Fords, Bombs, and Archives: The Biography of a Wheel Hub

By Noah Mapes

Objects tend not to be thought about in terms of their previous experiences. However, in the presence of a wheel hub housed by UW Archives and Records Management, it is imperative to consider the events and hardships it endured. Officially known as “Wheel hub from Sterling Hall van,” this car part is intrinsically tied to the past. In “The Cultural Biography of Things: Commoditization as Process,” Igor Kopytoff considers the life of objects as they maneuver classifications of “common” and “singular.” Furthermore, he details how humans use and interact with objects based off their position within such a dichotomy. As this wheel hub alternated between categorizations in its lifetime, marks and impressions were left upon it indicating such statuses. As a case study, the materiality of this wheel hub presents an opportunity to explore the biography of the object and its human-object relationships using the writing of Kopytoff as a guide.

Examining the wheel hub on a purely material level opens the door for viewers to begin crafting their interpretation. There are two sides to the wheel hub, and the general appearance of each can be considered rusted and dilapidated. On the front side is a central circular piece, from the middle of which protrudes a cylindrical extension with a grooved end (fig. 1). Around the face of this initial circular piece are five bolts. Three bolt heads have been soldered to the circular piece, and one bolt is loose and easily moved. Atop their heads are “F” markings. Beyond the central circular piece is a larger metallic plate. It is clear this larger plate had too been circular at one point but now it bends and folds around itself. The damage seems to have been the result of a concussive force. Along its sides are rectangular extensions, similar to the teeth of a gear. One is much wider than the others and is cracked. Throughout the edges of the plate are small scratches or incisions.
The back side is mostly comprised of the dilapidated plate (fig. 2). Unlike the deformed edges, the plate remains flat on this end in correspondence to the central circular piece’s frontal position. Three hexagonal nuts connect to the ends of the bolts from the front. One nut is loose in conjunction to the unrestrained bolt described earlier. Two bolts do not extend out of the back like the three others do. Instead, they are simply nubs, or sheared bolts. The nuts and bolts thus hold the central circular piece and plate together. Opposite of the cylindrical extension on the first side is a central circle outlined in the flat area of this second end. In this circle is a difficult script which reads “C4_W8(B).” The _ represents an unreadable character and the “8” may possibly be a “B.” The extension from the front protrudes to the opposite end and fits into the dilapidated plate which itself has a hole in the middle. There are smaller holes in the outlined circle as well as between two nuts.

The wheel hub’s appearance indicates processes which have acted upon the object throughout its existence. Identification and serial markings are representative of industrial construction and commodification. The hub was integral to a vehicle manufactured in a Ford automobile plant with the intention of sale. Secondly, the consequences of an explosive blast are made visible. In its gnarly condition, the outer plate is undoubtedly distorted beyond its original form. The object hints at a destructive force but does not explicitly convey the detonation of a car bomb. Once that is considered, studying the object affords an opportunity to ponder the actions of violence. Finally, methods of preservation influence the car part in its prevailing state. The wheel hub is currently housed within an archival box at the UW Archives. From the information shared by its accompanying label and storage, the hub was accessioned, given a proper title, and is generally maintained. This conglomeration of visual cues and indexes of the wheel hub’s past and present are a starting point to expound upon the object’s biography and changing classifications over time.
As stated, text on the wheel hub and its bolts reveal the object’s seriality, indicating its relationship with mechanical and industrial processes. In a vehicle, wheel hubs are part of a system of rotating elements comprising of the brake disc and wheel, along with attachments and fasteners which all influence one another’s functionality. Such hubs are valuable safety components connected not only to a car’s wheels but its steering.¹ As well as contributing to the performance of its neighboring parts, wheel hubs assist in a vehicle’s anti-lock brake system. If damaged or maintained improperly, the failure of a wheel hub can result in poor execution of braking and dangerous skidding on the road. For that reason, it is imperative that wheel hubs are taken care of correctly.² Assurance of safe passage on the road depends on mechanical operations central to a wheel hub’s function.

The specific wheel hub being studied was employed in a first-generation Ford Econoline. On September 21, 1960 Ford introduced the Econoline van in an attempt to compete with the Volkswagen Type 1 bus. The first of these new vans were rolled off the assembly line in October that year at Ford’s Lorain Assembly Plant.³ First-generation Econolines were flat-nosed with double doors and plenty of cargo space in the back. Similar to the VW Type 1, the engine of the vehicle was located between the front seats allowing for a small hood which would grow larger with the second-generation as the engine was pushed forward. The company’s ambitions were successful as the Ford Econoline E-Series was the bestselling van from 1961 to 1967 in America.⁴

While in the Ford plant, as well as attached to its respective vehicle, the wheel hub was commodified. Kopytoff defines a commodity as, “a thing that has use value and that can be exchanged in a discrete transaction for a counterpart.” Pertaining to the wheel hub being studied, its intended purpose was in the use of an automobile. Attached to a brake disc and wheel, the hub’s use depended upon its ability to aid in wheel rotation, vehicular suspension, and proper braking. The exchange value of the wheel hub hinged upon that of the Ford Econoline it served. In the first year Econolines were produced, 29,932 standard vans and 6,571 custom buses were manufactured. Furthermore, in order to rival the VW Type 1, Econolines were created explicitly to enter the world of market competition. Consequently, in order to reign as a bestselling American van in the 1960s, many Econolines had to be assembled and sold.

Despite the popularity of Ford Econolines, the wheel hub on its own was not necessarily revered. As a result of commodification, the hub was what Kopytoff considers to be a “common” object. To be exchanged for currency or other goods and services a commodity must have a common exchange value with other things. Together they all form, “a single universe of comparable values.” This is in opposition to a “singular” object which is considered unique. The wheel hub and van fell into the categorization of common due to their exchangeability. A set value was assigned to Econolines and their constituent parts in relation to other objects’ values. For example, in order to compete with the VW Type 1, Econolines had to offer either better performance or a more affordable price in comparison. As a result, Econolines and the wheel hub added to the universe of comparable values.

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Furthermore, the wheel hub itself was not incomparable to other objects at this biographical stage. Mass production of Ford Econolines resulted in thousands of identical wheel hubs being manufactured. Serial numbers on the hub’s body record it as being one of many. The “F” markings on every bolt leave them uniform and indistinguishable from one another in the hub’s original form. Thus, the wheel hub would not distinctly stand out in a Ford plant nor on a vehicle.

Writing produced by Ford centered on the Econoline model demonstrates the wheel hub’s indistinguishability at this point. While it does not pertain to the first generation of Econolines, “Manufacturing the Third Generation Econoline” by C.L. Knighton provides readers clues as to what Ford considered important in similar vehicles. Knighton was employed in the Automotive Assembly Division of the Ford Motor Company at the time and was writing for the Society of Automotive Engineers. The author’s concluding remarks state: “In this paper, the reader is taken on a brief ‘tour’ of the new Econoline III assembly facilities. This tour features the highlights of how this all-new vehicle is assembled.”8 What is not featured in this tour is textual mention of a wheel hub. The component would have fallen under the section “Frame Operations,” and in fact one can find a hub within Figure 52 of this paper (fig. 3). However, the image is captioned “Frt. suspension, driveshaft, muffler, front disc brake assy. to frame.”9 Moreover, neighboring parts such as the brake disc and wheel are named by Knighton. Through omission the wheel hub is represented only as being a component of a wider suspension system.

Thus, the wheel hub remained in such a commodity state for what may be considered the first part of its biography. Despite its purchase and use, the automobile may not be considered fully removed from the market. As Kopytoff points out, due to the resale value placed on

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9 Ibid, 15.
vehicles, the van and hub were not fully declassified as exchangeable objects. However, the hub’s transition from “common” to “singular” is marked by an event resulting in the objects decommodification. Crucial to this wheel hub’s biography is the morning of August 24, 1970 when Sterling Hall on the campus of the University of Wisconsin – Madison was bombed.

On August 20 of that year, UW computer scientist Larry Travis found that his white Econoline had gone missing in front of the University’s Computing Center (fig. 4). Travis told the MPD dispatcher that a student must have borrowed it to move his stuff. In actuality, the van was stolen for the use of Karl and Dwight Armstrong, David Fine, and Leo Burt. The four men comprised the New Year’s Gang, a radical group who carried out anti-war attacks on and around campus. Past iterations of the group, led by Karl, had previously attempted to bomb Badger Ordinance Works from the sky, tried to damage ROTC offices by lighting fire to the Red Gym, and bombed the Wisconsin Primate Research Center near a Selective Service office. In possession of Larry Travis’ Econoline, they now had their sights set on the Army Math Research Center.

The Army Math Research Center, or AMRC, was a locus of controversy during this time of radicalization. Housed in Sterling Hall, the AMRC set forth to conduct Army-relevant mathematical work. Speaking at the center’s dedication ceremony in 1959, Lt. Gen. Arthur G. Trudeau claimed the AMRC would support the nation’s efforts to “probe at the very frontiers of knowledge.” However, not everyone held the center in such high esteem. As the Vietnam war

13 “The Case Against the Army Math Research Center” by Halperin et al., 1969, Series 70/050, Folder 1, Army Math Research Center Department File, UW Archives and Records Management, Madison, Wisconsin, United States, 1.
14 “Math Research Center Dedicated ‘to Probe Frontiers of Knowledge’” by Wallace Wikoff, 23 April 1959, Series 70/050, Folder 2, Army Math Research Center Department File, UW Archives and Records Management, Madison, Wisconsin, United States.
angered throughout the 1960s and unrest grew amongst portions of the US populace, students and staff in Madison followed suit. Demonstrations persisted on campus, such as the Dow Chemical protest in 1967 and the Black Student Strike of 1969.\(^\text{15}\) The presence of a research center dedicated to Army mathematics was likewise not welcome by leftist community members. *The Case Against the Army Math Research Center* by Halperin, Rowen, Siff, and Zeidman exemplifies such sentiments. According to their writing, the Army Math Research Center aids the Army by, “furnishing the military with the mathematical information it needs to improve and refine its destructive capabilities.” By providing research for the military, the writers claim the AMRC, as an institution on the UW campus, perpetuates the ideology of imperialism.\(^\text{16}\)

*The AMRC Papers: An Indictment of the Army Math Research Center* by the collective Science for the People expounds upon the exact work done within the AMRC. The AMRC had helped the Army in numerous ways by consulting with military scientists and holding mathematic conferences. Moreover, the center researched mathematical models used for the development of weaponry and military strategy.\(^\text{17}\) To name a few instances, AMRC work and consultation could be found in Project Michigan, which developed radar techniques for selecting bomb targets;\(^\text{18}\) at Edgewood Arsenal in Baltimore, the main center for US chemical weapons research;\(^\text{19}\) and at White Sand Missile Range in New Mexico, where AMRC consultation contributed to the development of anti-ballistic missile rockets.\(^\text{20}\) Just as Halperin et al. claims, Science for the People continually ties the AMRC’s work with the ideology of imperialism. A People’s Math Research Center is proposed by the collective to serve the populace and right the

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\(^{16}\) “The Case Against the Army Math Research Center” by Halperin et al., 1.


\(^{18}\) Ibid., 7.

\(^{19}\) Ibid., 34.

\(^{20}\) Ibid., 41.
wrongs of the AMRC. The PMRC would focus on the crises of working conditions, land use, and poverty to aid the general public.\textsuperscript{21} By examining the work done by the AMRC and proposing the PMRC in its place, Science for the People demonstrates the attitudes held against the existing math research center around the time of the Sterling Hall bombing.

The wheel hub was not used for a peaceful alternative to the AMRC such as the PMRC. Before dawn on August 24, 1970, the New Year’s Gang employed the Ford Econoline to enact the bombing of Sterling Hall. They loaded the back of the van with 1,700 pounds of ANFO, ammonium nitrate and fuel oil, the equivalent of 3,400 sticks of dynamite.\textsuperscript{22} The weight of the explosives damaged the gear pin and shifter of the vehicle before the plan was set into action. After Dwight made repairs the van was driven to an incline off Lathrop Drive between Sterling Hall and Old Chemistry. Karl and Leo parked the van outside a laboratory below the AMRC.\textsuperscript{23} Around 3:42 a.m. the ANFO exploded, destroying the Econoline, damaging nearby buildings, and killing Robert Fassnacht within the lab (fig. 5).\textsuperscript{24} What the bomb failed to do, though, was cause significant damage the Army Math Research Center.

Some consider the bombing of Sterling Hall as the culmination of radical tendencies pervading Madison at the time. Certainly, then, one can envision the damaged wheel hub as a tangible metaphor serving the same purpose. A 1971 press release by Mark McElreath and Waring Fincke dwells upon the bombing in retrospect nearly one year after the event. Many had predicted student violence would sweep through US campuses during the fall of 1970 following

\begin{itemize}
\item \textsuperscript{21} Science for the People. \textit{The AMRC Papers: An Indictment of the Army Math Research Center}, 105.
\item \textsuperscript{22} Bates, Tom. \textit{RADS: The 1970 Bombing of the Army Math Research Center at the University of Wisconsin and Its Aftermath}, 292.
\item \textsuperscript{23} Ibid, 303.
\item \textsuperscript{24} “BombRuinsU. Math Unit; Researcher Dies, 3 Hurt” by Dave Wagner, 24 August 1970, Box 2, News Clippings Originals, Army Math Research Center Subject File, UW Archives and Records Management, Madison, Wisconsin, United States.
\end{itemize}
Cambodia demonstrations and the Kent State shootings.\textsuperscript{25} As illustrated by the conduct of the New Year’s Gang, forceful actions were already taking place in Madison. Excessive motivations of this kind manifested in a blast disfiguring the ubiquitous car part. Scars and wounds on Madison’s campus and the hub are connected by the explosion and concussive force. Reflected in the wheel hub’s distorted shape are the extreme attitudes which built up in the community and resulted in the death of Fassnacht, increased campus anxiety, and immense property damage.

Positive outcomes of the Sterling Hall bombing are similarly symbolized in the wheel hub’s altered form. As Leonard Berkowitz explains in the press release: “Most people viewed the Sterling Hall bombing as immoral, improper – bad. That judgement is what prevents a lot of people from showing an openness to violence.”\textsuperscript{26} The radical sentiments of students did not die down following the explosion; however, violent demonstrations did. Until the Oklahoma City bombing twenty-five years later, the eruption at Sterling Hall remained the largest US domestic act of sabotage.\textsuperscript{27} The current state of the wheel hub represents this calm after the storm. Rendered dilapidated, the hub’s new contortions express its role in the bombing. However, with the structure stabilized, its worst memories are behind it. Violent inclinations on Madison’s campus peaked on that August morning, and deescalated afterwards. Chancellor Edwin Young stated that students began, “drawing away from violence and becoming more involved in specific issues like poverty, the environment, racism, and health care.”\textsuperscript{28} As an example, \textit{The AMRC Papers} was written in 1973 and presents an alternative to the research center through non-violent means. Just as the misshapen wheel hub settled into a fixed form indicating its previous hardships, Madison continued forth on its righteous path in the wake of darker days. The

\textsuperscript{25} Press release by Mark McElreath and Waring Fincke, 20 August 1971, Box 2, Releases, Official Statements, & Reports, 1970-88, Army Math Research Center Subject File, UW Archives and Records Management, Madison, Wisconsin, United States, 1.  
\textsuperscript{26} Ibid, 2.  
\textsuperscript{28} Press release by Mark McElreath and Waring Fincke, 1.
contemporary shape of the wheel hub embodies tensions and ease in Madison leading up to and following the Sterling Hall bombing through its damaged appearance yet sturdy condition.

The morning of the Sterling Hall bombing proved pivotal to the wheel hub’s biography. No longer was it responsible to assist in a vehicle’s movement and braking. The hub’s Econoline was dismantled and the part was left dysfunctional. Its use value diminished, and the wheel hub was de commodified. Thus, in the eyes of Kopytoff, the hub was sent on route towards singularization. Unlike common objects, singular objects are unique and unexchangeable. The wheel hub became unlike thousands of similar hubs. As an accomplice in a radical attack it was imbued with cultural significance. Destructive forces removed the wheel hub from its commodity classification, and it became an object of special interest.

The final stage of the wheel hub’s biography being examined is its present state, that of an archival object. Without the previous act of de commodification, the hub would not end up in the hands of UW Archives and Records Management. Had the attack not occurred, and the hub was found merely in a broken-down van or in a heap of garbage, it may not have been preserved. However, due to the cultural significance of its role in the Sterling Hall bombing, the car part is considered important enough to keep due to the singularization process.

Today the wheel hub’s housing and treatment visualize the results of singularization. The hub is not just one of many car parts but stands on its own. It has been given the title “Wheel hub from Sterling Hall van” and its own identifier of “Memorabilia_00667 7/050/01.” One can find it within a gray archival box designed to preserve it alongside its own label (fig. 6). In its commodity state, the hub may have been approached carefree and handled haphazardly. Now, however, it is recommended that gloves be worn when touching it and it be treated delicately. Furthermore, being hidden behind the wheel of a van, people without vehicular knowledge may

not be aware of a hub’s existence. But through my experiences with this particular object, people greet it with awe of its cultural past. Because of the archival state of the wheel hub and the way it is meant to be approached, one can see the effects of singularization in action.

Singularization has also resulted in a new function for the wheel hub. The mission statement of the UW Archives affirms: “The primary purpose of the Archives is to preserve University records and information of permanent historical value; provide records management services; and serve as an educational resource encouraging administrative and scholarly research in its collections.”30 By housing the wheel hub, the Archives has designated it as a record providing information of historical importance. In *A Glossary of Archival and Records Terminology* Richard Pearce-Moses defines a record as, “Data or information that has been fixed on some medium; that has content, context, and structure.”31 In terms of an object, Pearce-Moses continues: “An artifact may serve as a record if it is preserved to bolster human memory or to demonstrate accountability.”32 As an artifact in the UW Archives, the wheel hub’s new purpose is to be an educational record providing knowledge of the events, memories, and ideas surrounding its biography. Furthermore, it participates in archival bonds, the interrelationships between records resulting from the same activity.33 When artifacts and textual records found within an archive work together in culminating information, they display such a bond and construct meaning through comparison.34 As part of series 7/050/01 in the Archives, the hub is directly bonded with two departmental file folders of the same classification. Other such records tied to the wheel hub are a piece of shrapnel from the Econoline, a charred notebook, and

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32 Ibid, 328.
33 Ibid, 25.
newspaper clippings about the bombing. Using these records in tandem offers wider reaching sources of data. Like its role in the Econoline, the wheel hub functions in relation to other things; however, now the hub is a singular, scholarly object as opposed to a commercial, vehicular unit.

Being a tool for knowledge, the wheel hub not only conveys information about its biography but also human-object relationships. Kopytoff explains: “the human mind has an inherent tendency to impose order upon the chaos of its environment by classifying its contents, and without this classification knowledge of the world and adjustment to it would not be possible.”35 Through commodification and decommodification people demarcate classes of objects in order to gain a better understanding of the world around them. Commodity objects are used to form connecting values just as singular objects come to represent the sacred and significant. From the Ford production line to the cabinets of an archive, the wheel hub traversed the realms of human classification. As a commodity it set a standard in the 1960s automobile market and provided consumers a shared universe of comparable values. Its distinct status as an archival artifact is a means for people to make sense of and commemorate a traumatic bombing which resulted in the object’s decommodification. Therefore, a study of the wheel hub is itself a study of how humans categorize objects in attempt to stabilize their environment.

Through the exploration of the wheel hub’s surface features and current housing one can begin to compose the object’s biography. Serial numbers and its construction open the door to its past status as a commodity. In this state the wheel hub acted within the economic market and joined other subsequent units in the mechanization processes of manufacturing and driving a Ford Econoline. The decommodifying action of destruction is visualized by the damage and wear persistent throughout its body. As a result of the Sterling Hall bombing the wheel hub was made unexchangeable and it became a cultural symbol for tensions on the UW-Madison campus.

Finally, in its archival setting the wheel hub has been deemed a singular object. Now the hub is preserved for educational purposes as a memento of historical significance. By studying the wheel hub’s materiality in conjunction with the classification processes laid out by Igor Kopytoff, one can paint the picture of how a ubiquitous car part becomes a revered artifact as humans attempt to make sense of their greater world.
Figure 1 Front of wheel hub from Sterling Hall van

Figure 2 Back of wheel hub from Sterling Hall van

Figure 3 Figure 52 in “Manufacturing the Third Generation Econoline”
Figure 4 Image of a Ford Econoline similar to Larry Travis’ in *The Capital Time* 1970 article, “‘New Year’s Gang’ Boasts it Perpetrated Bombing at U.W.”

Figure 5 Bombing damage to Sterling Hall

Figure 6 Wheel hub from Sterling Hall van at UW Archives and Records Management
Works Cited


Back of wheel hub from Sterling Hall van, Madison, WI. Personal photograph by author. March 7, 2019.


“Bomb Ruins U. Math Unit; Researcher Dies, 3 Hurt” by Dave Wagner, 24 August 1970, Box 2, News Clippings Originals, Army Math Research Center Subject File, UW Archives and Records Management, Madison, Wisconsin, United States.

Bombing Damage to Sterling Hall. August 24, 1970. Image courtesy of the UW-Madison Archives, #S05280


Front of wheel hub from Sterling Hall van, Madison, WI. Personal photograph by author. March 7, 2019.


“Math Research Center Dedicated ‘to Probe Frontiers of Knowledge’” by Wallace Wikoff, 23 April 1959, Series 70/50, Folder 2, Army Math Research Center Department File, UW Archives and Records Management, Madison, Wisconsin, United States.
“‘New Year’s Gang’” Boasts It Perpetrated Bombing at U.W.” by Dave Wagner and Jim Hougan, 27 August 1970, Box 2, News Clippings Originals, Army Math Research Center Subject File, UW Archives and Records Management, Madison, Wisconsin, United States.


“The Case Against the Army Math Research Center” by Halperin et al., 1969, Series 70/50, Folder 1, Army Math Research Center Department File, UW Archives and Records Management, Madison, Wisconsin, United States.

Wheel hub from Sterling Hall van at UW Archives and Records Management, Madison, WI. Personal photograph by author. March 15, 2019.