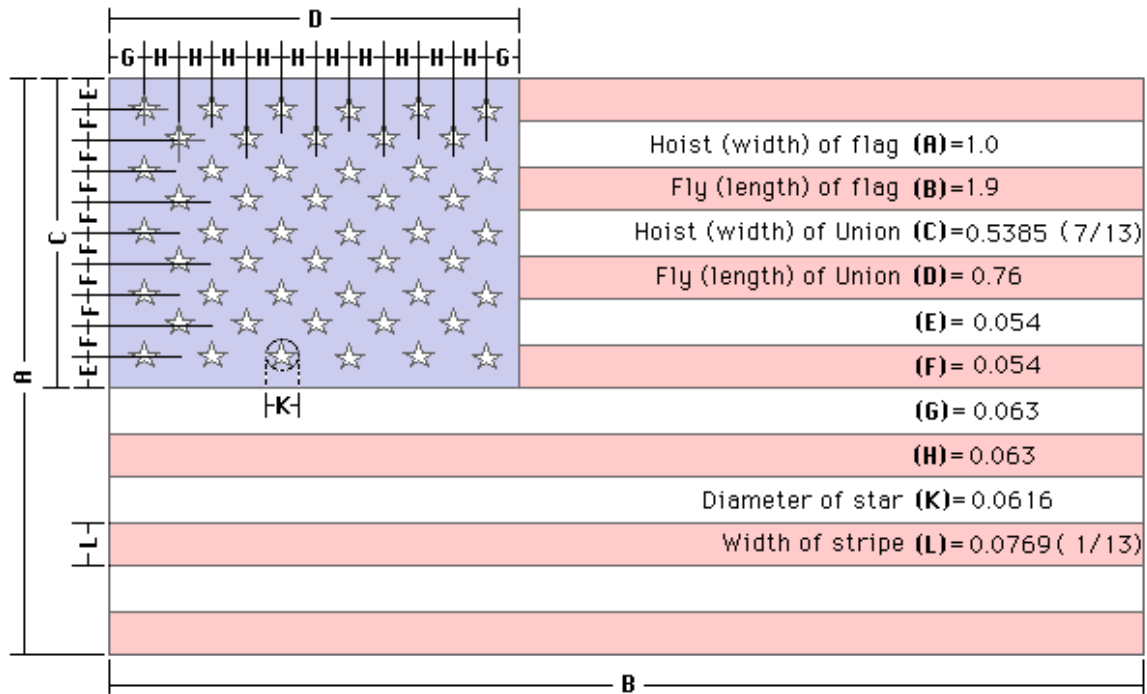


Figure 2. Diagram of the official terminology and proportions for the US Flag. Source: USFlag.org.





Figure 3. Hard Hat worn by Thomas Kenney from the 9/11 Memorial & Museum's collection, treated by conservation student Christine Haynes. Before Treatment.

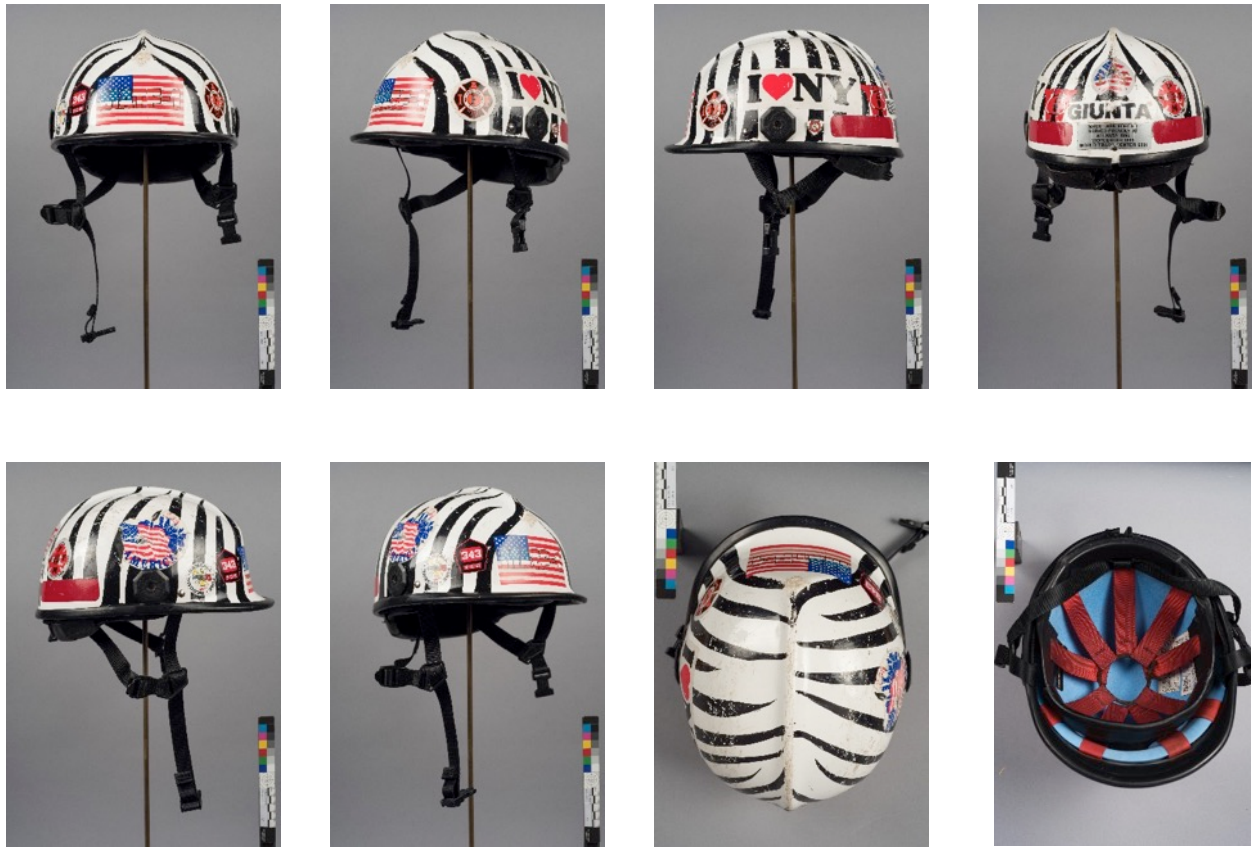


Figure 4. Hard Hat worn by Gerry Giunta from the 9/11 Memorial & Museum's collection, treated by conservation student Joy Bloser. Before Treatment.



Figure 5. Hard Hat worn by Thomas Kenney from the 9/11 Memorial & Museum's collection, treated by conservation student Christine Haynes. After Treatment.