

# Soapbox for the Automobile

## Bumper Sticker History, Identification, and Preservation



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**Abstract** First produced in the late 1940s, the bumper sticker quickly gained prominence in the early 1950s and over the years has served a wide range of purposes—from advertising tourist attractions and promoting public safety to political campaigning. As a result, many bumper stickers holding value as historical, cultural, or aesthetic artifacts have been collected by archives, museums, and libraries. Due to their potentially unstable composition, however, bumper stickers often present challenging preservation issues. In order to identify the types of bumper stickers currently held by U.S. cultural institutions and assess their preservation needs, a survey of over two-thousand bumper stickers was conducted. This paper documents the survey findings and provides guidance for dating and preserving bumper stickers.

The bumper sticker is a genuine North American product, rooted in post-World War II experimentation with war-time materials—including daylight fluorescent inks, pressure-sensitive adhesives, vinyl, and silicone—and the maturation of commercial screen printing. Americans' post-war obsession with the automobile and the freedom it afforded fueled the popularity of the bumper sticker. The earliest bumper stickers—or “bumper strips,” as they were known until the 1960s—advertised tourist attractions, public safety initiatives, political campaigns, radio and television stations, and political and personal viewpoints. Later bumper stickers documented a range of historical and social events and trends. As ephemeral artifacts broadcasting historical and social events and trends, bumper stickers are widely collected by museums, archives, and libraries. Given their purpose, however, bumper stickers were designed to last for weeks or months; removability and impermanence were, in fact, selling points. As a result, preserving bumper stickers presents challenges: stickers may discolor, adhere to adjacent stickers or paper collections over time, and release gases that may hasten the degradation of some types of collections stored nearby.

In 2010 the author examined over two thousand stickers in six institutions to document their physical characteristics and condition. A systematic review of commercial printing, patent, and chemical literature, and discussions with industry representatives, conservators, archivists, and curators, informed this examination. No previous scholarly research on the preservation of bumper stickers was discovered, although some popular press articles were found on their history (cited below). The survey and accompanying research revealed trends in the development, evolution, and deterioration of bumper stickers. This paper outlines the study's findings and details best practices for handling and storage of bumper sticker collections.

This research focuses on paper and vinyl stickers intended for display on automobiles. Such stickers contain a layer a pressure-sensitive adhesive—so named because the adhesive remains tacky, requiring only light pressure to apply—that is backed with a removable lining paper. Related items such as water-sensitive decals, gummed strips, and other pressure-sensitive stickers, such as labels, are outside the scope of this study.

## History

Advertising on one's mode of transportation is not unique to the bumper strip. In the era of horse-drawn carriages, horsefly nets were sometimes imprinted with the name of an advertiser (Schwab 1952, X13) and, later, canvas tire covers, common to mid-century cars and trucks, provided a perfect location for silk-screened advertisements (Hanners 2000, A20).

After the Second World War, as more Americans purchased automobiles, advertisers recognized the car's potential as a moving billboard. Before pressure-sensitive adhesives were widely commercially available, water-moistenable, paper decalcomanias (often shortened to "decals") employing a water-activated adhesive were applied to car windows. While these stickers could be relatively successfully applied to the interior of car windows, such decals did not perform well on bumpers exposed to all types of weather, despite attempts to weatherize them with coatings such as varnish and shellac (Schwab 1952, X13). Another advertising strategy involved signs printed on metal or cardboard, the latter protected to some degree with shellac, varnish, or wax, which were wired or tied to the bumper (*A million a month!* 1953, 26). As the utilitarian automobile bumpers of the 1930s and 40s gave way to "the styling exuberance of the '50s" (Davis 2010), wiring such signs became more challenging; a reporter in 1952 lauded the new, easier-to-use stickers, noting that "frustrated attachers of signs are finding it difficult to worm their cord or wire around the flowing aprons that bridge what was once a convenient gap" (Schwab 1952, X13).

Most sources credit Forest P. Gill, a silkscreen printer from Kansas City, Kan-

sas, with developing the concept of the pressure-sensitive bumper sticker in the late 1940s. Before and during World War II, Gill produced products printed on canvas. Out of a need for packaging labels for his printed canvases, he turned to the new, highly visible daylight fluorescent inks and pressure-sensitive paper stock, developing a brightly printed, pressure-sensitive-adhesive sticker that suited his needs (Pechuls 2003). Aware of its potential for other applications but uncertain how to market his idea, Gill teamed up with promotional products marketers who embraced the new product as a boon to the specialty advertising industry (Pechuls 2003). In a March 12, 2010, interview with the author, Mark Gilman, Gill's son-in-law, noted that Gill's first bumper sticker jobs were primarily for tourist attractions, such as Marine Gardens, Florida, and Seven Falls near Colorado Springs. Early mentions of "bumper strips" in the *New York Times* similarly associated bumper stickers with tourist attractions: one tourist attraction owner noted, "The average motorist is very souvenir-minded. When he leaves [a tourist attraction], we have achieved a mutual sense of satisfaction—he has his bumper sign and we have one more 'traveling salesman'" (Schwab 1952, X13). Tourist attraction attendants reported that between ninety and ninety-eight per cent of visitors were pleased to sport such bumper stickers on their cars (*ibid.*). Trade advertisements from 1952–55 provided ideas for additional uses for the new bumper strips, including traffic safety, county fairs, sales, amusement centers, business and civic events, used cars safety campaigns, radio and TV stations, schools and clubs, and sporting events (Special Kut Signs 1952; Kleen-Stik Products 1955).

Political campaigning became a new use for bumper stickers by the early 1950s. Enabling drivers to promote their political alliances while maintaining a degree of anonymity, bumper stickers quickly became "the most significant avenue of personal political expression" (Fischer 1988, 236), a "soapbox for the automobile" (Allmon 2002). The 1952 election between Dwight D. Eisenhower and Adlai Stevenson is often credited as the first presidential race in which bumper stickers were widely used (Hanners 2000, A20). Much like a tourist attraction's staff placing bumper strips on cars, political campaigns employed volunteers to frequent supermarkets, sporting events, shopping center parking lots, political rallies, and other public spaces and gatherings to attach stickers to willing supporters' car bumpers (Bob Dole Campaign Guide).

By the mid 1960s, bumper stickers began to feature opinions and social statements that were often reflective of the turbulent times, such as the popular "Make Love, Not War" signs. The bumper sticker became a "form of folk advertising, allowing anyone who owns a car to send out a slogan or message to anyone who happens to read it" (Levine 2000, 384). Bearing diverse messages ranging from the mundane to the profane, today bumper stickers appear not only on bumpers everywhere, but are also found among significant cultural heritage collections to document American history and support research and scholarship.

## Survey Methodology

In the fall of 2010, the author visited six cultural heritage institutions with significant collections of bumper stickers (listed in the Acknowledgments section of this paper). A survey was performed to document the physical attributes and condition of the stickers. The printing method, inks, adhesives, substrate material, and backing liner material were detailed. Also noted were the sticker's date (if known), title, printer (including union information), sponsoring group, liner manufacturer, and size. Storage practices and condition were also described. Over two-thousand stickers—largely political in nature—were examined. Political campaign stickers have the advantage of being more readily datable than other types of stickers, which allows for correlation among physical attributes, design, and time period. Despite the focus on political stickers, the conclusions reached in this paper are most likely relevant to all bumper stickers because printers did not differentiate among topics in their approaches and materials. The survey findings are not detailed quantitatively in this paper, but rather inform the recommendations provided to collection managers seeking to date and characterize their bumper sticker collections.

## Printing

An awareness of the identifying features associated with different printing techniques and inks can aid in dating collection material. The vast majority of stickers have been screenprinted, as the process and inks are durable, weather resistant, and well suited to short-run orders with fast turnaround times. Other printing techniques common to bumper stickers are offset lithography, flexography, and digital inkjet printing. Each method will be described in the next section.

## Methods

Almost exclusively until the 1990s, and still in large part today, bumper stickers have been screenprinted, usually by commercial methods. Vital to the war effort, screen process printing was relatively easy to commercialize following World War II. In comparison with other types of printing, screenprinting required relatively little capital outlay as very little equipment was needed to open a shop. The screenprinting process utilizes a frame that has been stretched with a fabric—originally silk, but later typically a synthetic material—onto which a stencil is placed. With the screen in contact with the object to be printed, ink is pushed through the screen and stencil onto the object using a squeegee (Anderson 1996, 53).

Screenprinting is characterized by large, solid blocks of opaque color, often with shiny ink surfaces—ideal for bumper stickers conveying clear, concise mes-



Figure 1. Magnified images of bumper sticker printing processes. Clockwise from top left: screenprinting, offset lithography, flexography, and inkjet. Photograph by the author.

sages (Adam and Robertson 2003, 7). Screenprinting's heavy ink deposits were ideal for producing the color intensity, durability, and lightfastness necessary for outdoor applications (Owen 1982, 67). In addition, certain effects associated with bumper stickers, such as the popular daylight fluorescent inks, worked best with the screenprinting method (Kosloff 1975, 41). Under magnification, the edges of screenprinted letters may appear serrated, corresponding to the screen pattern, although in later years screen technology improved such that serrations may not be visible (Figure 1). In addition, the thick layers of ink may appear as a skin on the paper, usually with ridges where colors overlap (Anderson 1996, 53). When screenprinting on non-absorbent surfaces such as plastic, including vinyl bumper stickers, the ink sits on the surface (Henning 1994, 111). The typical attributes of screenprinted bumper stickers are outlined in Table 1.

While screenprinting remains the most popular printing method for bumper stickers, several other methods have been employed—most notably offset lithography, flexography, and digital inkjet printing. Offset lithography uses a rubber blanket cylinder as an intermediate to transfer ink from the plate to the stock. Offset printing, which afforded printers the opportunity to print larger jobs more quickly, grew in importance in the 1960s and 70s (Anderson 1996, 64). A variety of presses are used with offset printing, and bumper stickers may be printed in either sheets

Table 1. Typical and predominant visual attributes of screenprinted bumper stickers

Date Range	Substrate	Ink appearance	Design features	Liner color
Early 1950s–early 1960s	Almost always paper; vinyl begins around 1960, but still not common until ca. 1964	DayGlo and matte inks	Earliest ones may seem crude; simple block letters; Day-glo orange, red, yellow, or green, with blue or black background	Mainly brown
Mid-1960s–early 1970s	Paper/vinyl mix	DayGlo and matte inks	Rise of photographic images; still two-color printing	Brown/white mix (more brown)
Mid-1970s–ca. 1980	Mainly vinyl, high shrinkage	Combination of matte and glossy	Increased use of lower-case letters; more color variation in political campaigns	Brown/white mix (about even)
1980s	Vinyl, but return to paper	Mainly matte, but increasing use of ultra glossy	More delicate images possible, although still fairly rare	Predominantly white by ca. 1984

or on a web (roll) (Bruno 1995, 129–30). Offset lithography is particularly useful for its four-color printing separation that allows for photorealistic images. The inks used for offset lithography are generally fast-drying and may appear to have a skin under magnification (Hoskins 2004, 76). The edges of letters appear clean and well-defined, with good coverage inside the letter (Substrate surfaces 1973, 35) (Figure 1).

Flexography is an efficient, if not particularly refined, printing method. Essentially an updated version of letterpress, it is most commonly used in the packaging industry, for labels and stickers. Gaining prominence in bumper sticker printing in the 1990s, this style of printing features flexible plates, traditionally made from rubber (Bruno 1995, 128–29). Stock is fed on a web through a machine, usually at great speed. Flexographic inks, usually alcohol- or water-based, are thin and fast-drying. (Bruno 1995, 143). Under magnification, flexographic printing appears pooled at the edges of letters (Figure 1). This method is ideal for printing on non-porous surfaces such as vinyl. Flexographic bumper stickers are often printed on thin vinyl or coated paper.

Currently, many small shops employ digital inkjet printing as this technique is relatively inexpensive. Inkjet bumper stickers are usually printed on a thin, waterproof vinyl or paper, which often require an ultraviolet-protective coating for weatherability and lightfastness. Inkjet printing is capable of producing full-color, photographic images. The tiny dots of color that characterize this printing method can be observed under magnification (Figure 1). Although pigment inks have been designed for somewhat long-lasting inkjet printing, such high-end inks are unlikely to be employed in ephemeral bumper sticker printing applications.

## Inks

While an in-depth discussion of the countless types of ink employed for bumper stickers is beyond the scope of this paper, some knowledge of the types of inks used for printing bumper stickers is helpful for dating collection material.

The earliest screenprinting inks were solvent-based, slow-drying, and generally matte in appearance. One such class of inks, the daylight fluorescents, was used to print parts of almost all bumper stickers in the 1950s and 1960s, as well as many in the early 1970s. Daylight fluorescents are known under various trade names such as DayGlo, Radiant Color, VelvaGlo (Biegeleisen 1971, 97). Daylight fluorescent inks were developed in the late 1940s by brothers Joe and Bob Switzer, whose DayGlo process inks were used in various wartime applications and subsequently were heavily marketed to screenprinters for outdoor advertising applications (Owen 1982, 66). Daylight fluorescent colors were revolutionary because they appeared to glow not only in the dark, but also in daylight conditions, and were said to be up to four times brighter than conventional inks (Schwab 1952, X13). They were matte in appearance and came in a limited palette; certain reds, oranges, and yellows were most popular because they glowed most brightly (Biegeleisen 1971, 97). Screenprinters usually surrounded DayGlo lettering with dark blue or black ink to increase the fluorescent effect (Hoff 1997, 180).

By the late 1960s, with increased use of vinyl and changes in fashion, inks were developed for printing on vinyl that would bond with the vinyl surface. Most typical were the “flat odorless vinyl” inks that were matte in appearance, though gloss was sometimes adjusted either within the ink’s formulation or through the application of final coatings.

In the 1980s, concerns about new environmental regulations led to water-based ink formulations. Around the same time, screenprinters began to adopt a new polymeric, solventless ink composed of one-hundred percent solids (i.e., no ink mass was lost during drying). The most popular such inks, still in wide and increasing use today, are the ultraviolet-cured inks that dry within seconds because of a chemical reaction called polymerization that happens upon exposure to ultraviolet light (Hoskins 2004, 50). These inks are thinly applied, inherently glossy, and often appear raised above the printed surface. A version of UV inks is also used with flexographic printing (Bruno 1995, 129).

## Pressure-Sensitive Stock

The pressure-sensitive stock of a bumper sticker is a composite “sandwich” of three basic parts: the bodystock, or main printing surface; the adhesive; and the release liner, or throwaway backing paper.

### Bodystock

In the case of bumper stickers, there are two main substrates or types of bodystock: paper and (poly) vinyl chloride (also known as PVC or “vinyl”). Most printers bought ready-made pressure-sensitive stock in sheet or roll form. While vinyl and paper are inherently very different materials, because they are each available in similar varying weights and may be coated with various glossy substances, identification of bumper sticker bodystock is at times surprisingly challenging.

The earliest bumper stickers were printed on paper. While most modern bumper stickers are printed on vinyl, paper enjoyed a resurgence in the late 1970s and 1980s, and is still used to some extent. Paper employed in pressure-sensitive applications must be dense and non-absorbent, yet able to stick to the adhesive coating (Kosloff 1975, 198). To protect the paper from the elements and minimize scratching, various coatings were applied, typically a varnish or lacquer (Biegeleisen 1963, 180–81). In the late 1950s and early 1960s, latex rubber was added to the paper to enhance its weatherability and abrasion resistance (Dennison 1964, 19), and from the 1970s, plastic, heat-activated laminates were occasionally applied after printing to protect paper from the elements. The early paper stickers did not remove easily, due to the adhesive formulation and the nature of paper. When attempting to remove paper stickers, “strips of shredded paper and gummy, congealed adhesive” were often left behind on the bumper (Schmidt 1988, D29).

The disadvantages of paper are due mostly to the fact that cellulose, the main component of paper, is sensitive to water and elevated humidity levels that render it less than ideal for extended outdoor applications (Benedek 1999, 160). Paper is also damaged by light exposure; over time, coatings discolor the unprinted areas of the paper surface, which may appear as an overall yellowing, graying, or mottled surface (Biegeleisen and Busenbark 1941, 62). Paper stickers may also be discolored by adhesives, as described below.

Advertisements in printing trade journals as early as 1955 tout the advantages of a new bodystock—vinyl—over paper: vinyl films “are completely impervious to weather, flexible to fit curved surfaces, won’t tear when removed or leave annoying fibres” (Avery Paper Company 1955, 95). (Poly) vinyl chloride (PVC) is a durable and inexpensive polymer that can be extruded into sheets in a wide range of thicknesses, grades, colors, and finishes (Hoff 1997, 26). While (poly) vinyl chloride predates the Second World War, the war accelerated development of applications for this versatile material. After the war a glut of PVC was funneled into consumer products, including bumper stickers (Shashoua 2008, 28). This survey of bumper stickers, however, indicates that vinyl was not widely adopted until the early 1960s.

While vinyl seems relatively sturdy, it may be damaged by bending, creasing, and scratching (Quye and Williamson 1999, 127). In addition, degrading (poly) vinyl chloride releases acidic gases (a process called offgassing) that may damage paper materials and silver-based objects or photographs; this degradation has been



Figure 2. Example of vinyl shrinkage: The white border is the liner; the bumper sticker is black. Spencer Research Library, University of Kansas Libraries. Photograph by the author.

detected in vinyl museum objects in as little as five years after acquisition (Shashoua 2008, 184). Vinyl stickers should therefore be stored separately from vulnerable materials (Quye and Keneghan 1999, 120).

In film form, PVC is softened by the addition of various plasticizers, most commonly phthalate esters. Plasticizers, which can constitute upwards of fifty percent of the composition of a PVC film, are necessary for the flexible plastic to function properly (Yarsley and Couzens 1968, 130). Plasticizers can migrate to the surface of the vinyl over time, and their loss may result in a sticky, oily, or brittle substrate (Dutta 1984). Often sweet-smelling as they degrade, their loss is accelerated by elevated temperature (Quye and Williamson 1999, 128). The sticky, degrading plasticizer results in a surface attractive to dust and dirt particles, which may contain damaging pollutants and moisture (Shashoua 2008, 159).

Plasticized vinyl bumper stickers may be identified by their tendency to shrink in relation to their backing liners; this phenomenon is most pronounced in vinyl stickers from the late 1960s through the 1980s, when printing inks required heat in order to speed up drying time, as prolonged heat exposure causes vinyl to shrink excessively. As seen from the front of the sticker, the vinyl substrate may be smaller than the liner, often with more shrinkage in one direction than the other; paper stickers, on the other hand, generally remain the same size as their backing liners over time (Figure 2).

### Adhesives

Pressure-sensitive adhesives were first patented in 1845 (Johnston 2003, 7) and pressure-sensitive tapes and labels were largely developed in the 1930s. The Second World War spawned research and development in uses for pressure-sensitive adhesives such as packaging war supplies and medical bandages and wraps (Johnston 2003, 11). Shortages in natural rubber, the main pre-war component of pressure-sensitive adhesives, led to development of styrene butadiene rubbers, which gained a foothold during WWII and continued to be used at war’s end (Satas 1989, 295).

Later, acrylics were developed for pressure-sensitive adhesives (O'Loughlin and Stiber 1992, 280).

The earliest bumper stickers were coated with a rubber-based adhesive. This practice predominated until the 1970s and is still in use today. Rubber-based adhesives include plasticizers that soften the tacky part of the adhesive; such plasticizers may migrate over time, affecting either the liner paper and/or substrate surface, with the substrate surface more typically affected in all but the earliest stickers. Plasticizer migration may manifest in paper stickers as a yellow-brown discoloration on the surface, or as uneven discoloration, with areas of lighter stripes on the front correlating to the liner slits on the back. It may also manifest as translucency of the liner paper (O'Loughlin and Stiber 1992, 282) or as a stickiness that rewets the inks, causing them to become tacky<sup>1</sup>. Some stickers emit a rubbery odor as a result of plasticizer loss.

Acrylics, employed mainly from the 1970s, tend to be more stable and rarely discolor, but they may be susceptible to "cold flow," a lateral movement of adhesive at ambient temperature (O'Loughlin and Stiber 1992, 283). In the case of bumper stickers, this is most evident as adhesive oozing at the edges of the stickers, especially if they have been stacked under pressure and particularly noticeable in vinyl stickers that have shrunk in relation to their liner. Like rubber-based adhesives, acrylic adhesives may also contain plasticizers that can migrate, resulting in translucency in the liner or substrate (Satas 1989, 430).

Adhesives may be classified as permanent or temporary, although the adhesive industry's definition of "permanent" will differ from that of a conservator. A printer in 1982 defined "temporary" as remaining removable for about nine months; permanent stickers would remain adhered for up to seven years (Kosloff 1982, 81, 128). Because early bumper stickers did not remove cleanly from bumpers when needed, such as at the end of a political campaign, removability with "no residue, no staining, no marring" was a valued characteristic of bumper sticker stock (Avery Paper Company 1960, 17).

### Liners

The function of a bumper sticker liner is to protect the adhesive layer until the sticker is used. Release liners for bumper stickers are usually a kraft or vellum paper that has been coated with silicone on one, or occasionally both, side(s). Like many of the materials used in bumper stickers, silicone was produced during World War II and later adapted for other commercial uses. The first pressure-sensitive release liner was marketed in 1954 (Jones and Peters 1989, 601), and since bumper stickers were first widely marketed in the early 1950s, silicone is probably present in almost all bumper stickers. The presence of silicone, a material with properties that makes it non-bonding with many adhesives, ensures that the sticker will not stick

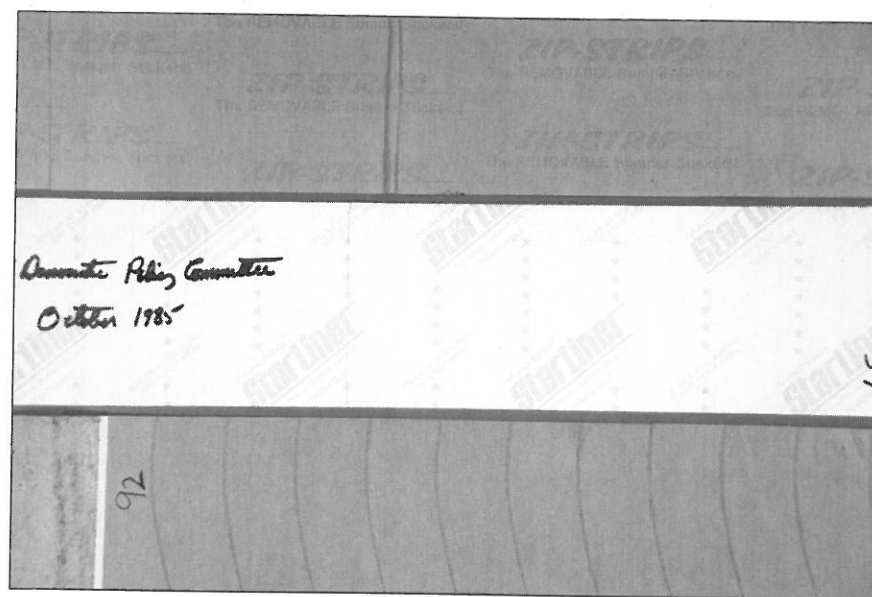


Figure 3. Examples of printed liners. Spencer Research Library, University of Kansas Libraries. Photograph by the author.

to anything prior to its use, and facilitates release of the liner from the back of the sticker (Kosloff 1982, 81). In order to improve the ease with which the liner could be removed, the liner paper was slit using a machine or tool that would cut the liner without damaging the sticker (Substrate surfaces, part 3 1973, 36).

In the survey of over two thousand items, the characteristics of liners were noted. The color of the liner may be helpful in dating material, as the survey revealed a shift around 1984 from predominantly brown liners to predominantly white liners (Table 1). It was also noted that very few liners in the sample had detached from their stickers; however, significant numbers were peeling where they had been slit, attracting dirt and dust to the resulting exposed adhesive.

Information imprinted on bumper sticker liners themselves provides a wealth of information for the collection manager, most typically product information such as pressure-sensitive stock manufacturer, location, patents and patent pending status, and, occasionally, a date (Figure 3). Printing such information onto liners was most common in the 1950s through 1970s, although the practice continues today. A preliminary list of printed liner matter appears in Table 2. The table summarizes information gleaned from the survey and from a literature review of patents, trademark data, and announcements of new products and advertisements in *Screen Process Magazine* (later *Screen Printing*, then *Screen Printing Technology and Management*), the main commercial screenprinting serial in the 1950s–1980s. The table provides the earliest probable dates and observed date ranges for a given liner mark-

Table 2: Preliminary Printed Liner Information with Date Ranges\*

Company	Product	Vinyl or paper	Printed liner text or image	Dates observed or advertised	First used**
Art Display Service		vinyl	"This is a GENUINE/PLASTIC BUMPER STICKER/(NO SPLITS NECESSARY TO STRIP)/ A. TWIST AND BREAK PAPER AT ANY CORNER/ OF STICKER, PLASTIC WILL NOT TEAR/ B. STRIP OFF BACKING SHEET AND/ADHERE TO ANY CLEAN SURFACE [with image]"	1968	
Avery	Fasson Fasson radiants	paper, vinyl paper	"fasson" enclosed in box with horiz stripes, with "Fasson-Painesville, O." underneath "fasson" enclosed in box with horiz stripes, with "Fasson-Painesville, O." underneath orange-yellow, orange-red, or fire-orange substrate	1955-early 1970s 1956-1960s	
	FasCal*, 500-S	vinyl	"FasCal*, 500-S" [in blue ink]	mid 1950s-1970	1955
	Avery	paper	"AVERY" in lines that cross to form "plaid" pattern	1962-1964	1962
	Fasson* Stormtite REMOVABLE ADHESIVE	paper	"Stormtite REMOVABLE ADHESIVE" and "Wipe surface clean before applying" [in green]	1960s-1970s	1962
	Fasson* Easy-off PLASTICSIGN	vinyl	"Easy-off PLASTICSIGN" [with diagram]—"Bend Corner Sharply/Peel Off Backing/Press Into Place"	1960-1972	1960
	FasCal 500-G; FasCal G	vinyl	"with crack n' peel"	1968-1972	
	FasCal 1500 Easy off	vinyl	"with crack n' peel"	1968 ad	
	Fasson* FAS CAL/ MARKING FILM	vinyl	"FAS CAL/MARKING FILM" between wavy green lines approx. 3 cm apart	1973	
	Fasson* FasPrint* CrackBack* Permanent	paper, vinyl paper	green or red wavy lines approximately 3 cm apart, often with letters, numbers, or trademark sign nearby image of peeling with "BEND ON LINE." Slit lines are outlined in brownish-silver.	1970s-1980s 1978-1980s	1978
	Fasson* CRACK'N PEEL* Fasson* CRACK'N PEEL Plus* Permanent	paper	with image and "BEND ON LINE" [observed in red or green ink] "CRACK ON LINE" [with image of peeling in diagonal direction] [bright green or red ink]	1980s 1984-1990s	
Brown-Ridge	STRIP TAC*	paper	[name in green]	1960s-1970s	1960
	STRIP-TAC PLUS*	paper	Crack lines indicated with arrows	1977-1980s	1977
Central Paper Co.	TOUCHDOWN®	paper	"LUCKY LABEL SYSTEM PAT. PENDING/BEND AT CORNER/PUSH WITH THUMB/REMOVABLE"; "LI" and "TO" in circles [with diagrams, in yellow]	1968-1980s	1953/4
	TOUCHDOWN® II	paper	"splitless" [in light blue]	1980s	1980
Gill Studios	ZIP-STRIPS	vinyl	"ZIP-STRIPS (Reg. U.S. Pat.)/The REMOVABLE Bumper Stickers!" [in red]	1960s-early 1970s	1960
	ZIPSTRIPS	vinyl	"ZIPSTRIPS can be .../removed in ONE PIECE!" [in red]	1968-1978	
Goodren Products Corp.	Goodstix*	vinyl	"Goodstix" decals" in green ink	1952-55	1952
Kleen-Stik	KLEEN-STIK* 800	paper	"PEEL TAPE SLOWLY/PRESS AGAINST ANY CLEAN/SMOOTH DRY SURFACE"	1950s	
Ludlow Papers/Pressure Sensitives, Inc.	PS/PERfect SPLIT*	paper	"Remove backing slowly from edge or perforation"	1962-1970s	1962
Minnesota Mining and Manufacturing Co. (3M)	QUIK-PEEL™/DRY-STIK* ScotchCal*	paper paper, vinyl	"QUIK-PEEL™/DRY-STIK*" "ScotchCal brand film" With Controltac® BRAND adhesive"	1984-5 1952-mid 1960s	1984 1952
	Scotchlite*	unknown	"Scotchlite® brand/Reflective sheeting" [in red]	1950s	1941
	ScotchMark*	paper	"ScotchMark Brand Identification Products" [in raised white ink]	1976-1990s	1976
	Sprint* Marking Film 9470	vinyl	"Sprint* BRAND/ MARKING FILM/9470" [in gray with racing flags]	1970s	1963
Morgan Adhesive Co.	MACbak*	paper	"BREAK BACKING AT LINE"	1972	1971
	MACbak* BreakAway/ Removable	paper, vinyl	"BreakAway Backing at score line" [in green]	1980	
	MACbak* BreakAway/ Permanent	paper, vinyl	"MACac* BreakAway/Permanent" in red	1959-1984	1959
	MACtac* BreakAway	paper, vinyl	"Break Backing At Line/Patented 1975"	1977	1975
	MACtac*	paper, vinyl	"MACtac*" [in blue]	1972-74	
	MACtac* MR-1/Removable Adhesive	paper, vinyl	"MR-1/Removable Adhesive/Morgan Adhesives Company/Stow, Ohio" printed in brown-black or black	1960s-1970s	
	MACtac* StarLiner™	paper, vinyl	"StarLiner™" and/or "BREAK AT STARLINE/AND STRIP AWAY"	1980s-present	1981
Reidler Decal Corporation	AD-vantage	vinyl	"PEEL OFF BACKING SHEET/AND PRESS INTO PLACE/AD-vantage/THE PLASTIC MARKING / THAT REMOVES CLEANLY/WITHOUT LEAVING RESIDUE"	1968	
Serigraph-North Inc.	Strip-Clean Bumper Strip Product	vinyl	"A Strip-Clean Bumper Strip Product/To remove backing paper; bend at corner/and peel. Apply to any clean, smooth, dry surface" [with image in red]	1968	
Smith Decalcomania, Inc.	MARK 'N STRIP	vinyl	"MARK 'N STRIP"	1973	
Serigraphic Print/DYN-EX	ZIP-TAB	paper	"START RELEASE [arrow]/USE ON CLEAN CHROMIUM OR GLASS/ADHESIVE MAY DAMAGE PAINT SURFACES/GAS OR OTHER SOLVENT AIDS REMOVAL"	1960s-1972	
	ZIP-TAB	paper	"truly removable"	1972	
Texantics Unlimited		paper	"SLOWLY PEEL OFF PAPER BACKING. WILL ADHERE TO ANY DRY, SMOOTH, CLEAN, HARD SURFACE"	1956	
Wassau Papers	UNI MATE EZ STRIP- PER/REMOVABLE	vinyl	"THIS SIDE UP/BEND CORNER DOWNWARD / PUSH THUMB FORWARD" [pic. in green]	1976	1975
	UNI-MATE/removable WASSAU COATED / STRATA	paper vinyl	"TO SEPARATE SHEETS/ FOLD CORNER UP- / THEN DOWN/PULL SHEETS APART" [in green] "WASSAU COATED/STRATA" [in white]	1977 1992	

\*Data gathered from author's survey, trade journal advertisements, patents, and trademark data; products may have been used for longer periods of time than have been observed by these methods

\*\*First used dates gathered from journal product announcement, patent date, and/or earliest trademark date

ing, where known; it is possible that some of these products were used for more years than noted, but the table only summarizes what can be confirmed. Unfortunately, liner manufacturers were generally unwilling to provide proprietary product information.

### Further Considerations

Sensitivity to changes in graphic design can also be helpful when dating bumper stickers. Using differences in font style and color schemes to date bumper stickers can be somewhat subjective, but many such characteristics can be observed in conjunction with other historical markers discussed in this paper. Basic design characteristics by time period are provided in Table 1. Typographic manuals may be a source for evolution in font design and fashion.

Many bumper stickers contain union label markings (called “union bugs”) on the printed surface, occasionally accompanied by the name of the printer. When viewed under magnification, the union labels may also reveal the location of the union local, which can be helpful information to include in the collection record or catalog entry.

### Handling, Care, and Storage of Bumper Stickers

Bumper stickers, of course, were not designed for permanence. In fact, in 1952, their useful life was estimated at just two to four weeks, although one optimistic advertiser suggested that “even after a strip falls, crumpled and dirty, to lie in the street of some far-off town, it is still doing an advertising job as long as it is still face up” (Schwab 1952, X13). Unused stickers still exist from 1952, however, and many museums, libraries, and archives strive to maintain them in their current condition in perpetuity.

This section provides general guidelines for the care and handling of bumper stickers, which are best preserved with their liner backings intact in order to minimize distortion, deter attraction of dust and dirt, and maintain the object’s manufacturing history. Pressing concerns to be addressed in this paper are adhesive migration, vinyl and adhesive plasticizer loss, offgassing, and light damage. Environmental fluctuations, incorrect temperature and relative humidity, and pest damage are also factors to control.

#### Handling and Care

In general, it is good practice to use nitrile gloves when handling bumper stickers, as they may occasionally exhibit signs of degrading plasticizers and rewetted ink on

the printed-side surface that should not be directly touched. Avoid cotton gloves, whose fibers might stick to a tacky printing surface. As with photographs, the stickers should be handled by the edges. When moving a large and/or particularly floppy sticker, support it on a piece of mat board that is larger than the sticker.

Because the ink, substrate, and liner layers all have the potential to become sticky, bumper stickers should be kept away from dirt and dust. Chemical or water cleaning is not recommended, as both paper and vinyl are fairly easily abraded or scratched. Very dusty stickers may be gently vacuumed with a HEPA-filtered vacuum, as long as a low suction setting is used and the nozzle does not touch the surface of the sticker. Vacuuming will only be effective for removing loose dirt or dust; particles that are stuck to the surface of the ink or vinyl will probably remain in place (Shashoua 2008, 210).

Stickers should be regularly inspected for signs of damage or deterioration. Badly deteriorated stickers should be separated from other stickers and collections and access should be restricted, as they are often difficult to handle safely. Fortunately, such stickers may be safely and easily reproduced by the use of color photocopy or digital scanning, and for most researchers, such surrogates should be sufficient for their needs.

#### Storage

Whenever possible, bumper stickers should be stored unfolded within individual housings so they do not stick together. Bumper stickers in good condition may be safely housed upright in alkaline paper folders as long as the environmental conditions are stable and their condition is inspected regularly. The alkaline buffer may absorb some of the acidic degradation products from the acidic substrate and liner papers.

Since some stickers are longer than standard-size alkaline folders, avoid the temptation to fold them or allow them to overhang the edges of the folder. Both scenarios lead to creasing or distortion that is difficult, if not impossible, to reverse. Oversized stickers should be stored in folders housed within appropriately sized alkaline-buffered boxes, and as with other oversize materials, a marker may be placed in the standard size box and a note added to the accession or catalog record indicating removal to another storage location. Stickers should never be stacked directly in a pile or allowed to touch each other, as pressure may cause the adhesive to ooze.

Bumper stickers with a tacky, plasticized, or degraded surface—and all stickers, if not cost-prohibitive—should be placed within folded pieces of silicone release paper, a silicone-impregnated paper sold by archival suppliers, and housed within alkaline paper folders (Pagliarino 1999, 95) (Figure 4). Tacky stickers should not be interleaved with soft paper or tissue, as they may adhere to the paper. Polyester is another option for storage of tacky stickers; avoid lower-quality plastic sleeves made out of polyethylene, as they have been found to attract plasticizers from vinyl objects (Shashoua 2008, 200). During the survey, it was noted that UV-cured inks



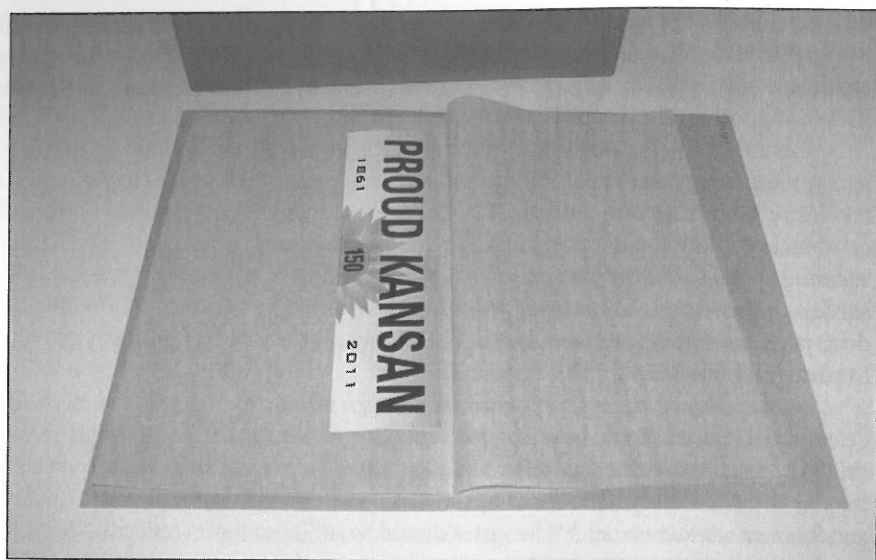


Figure 4. Housing a bumper sticker within a folded piece of silicone release paper inside an alkaline folder. Photograph by the author.

used in some vinyl stickers from the 1980s to the present appeared to interact with and become sticky in polyester enclosures; use polyester judiciously and regularly inspect modern vinyl bumper stickers if polyester is used as a storage material.

All stickers are subject to offgassing as they age, although offgassing is typically most pronounced with vinyl-based stickers and early paper stickers with unstable rubber-based adhesives. In order to prevent such gases from building up in a storage environment, housings should allow for ventilation of gases. Simple ways of promoting ventilation include using boxes with air or handle holes, or partially opened lids (Morgan 1999, 87). Ideally, vinyl and paper stickers would be stored separately, although this may not always be possible.

Because of their offgassing potential, bumper stickers should not be stored among other paper collections. In addition, vinyl materials should not be stored near silver-based objects or photographs because released gases may chemically react with silver. To counter the offgassing of badly damaged stickers, consider using housing materials that contain an adsorbent material designed to lower the concentration of acidic gases, thereby decreasing the rate of degradation (Shashoua 2008, 195). Zeolite-containing paper or board is one such material that may be used; zeolites are porous molecules whose structure allows them to trap some gaseous species. Very sticky items, however, should not be stored in contact with such paper; instead, place the paper in the same housing but not touching the item. If such papers are out of budget, consider balling up alkaline tissue paper and placing it in the

Table 3. Storage recommendations

<b>Item level</b>	
Most paper and vinyl stickers in good condition	Individual alkaline folder; do not fold or crease
Stickers with tacky surfaces or oozing inks and plasticizers	Separate; place within folded piece of silicone release paper inside alkaline folder; use polyester sparingly
Oversize items	Separate and store unfolded in alkaline folders in flat storage boxes
<b>Box level</b>	
Vinyl vs. paper	Separate paper from vinyl stickers, if possible
Ventilation	Use boxes with handle openings or keep lid slightly ajar
Offgassing control	Consider adding a buffered or zeolite paper in box, but not touching stickers

same box, but not in direct contact with the stickers. (See Table 3 for a summary of storage recommendations.)

### Environment

Since light exposure causes damage to bumper sticker inks and substrate materials, they should be stored in the dark. Storage conditions should be kept stable, with relative humidity at approximately fifty percent and temperature at sixty-eight degrees Fahrenheit or lower. In general, storing such materials at colder temperatures will retard various degradation reactions; however, research into the potential benefits of extreme cold storage for plasticized (poly) vinyl chloride products is thus far inconclusive (Shashoua 2004, 92). The composite nature of bumper stickers complicates the scenario, as the different components of bumper stickers will cool and warm at different rates, which can lead to damage when abrupt changes occur. Therefore, while storage in a lower-temperature offsite facility may be beneficial, refrain from freezing bumper stickers.

### Exhibition

Bumper stickers are frequently featured in exhibits; their presence can uniquely convey a distinct time period, mood, or place. Use of bumper stickers in exhibitions should be tempered by the estimated light (radiation) damage, of particular concern for light-sensitive daylight fluorescent inks, paper, and vinyl. Consider exhibiting surrogates where possible, or rotating examples at regular intervals to minimize light damage and exposure to changes in temperature and relative humidity.

## Conclusion

This study represents a first attempt to delineate various types of bumper stickers, document their physical characteristics, identify their vulnerabilities, and specify best practices for the preservation of these significant collection materials. The survey results shed light on the composition and changes in technology of bumper sticker components. The majority of bumper stickers were screenprinted, with accompanying focus on daylight fluorescent, vinyl, and ultraviolet-cured inks. Early paper stickers gave way to vinyl, with a resurgence of paper substrates in the 1980s. Sticker adhesives are most likely rubber- and acrylic-based, although scientific analysis should be undertaken to confirm those suspicions. Finally, release liners provide a wealth of data to categorize and date bumper stickers.

More research into the chemical and physical qualities of the component materials of bumper stickers is needed in order to better understand their vulnerabilities and to develop more refined preventive and remedial preservation solutions. The author continues to collect and analyze the printed matter on bumper sticker liners to support more precise dating and tracking of trends in bumper sticker manufacture. More detailed information from the industry groups who manufactured bumper stickers, while extremely difficult to secure, would aid this process. Each bit of evidence will aid in preserving this seemingly ubiquitous, yet vulnerable and ephemeral, part of American political and social history.

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## Note

1. Rewetting of inks has been observed exclusively in bumper stickers manufactured by Aldine Printing Co., Los Angeles, Local #111, in the early to mid 1960s. The stickers in question feature one daylight fluorescent ink and black, or, more rarely, dark blue ink. The rewetted inks leach into enclosures such as alkaline folders and tissue paper. These items should be separated from other materials and placed inside a folder of silicone release paper or polyester. Because the deterioration is visually disfiguring, consider creating a surrogate while the text is still legible.

## Literature Cited

- Adam, Robert, and Carol Robertson. 2003. *Screenprinting: The complete water-based system*. London: Thames & Hudson.
- Allmon, Stephanie. 2002. Bumper stickers: Soapbox for the automobile. *Waco Tribune*, April 19.
- Anderson, Kristin. 1996. *500 years of graphic art techniques*. 2nd ed. San Rafael, CA: Guild of Fine Art Care & Treatment Standards.
- Avery Paper Company. 1955. Neither snow . . . sleet . . . rain freezing cold nor sizzling heat harms Fason vinyl signs. *Screen Process Magazine* (August): 95.
- \_\_\_\_\_. 1960. New from Fason! *Screen Process Magazine* (August): 17.
- Benedek, Istvan. 1999. *Development and manufacture of pressure-sensitive products*. New York: M. Dekker.
- Biegeleisen, J. I. 1963. *The complete book of silk screen printing production*. New York: Dover Publications.
- \_\_\_\_\_. 1971. *Screen printing: A contemporary guide to the technique of screen printing for artists, designers, and craftsmen*. New York: Watson-Guption Publications.
- Biegeleisen, J. I., and E. J. Busenbark. 1941. *The silk screen printing process*. 2nd ed. New York: McGraw-Hill.
- Bob Dole: Republican for U.S. Senator campaign guide. n.d. Topeka, KS: Bob Dole for Senate.
- Bruno, Michael H., ed. 1995. *Pocket Pal: A graphic arts production handbook*. Memphis: International Paper Co.
- Davis, Dar. 2010. *Evolution of bumpers*. Herald-Palladium Online, November 21. <http://heraldpalladium.com/articles/2010/11/21/features/2486294.txt> (accessed December 2, 2010).
- Dennison. 1964. Bumper crop in '64! *Screen Process Magazine* (April): 19.
- Dutta, P.K., and K.R. Graf. 1984. Migration of plasticizer in vinyl resins: An infrared spectroscopic study. *Journal of Applied Polymer Science* 29 (6): 2247-2250.
- Fischer, Roger A. 1988. *Tippecanoe and trinkets too: The material culture of American presidential campaigns, 1828-1984*. Urbana: University of Illinois Press.
- Hanners, David. 2000. Candidates no longer favor campaign bumper stickers; contenders prefer to spend their money on other ways, seen as more effective, of getting voter support, such as radio advertising. *Contra Costa Times*, September 24, A20.
- Henning, Roni. 1994. *Screenprinting: Water-based techniques*. New York: Watson-Guption.
- Hoff, Samuel. 1997. *Screen printing: A contemporary approach*. Albany: Delmar.
- Hoskins, Steve. 2004. *Inks*. London: A. & C. Black.
- Johnston, John. 2003. *Pressure sensitive adhesive tapes: A guide to their function, design, manufacture and use*. Rev. ed. Northbrook, IL: Pressure Sensitive Tape Council.
- Jones, J. Darrell, and Yolanda A. Peters. 1989. Silicone release coatings. In *Handbook of pressure sensitive adhesive technology*, D. Satas, ed., 601-626. New York: Van Nostrand Reinhold.
- Kleen-Stik Products, Inc. 1955. Local events mean extra printing for you! *Screen Process Magazine* (May): 12.
- Kosloff, Albert. 1975. *Screen printing techniques*. 2nd ed. Cincinnati: Signs of the Times Pub. Co.
- \_\_\_\_\_. 1982. Decals and transfers. *Screen Printing Technology and Management* 72 (13): 78-81, 128.
- Levine, Richard. 2000. Bumper stickers. In *St. James encyclopedia of popular culture*, Sara Pendergast and Tom Pendergast, eds., 384. Detroit: St. James Press.
- A million a month! Screen processed bumper strips developing into big business. 1953. *Screen Process Magazine* (February): 26.
- Morgan, John. 1999. Caring for plastics at home. In *Plastics: Collecting and conserving*, A. Quye and C. Williamson, eds., 85-90. Edinburgh: NMS Publishing.
- O'Loughlin, Elissa, and Linda S. Stiber. 1992. A closer look at pressure-sensitive adhesive tapes: Update on conservation strategies. In *Conference papers Manchester 1992*, Sheila Fairbrass, ed., 280-287. London: Institute of Paper Conservation.

- Owen, Edward H. 1982. DayGlo tech center focuses on fluorescence. *Screen Printing* 72 (6): 66–68.
- Pagliarino, Amanda, and Yvonne Shashoua. 1999. Caring for plastics in museums, galleries and archives. In *Plastics: Collecting and conserving*, A. Quye and C. Williamson, eds., 91–98. Edinburgh: NMS Publishing.
- Pechuls, Anne. 2003. Forest P. Gill: Responsible and dependable. *Promotional Products Business* (April). <http://www.ppai.org/Publications/PPB/Article.asp?NewsID=1762> (accessed September 9, 2009).
- Quye, Anita, and Brenda Keneghan. 1999. Degradation. In *Plastics: Collecting and conserving*, A. Quye and C. Williamson, eds., 111–121. Edinburgh: NMS Publishing.
- Quye, Anita, and Colin Williamson. 1999. *Plastics: Collecting and conserving*. Edinburgh: NMS Publishing.
- Satas, Donatas. 1989. *Handbook of pressure sensitive adhesive technology*. 2nd ed. New York: Van Nostrand Reinhold.
- Schmidt, William E. 1988. Political buttons and car stickers seem a vanishing sign of the times. *New York Times*, September 29, D29.
- Schwab, Armand, Jr. 1952. Bumpers tell tourist's story. *New York Times*, June 15, X13.
- Shashoua, Yvonne. 2004. Modern plastics: Do they suffer from the cold? In *Modern art, new museums: Contributions to the Bilbao Congress, 13–17 September 2004*, Ashok Roy and Perry Smith, eds., 91–95. London: International Institute for Conservation of Historic and Artistic Works.
- \_\_\_\_\_. 2008. *Conservation of plastics: Material science, degradation, and preservation*. Oxford: Butterworth-Heinemann.
- Special Kut Signs. 1952. Crystal flex auto trunk, door or bumper signs. *Signs of the Times* (July): 112.
- Substrate surfaces and printing quality. 1973. *Screen Printing* (April): 34–36, 64.
- Substrate surfaces and printing quality, part 3. 1973. *Screen Printing* (May): 34–37, 55.
- Yarsley, Victor E., and Edward Gordon Couzens. 1968. *Plastics in the modern world*. Rev. ed. Pelican book A1016. Baltimore: Penguin Books.