

This was written for a class called The Preservation and Care of Collections

The Paragon Carousel

© 2003 Donna M. Dube

At the turn of the twentieth century there were over 6000 hand-carved wooden carousels in operation in the United States. Today, there are fewer than 200. (Papa ix) Many have been destroyed by fire, floods, the weather, bad repairs, poor maintenance or simply lack of funding which forced them to be broken apart and sold in pieces to the highest bidder (Manns, Shank & Stevens 228). The Paragon Carousel at Nantasket Beach in Hull, Massachusetts is one of the survivors.

Also known as PTC #85, the carousel was built by the Philadelphia Toboggan Company (PTC) in 1928, and was the 85th of 89 units the organization built. At the time #85 was produced, PTC was no longer carving new animals. They were completing carousels they had begun with existing stock and stock they could purchase. In the mid 1920's, PTC purchased the Dentzel Carousel Company and all of their existing stock. As a result PTC #85 contains four horses carved by Dentzel carvers and 62 horses carved by PTC carvers. In addition the carousel also has two hand-carved and hand-painted Roman chariots and hand-carved and painted scenery. In 1912, PTC began using machine carved components; thus the heads of the PTC horses are machine carved while the bodies are hand-carved (James Hardison, personal interview, Feb. 4, 2003).

PTC #85 was installed at Paragon Park on Nantasket Beach in 1928 where it has turned every summer since - but not without it's trials.

Paragon Park operated continuously until 1984, when it was closed and the property sold to make way for new condominiums. The rides were sold one by one until all that remained was the carousel. Many people in the town of Hull could not bear to see it broken apart and leave the beach, and they were able to persuade the developer of the condos to purchase it and try to keep it operating. However, after a year of losses, the developer wanted to utilize the land it was on and decided to sell it. Several investors rescued the carousel and the Metropolitan District Commission (MDC) agreed to provide space so it would remain in the area. But, it would have to be moved. In 1985, with great fanfare that even attracted Ripley's Believe It Or Not, the

carousel and the building that housed it were placed on a flat bed truck and moved intact to its current location next to the Clock Tower. At that time it was also given a new name: The Carousel Under the Clock. It was during this time that restoration began (<http://www.enjoyhull.com/history.htm>).

After struggling to keep the carousel operating for 10 years, the investors decided it was not a profitable investment and it was again up for sale. Once again the people of Hull rallied to save the carousel, and the organization "Friends of the Paragon Carousel" was formed. They had the seemingly impossible task of raising \$1.1 million to save the carousel. Eventually through loans, grants and private donations as well as a reduction in price to \$1 million, the Friends of the Paragon Carousel was able to purchase the carousel. It was renamed to honor the park where it began its life (Nealon 1996:25).

The Paragon Carousel has been operating on Nantasket beach for 75 years, where it has been exposed to a variety of weather conditions, salt air and sea water. It provides entertainment for thousands of children and adults in wet sandy swimsuits every year. It is still in remarkable condition and is undergoing extensive renovations. It is approximately 50% completed (Hardison, personal interview, Feb. 4, 2003).

A Carousel Is Not Just Horses

A carousel is actually a composite structure. It is built from a variety of materials including wood, iron, glass, chrome, paints and varnishes, to name a few.¹ This paper will focus specifically on the hand-carved wooden carousel animals. But, it will also briefly describe the different pieces of the carousel and some of the issues each faces.

The center of the carousel is where the machinery that turns it is housed. It consists of a center pole, various gears, cranking rods and a motor, all made of iron, as well as an electrical system. All of the machinery and electrics on the Paragon Carousel are original to the unit and subject to daily inspections and maintenance to prevent corrosion caused by the exposure to the salt air of the beach environment (Hardison, personal interview, Feb. 4, 2003).

¹ Having worked for a traveling carnival for 13 years (Fanelli Amusements, Fitchburg, MA.) and having been involved in the assembly and disassembly of a small carousel on a weekly basis, I am intimately familiar with the construction of and mechanics behind the carousel.

Moving out from the center of the carousel one finds the rounding house, also known generically as "scenery." This "scenery" hides the machinery in the center. The rounding house on the Paragon Carousel is made up of intricately painted wooden panels and glass mirrors.

All carousels have a source of music. In some cases it is as simple as a boom box, in other cases it can be an elaborate antique band organ. The music at the Paragon Carousel is provided by a 1920's era Wurlitzer band organ. Recently it fell victim to the jaws of the local rodents. A family of mice infested the organ and chewed through the leather bellows. Also, because of the numerous moving parts in an antique band organ, and the fact that it has a constant exposure to sea air, it requires routine maintenance to keep it operating. The Paragon band organ is not original to the machine and has recently been completely restored by the R. A. Newman Organ Company in Rhode Island (Hardison, personal interview, Feb. 4, 2003).

Overhead, radiating out from the center pole are painted wooden sweeps or supports from which the platform or floor is suspended. The sweeps are made from oak. Above the sweeps one finds the canopy or top of the carousel. In some cases the canopy is made of a heavy canvas fabric. The Paragon Carousel's canopy is made of a thin metal material. It has begun to show some signs of rust due to rainwater from a leak in the pavilion roof that has since been repaired (Hardison, personal interview, Feb. 4, 2003).

Rounding boards and shields, which form the outer edge of the canopy, are more "scenery." Shields are usually secured at the outer edge of each sweep and the rounding boards are suspended between them and help to keep the sweeps spaced evenly. The rounding boards and shields are made from hand carved and painted wood.

Suspended from the sweeps are a series of metal rods to which the wooden platform or flooring of the carousel is attached. This lets the carousel sway and appear to float.

Attached to the platform one will find the chariots. These are the little benches that are secured to the platform to allow people to ride the carousel that can't or do not want to mount a horse. Originally the chariots "carried the faint of heart, small children and women too modest to straddle a horse." (Manns et. al. 14) Usually a carousel has two chariots. Today, though the chariots go largely unused, they are still a traditional part of the carousel. The chariots on the Paragon Carousel are also hand carved and painted wood. When restoration of the carousel began, the seats of the chariots were covered with red naugahyde that when removed revealed another layer of similar material in green, followed by the original layer of a gray corduroy type

upholstery fabric over the original straw filler. Although the original fabric was faded, worn and torn in places it was in remarkably good condition after 75 years.²

The pavilion that houses the Paragon Carousel is a simple wood frame structure with doors that open on all sides. The pavilion is exposed to all types of weather, including, but not limited to, rain, snow, hurricanes, heavy winds and sea spray. Recently the roof of the pavilion needed replacement, as it was leaking and causing the carousel to become damaged (Hardison, personal interview, Feb. 4, 2003). The pavilion also falls victim to the local birds. The corners of the building frequently house nests of small songbirds. The birds leave droppings that can be damaging to the carousel and the building if not cleaned up promptly. The building has no climate control, thus exposing the carousel to all temperature and humidity fluctuations.³

The carousel animals, or as in the case of the Paragon Carousel, horses, are also made of hand carved and hand-painted wood, but carousel horses historically have been made from both poplar and pine (Weedon and Ward 71), aluminum, fiberglass (Anderson 50) and plastic resins (Anderson 76) as well as a combination of components (Anderson 79). They have glass eyes and jewels embedded in the wood. The wooden horses were originally painted with Japan oil paints and sealed with varnish. During the many years in an amusement park, layers and layers of "park paint", or garish brightly colored enamel paints, were used to repaint the horses. The poles on which the horses are mounted are chrome instead of the usual brass. At the time the Paragon Carousel was built, PTC was celebrating their 25th anniversary and the predominant color of this particular carousel was made silver instead of gold, to commemorate the anniversary. (Hardison, personal interview, Feb. 4, 2003).

The Paragon Carousel Horses

On The Paragon Carousel, the horses are made of bass wood. The bodies of the horses and trappings, or decorations, were hand carved by primarily immigrant woodworkers and artists who came to this country looking for the roads "paved with gold." Instead they found that the manes and trappings of carousel horses were. Here they were able to use their hands, be creative and support their families using skills they had learned in the old country (Fralely 12-13).

The horses of the Paragon Carousel have machine-carved as well as hand-carved components. The automated carving machine used to carve the heads of the carousel horses was

² The description of the carousel and its components is based on personal observation unless otherwise noted.

³ See previous footnote.

purchased by PTC in 1912 and was considered innovative for the time. In order to compete in an already overcrowded carousel market, PTC needed to be able to produce as many horses as possible in the shortest possible time. Using previously carved horses heads as templates they started using the automated machines to carve the heads, but the bodies were still being carved by the master carvers (Jacques 24).

"A carousel horse is not an exact anatomical model of a horse, but a caricature, rather like a doll. Just as a doll's proportions vary from a real person's, carousel horse proportions will vary from a real horse's proportions. [...] An exact replica of a horse would be very bulky, with a massive, muscular body, and an apparently disproportionate, small head, and skinny legs. Carousel horse proportions are modified, much like those of a doll, to make the head and neck larger and more visually appealing." (Anderson 137-138)

The bodies of the Paragon Carousel's horses are constructed of several layers of wood. "Various blocks of wood are cut to size and assembled. These blocks must be carefully matched, with the wood grain running the correct direction to prevent the animal from self-destructing in future years as the wood 'moves.' Swelling and contracting of the block of wood as temperature and humidity change cause this movement. It is a normal part of the life cycle of wood but it must be allowed for in the construction phase. The blocks are fitted together in the classic hollow body or 'coffin built' construction method. That means the horse is not a solid block of wood, but a hollow box, made of many pieces of wood glued together. The typical full-size carousel horse has as many as 70 pieces of wood in its construction." (Anderson 129-130)

The pieces of wood are laminated together using hide glue. "An apprentice prepared the glue by placing a two gallon pot over a gas burner and then slowly adding chunks of a hard carmel-colored substance. As the solid glue began to heat, it turned into a liquid with the consistency of molasses. The craftsman in charge of glue-up fills a small container from the now hot pot. He then covers the surfaces of the freshly cut wood with a thin coat of the hot glue. Quickly clamping the wood together, he applies just the right amount of pressure so that a line of glue presses out the seam where the pieces meet." (Fraley 62) There are no nails, screws or metal components used to hold the horses together (Hardison, personal interview, Feb. 4, 2003 Jonathan Luna, personal tour, Feb. 8, 2003).

"The hollow box is lighter than a solid block, and therefore easier to move. [...] It puts less strain on the frame and mechanism of the carousel. [...] Laminating pieces of wood together

actually makes the horse stronger by using the strength of the wood grain against itself to stabilize the construction and minimize problems." (Anderson 130)

"The head and neck are usually one joined piece, the body is another piece, and the tail and each of the legs are separate pieces as the horse moves through the carving process." (Anderson 137)

"After a body 'blank' has been band sawed to the correct shape and each of the parts fitted to it, A rough carving begins. A rough carved horse will have approximately 20% of the wood removed by power grinders before it is ready for the hand carving to begin. The rough shape of features are outlined, but there is still a lot of wood to be removed by hand, with razor-sharp chisels and gouges." (Anderson 137)

All the roughly carved wooden pieces are sent back to glue-up where, "Wooden pegs (dowels) are added to the head and legs while holes are drilled in the surface of the body where these recently carved pieces will be placed. The contact areas are then covered with the hot hide glue, and the segments of the horse are clamped together and set aside to dry." (Fraley 64)

"By the time the horse is glued together, only a small amount of detail work remains. As the carving is finished on each piece it is completely sanded before being attached to the finished carving. [...] All of the joints then receive a final fairing in and sanding. When the horse is fully carved with all the detail finished, it is ready for a final sanding, priming, and preparation for the color paint." (Anderson 144)

"The first coat or 'finder coat' of white primer is applied." This is a combination of white lead paint, turpentine and boiled linseed oil. (Manns et. al. 139) "This finds all the tiny imperfections in the horse that can't be seen or felt on the raw wood, and makes them stand out. [...] Any irregularities thus discovered can be recarved if necessary, or sanded away, until the finish is perfectly smooth." (Anderson 144)

"Once in the paint room the horse receives several coats of white lead paint. Any imperfections that might remain in the wood's surface are filled in with these base coats. After another sanding with fine-grain sandpaper, the painter has a smooth, porous surface on which to work. He then creates colors by mixing various 'Japan' color pigments with a varnish, a drying agent, and more of the lead-based paint. [...] The artist applies the body colors first." (Fraley 64)

"Carousel horses' bodies coming from the old factories were always painted in natural horse colors, not the unnatural oranges, purples, or greens one sometimes sees in park paint

animals. Dapples were very popular, as were bays, roans, grays, etc. Pure black or pure white horses were rare, as they were difficult to shade convincingly. The dull muted colors we see on so many old carousels are the result of many coats of yellowed varnish, and years of fading." (Anderson 104)

"If gold or aluminum leaf is to be used the painter applies it now, after the body color is finished and before the trappings are colored." (Fraley 65) Aluminum leaf is used instead of silver leaf because silver is prone to tarnish and would require more cleaning and maintenance than most owners are willing to provide (Judith Baker, personal interview, Feb 25, 2003) "[The painter] first places a sizing, a glue-like substance, on the area where the leaf will be placed, allowing it to dry for several hours before cautiously applying the leaf. Once it has been gently laid onto the sizing, the painter burnishes the leaf with a soft brush for a sparkle and shine that cannot be matched." (Fraley 65)

All the painting is done by hand. The painters do not use airbrush or spray paints, as they make the horses look plastic or unreal (Anderson 104; Baker, personal interview, Feb. 25, 2003). "The painter's next challenge is to apply color to the trappings. [...] He selects a color scheme that not only works with the dapples [color] of this particular horse, but also fits well with the color design he has devised for the entire carousel. Once the colors are chosen the painter works quickly, holding several brushes in one hand while applying the appropriate color with the other." Finally, the horse receives two coats of spar varnish and after several days of drying time is ready for placement on the carousel (Fraley 66).

Agents of Deterioration

"Some carousels never even had the chance to deteriorate. The bane of the amusement parks was fire. The entire park was usually put together with wood lath, nails, plaster and tar. Electric wiring was liberally strung throughout to give the place that magical, lit up feeling at night. Unfortunately, this led to the park lighting up in the wrong way. Almost every major amusement complex in the country that was built before the 1940's has had at least one fire. In many cases, the carousel would end up as one of the victims." (Fraley 88) "It is unlikely that we will ever have a complete record of merry-go-rounds that were destroyed by fires or floods. Machines would simply be replaced, or if the destruction was not complete, other figures would be substituted for damaged animals. Owners often kept a few replacement animals on hand for just this purpose." (Papa 78)

"Natural disasters - floods and storms - have also taken their toll. Many amusement parks, constructed on picturesque riverbanks, were at the mercy of devastating floods." (Manns et. al. 97)

Carousel and park owners, "looking to increase attendance. [...] brought in more daring and technologically advanced rides. Carousels became the staid, older rides, needing more and more attention and maintenance as the machinery and figures aged. Many operators did not have the time or money to carefully replace legs and ears, so nails, bolts, old tin cans - anything that was close at hand - were used to make the necessary repairs." (Fraley 88)

"Another factor contributing to the loss of complete carousels is the changed view of the carousel from an amusement attraction to an authentic art object. Contemporary interest in the hand-carved carousel figures as American folk art sculpture resulted in many historic machines being broken up in order to sell the individual animals piece by piece." (Papa ix)

Much of the deterioration of the Paragon Carousel's horses comes from the mistreatment of the animals by the riding public. James Hardison recalls a woman riding the carousel hanging her pocketbook from the ear of the horse. When she disembarked she grabbed her bag off the horse and broke the ear off. The missing piece was never found. There are countless instances of people using the legs of the horse to mount the animal, this causes undue stress on the leg joints and weakens them causing breakage (Hardison, personal interview, Feb. 4, 2003; Baker, personal interview, Feb. 25, 2003).

Charlotte Dinger observed that there is a "lack of care about other people's property and even caring about relics of the past. We see evidence of people carving initials in the animals and stepping on the legs to get on the horses instead of on the metal step. Also I've seen a teenager with one foot on a magnificent lion's head and one foot on the saddle, standing up holding on to the pole." (qtd. in Papa 206-207)

Children wearing wet and sand filled swimsuits ride the carousel as well. The sand from the beach acts "like sandpaper" on the meticulously painted animals causing scratches and gouges (Hardison, personal interview, Feb. 4, 2003). Children's feet urging their horses to go faster have abraded the trappings and horses over the years (Fraley 87).

Judith Baker recalls the time at the New England Carousel Museum that they were asked to repair a horse who's glass eyes had been gouged out by the riders. It was an expensive repair since pieces of the horse's head had to be recarved (personal interview, Feb. 25, 2003). The

carousel horses of the Paragon Carousel have not been that seriously damaged, but do suffer from the everyday wear and tear of use.

Another form of mistreatment is haphazard and hastily made repairs. "Many carousel owners considered the animals merely seats on an amusement park ride, a way of generating profit, while others did not have the means to properly restore their rides. Since the purpose of a carousel was primarily functional rather than aesthetic, repairs made to the animals were often done haphazardly. Eventually, decades of makeshift repairs and multiple coats of 'park' paint (paint applied by the owner or the operator), along with the wear and tear of tens of thousands of riders, took their toll on the detail of the finely crafted individual figures." (Fraley 94)

"Problems are caused by such inappropriate repair materials as auto body putty and other materials designed for use on metal instead of wood. These are so hard they cannot be sanded along with the wood. They destroy the carving tools used to shape them and they expand at a different rate than the wood, causing paint adhesion problems. Hot melt adhesives are another 'quick fix' that cause problems for the restorer. They do not form permanent bonds for the repaired piece but are extremely difficult to remove." (Anderson 88)

Metallic fasteners including "nails, screws, bolts, corrugated fasteners (sometimes called 'wiggle nails'), metal straps, etc., are all common methods of a 'temporary fix.' The danger with metal inclusions is that moisture in the wood, and in the surrounding air, will condense on them and foster the growth of mold or bacteria, producing rot. A metal inclusion in the horse is a time bomb waiting to go off and destroy the animal." (Anderson 86)

Artificial reinforcements include "fiberglass coverings over knees, metal rods to hold legs on, etc. These are extremely damaging. It is very common to find old horses with missing parts where a later reinforcement has snapped; hooves, legs, tails, ears, or pieces of mane and trappings are likely candidates." (Anderson 88)

These are all considered faulty repairs and "make any problem worse by making holes in the wood, or concealing damage such as open joints with an application of filler." (Anderson 86) The faulty repairs are often hidden by a "paint-over [which] is the process of covering up improper repairs or damage." (Anderson 86)

"Heavily used park carousels would often receive a fresh coat of paint every season. Many figures that have been restored were wearing more than 50 coats of thick enamel paint. Usually garish and poorly applied, this finish became known as 'park paint.' Concessionaires and

ride operators were usually responsible for repairing and maintenance. Their indifference and ineptness [is] obvious. [...] The art and beauty of a carousel figure often disappear under layers of gaudy park paint. Dozens of coats of enamel paint can obliterate intricate ornamental carving." (Manns et.al. 229)

When the Paragon Carousel was moved in 1985, the horses were spray painted with a hard shell epoxy sealant. This sealant did not allow for fluctuations in the wood. As a result when the weather changed the wood swelled and contracted and the paint and epoxy cracked and started chipping off (Hardison, personal interview, Feb. 4, 2003).

Another agent of deterioration of carousel horses is the environment in which they exist. The Paragon Carousel is one block off the ocean. It is exposed to sea air, salt spray and blowing sand. It turns in an unheated and un-airconditioned building that is open to all weather.

The carousel is made of wood and "wood ages. It swells and shrinks with a change in the weather, it reacts to heat and cold and is subject to fungus infestation leading to dry rot." (Fraley 87) "Rot is caused by bacteria or fungus digesting the wood. It requires a moist environment, and is often present in horses that have been flooded or received a prolonged exposure to excessive humidity." (Anderson 88)

The salt air is very corrosive to the metal parts of the carousel and it also dulls the finish of the paint very quickly. Blowing sand can be abrasive to the paint (Hardison, personal interview, Feb. 4, 2003).

And finally, the carousel often falls victim to the local wildlife. For instance, the mice who recently set up housekeeping in the Paragon Carousel band organ and the birds that are often found nesting in the rafters of the building (Hardison, personal interview, Feb. 4, 2003). The horses, being hollow, are also subject to insect infestation. It is not uncommon to find hornets nests and rodents living inside the animals (Luna, personal tour, Feb. 8, 2003). Horses and other wooden components are also subject to termite infestations. (Fraley 87)

Preservation vs. Restoration

There are two distinct camps in the preservation vs. restoration debate when it comes to antique carousels. On one side are the collectors, who feel that antique carousels should be preserved in climate controlled environments such as museums or private collections where they can be looked at and studied, away from the destructive forces of nature and the mistreatment of

everyday wear and tear (Papa 192-193; <http://www.carouselmuseum.com/preservation.html>). Collector Charlotte Dinger says, "I like very much to see wooden carousels in museums because I know they're going to be taken care of properly."(qtd. in Papa 238)

On the other side of the issue are the people who feel that antique carousels should be restored so they can continue to operate and future generations can experience the carousel in the way it was originally intended - in motion (Papa 193-194). As Tobin Fraley writes, "The art of the carousel was not an exhibition in museum halls or national galleries. It was a living art, tested by the nickels and dimes of a public who flocked to trolley parks, resorts and small town fairs across the country" (Fraley 13). Charles Walker feels that, "It's certainly not a very good investment unless you love it as much as you pay for it. I would not advise putting my money into carousel horses unless it's on a machine where it can gather some revenue." (qtd. in Papa 117)

Everyone I spoke with about the subject refused to commit to one side or the other, many quickly changing the subject. All agreed that it was a controversial subject in the carousel industry. People on both sides of the issue tended to agree also that there are gray areas in which their opinions could be swayed to one side or the other. The International Museum of Carousel Art in Hood River, Oregon, believes that "some carousel animals are so fragile or rare, or valuable that they should never ride a carousel again. The risk of damage or loss is too great. This would include animals that survive with original factory paint." (<http://www.carouselmuseum.com/preservation.html>). Also in cases of neglect, advocates to keep them operating tended to agree that it was time to retire the unit to a museum for preservation. In some cases museums will purchase and restore an antique carousel and keep it operating as an attraction in the museum (Papa 238-239).

In the case of the New England Carousel Museum, the museum has a policy that it will not purchase a carousel animal separate from a machine unless it has documented evidence that it has been off a machine for at least 10 to 15 years in order to preserve intact carousels. They will also not alter a carousel horse to suit a clients tastes. Judith Baker tells of the time a person brought her an antique horse and asked that she cut the animal figure off the back of the saddle because they didn't like it. She refused.

Although they would like to have an operating carousel in the museum, financially at this time it is not feasible. Their intent is to eventually purchase and restore an entire carousel for use in the museum (Baker, personal interview, Feb. 25, 2003).

The debate still rages and in the end it comes down to personal opinion as to what the best use is, and the end goal of the original carvers was, for any particular carousel. Was it to create a museum piece - a hand carved piece of folk art? Carrie Papa writes, "Even someone involved with carving could not know the future value of a carousel horse, or that merry-go-round figures would be placed in museums as fine examples of American folk art" (113). Or was it to create joy and happiness for people during a time of hardship and change? As carousel operator Dr. Floyd Moreland says:

"[Today] the magic is there in another sense, though it's still in the dreams. There's something. I can't put my finger on it, but I see it in children and I see it in older people. [...] There is no other ride, no other mechanical object, I think, that captures the imagination of children so much. I see kids whisper in their ears. They wave hello and goodbye. It's just incredible. That's the part of the eternal magic, and the dreams that these machines can generate. I can see it in the older people. They look at each other, and you can see it in their eyes that they are going through a time warp. You can just tell that something very special is happening as they ride. It's quite remarkable" (qtd. in Papa 190-191).

Restoring the Paragon Carousel

There are three different kinds of restoration - historical, functional and pseudo-restoration (Anderson 84). There are advantages and disadvantages to each.

Historic restoration "requires that an animal be done in paints, colors, and materials most similar to those available to, and used by, the factories of the golden age of carousels. These materials included, but were not limited to, white lead primer (which is toxic, and can now only be used under very carefully supervised conditions), Japan colors, and spar varnish. Horsehide glue was used to laminate the bodies together. Colors of original paint on the animal are meticulously documented, so that they can be duplicated, or stripped back to the original, and enhanced. Historic restorations are normally done only for museums, or for purists seeking to preserve a special figure as it came from the factory, and are commensurately expensive because of the detail of the work involved." (Anderson 85)

Functional restoration is the type "most commonly done, and with good reason. Animals on operating carousels are working folk art, and of necessity take a beating. A large percentage

of animals are not exquisitely rare, and are needed to continue working on living carousels. So, if an animal has been badly used, and now needs repair work, it is important to repair it in a way consistent with that usage. [...] Modern adhesives, fillers, paints and varnishes are much more practical for use on a working carousel. They are more durable, easier to use, and provide a superior job at a much more reasonable cost than a historic restoration. A functional restoration is appropriate on 90% of the existing carousel animals. It takes the future usage of the animal into account and uses whatever materials and techniques are most suitable to keep the animal working." (Anderson 85)

Pseudo-restoration is "a commonplace technique, this is the practice of doing surface or cosmetic restoration without repairing the underlying damage. Pseudo-restoration includes using materials and techniques that actually do more to damage the horse than they do to preserve it. Examples of such techniques are stuffing cracks with filler without repairing the crack, binding a broken leg with fiberglass, nailing broken parts on, and filling voids with window putty or auto body epoxy. It is always wrong to cover damage rather than repairing it, or to use products that are incompatible with wood. These are often crimes of ignorance. The horse will look fine when it is painted, but will not last, and may even be dangerous to ride." (Anderson 85)

"When an animal is brought in for 'treatment' the restorer or conservator's first job is to evaluate its overall condition without removing the paint. This can be difficult, since a coat of paint often hides a multitude of sins. Animals that look 'healthy' on the outside may turn out to be in bad shape once the layers of paint have been peeled away. On the other hand, figures that look ragged on the outside may actually be in good condition on the inside. In most cases the paint must be stripped off in order to tell how much restoration work the figure needs.

"Next, the restorer determines if the animal's original factory paint is still intact beneath the many layers of park paint. (Over the years, an animal may have accumulated twenty, thirty, or even forty coats - up to one-eighth of an inch in thickness.)" (Fraley 96)

"Rosa Ragan, a carousel restorer in North Carolina, accomplishes this task by carefully scraping away a small, unobtrusive patch of paint using a scalpel and a blow dryer. If the original paint is still in place, it's highly detailed and decorative style is easy to distinguish from hastily applied park paint. Many times, however, the restorer discovers that the original paint has long since been removed or isn't worth salvaging, in which case the animal is stripped down to the bare wood." (Fraley 97)

Stripping of paint can be done in a variety of ways: mechanical, heat and chemical. Mechanical involves scraping, sanding and/or sandblasting. Scraping and sanding are very time intensive and tedious. Sandblasting is the worst choice for removing paint, but some unprofessional restorers have done it. While sandblasting is fast and effective it can cause damage to the underlying carving by scouring away detail and damaging the wood grain. Paint removal using a chemical bath can also be damaging because if an animal is immersed in the liquid bath, it will loosen the hide glue laminations and the animal could fall apart. (Anderson 92) Judith Baker, a restoration specialist at the New England Carousel Museum prefers to use heat. Although it is also time consuming, she feels that the heat is less damaging to the underlying wooden structure of the animal (personal interview, Feb. 25, 2003).

"In the restoration process, a carousel 'doctor' tries to undo all the unintended damage that has occurred over the years. In the conservation process, the conservator hopes to retard any ongoing damage to the figure, stabilize the wood, and maintain the figure with as little physical damage as possible. And considering the fact that the youngest [wooden] carousels are now more than 60 years old, there's often a lot of work to do. In most cases, completely restoring a carousel can take up to eight months, with an individual figure requiring anywhere from 30 to several hundred hours, depending on how ornate and badly damaged the animal is." (Fraley 96)

When assessing the condition of a carousel animal there are several questions that must be asked. "Is the horse basically sound? Are there parts missing? Is there concealed damage. rot, metallic inclusions, or insect damage? Is the surface smooth, or is the wood bruised and fuzzy? Has the horse been stripped or sand blasted? Are there delaminations?. [...] Both joints and laminations in less than perfect condition are bad news." (Anderson 85-86) "Does the horse have glass jewels? Are any missing? Are they broken, scratched, or worn? Do they need to be replaced?. [...] Does the horse have a carved or horsehair tail? If it is a hair tail, is it in good condition or does it need to be replaced?. [...] Does the wooden tail need to be refastened, repaired, or recarved?" (Anderson 91) Have any parts been replaced? "If there is a replacement, the restorer must decide whether it is good enough to leave, or if a new and better replacement is required." (Anderson 89)

"After the evaluation, the restoration plan must be written. This can be simple and informal or detailed and systematic, but this step should not be skipped. It should include the

method of paint removal, the extent of disassembly, the methods and extent of repair work, and the paint color palette." (Anderson 92)

"Ornate animals that have been heavily abraded are among the most difficult figures to restore. On these animals, fine details - such as the face of a cherub or the flowers on a saddle - must be meticulously built back up and recarved in the original style. How does a restorer know what the animal looked like originally? Experience. Without seeing the rest of the animal, a well-versed carousel restorer can look at a single hoof, ear, tail or eye and determine who the carver was and approximately when the figure was made. That's how distinctive each manufacturer's style was." (Fraley 98)

"In order to return an animal to its former glory, the restorer must remove all 'foreign objects,' such as nuts, bolts, nails, screws, and metal patches, and redo the repairs properly. This process involves cutting out rotted sections of wood, building up worn or abraded areas, and in some cases, replacing an entire hoof, ear, leg or tail." (Fraley 97) "Chemicals on the market can halt the growth of dry rot and restore weak areas to a more wood like consistency, but usually the affected area must be dug out. Small patches can be remade without great expense, but extensive damage is a costly challenge." (Manns et. al. 236)

"Concerning disassembly, the rule of thumb is; 'if it's not broken, don't mess with it.' If the joints are solid and the bodies are intact, there is no point in taking them apart. On the other hand, if a joint or lamination is failing, either showing cracks or loose parts, it must be repaired, and the best way is usually to take it apart and redo it." (Anderson 92)

Cracks are considered "flaws in the wood itself, where excessive force has separated the fibers. Cracks across the end of a board are called checking. A crack is a much more serious flaw than a delamination, because it is a failure of the wood fiber, the basic building material of the horse rather than an adhesive failure. Cracks are often caused by bad construction methods, and are more difficult to repair." (Anderson 86)

"To repair tiny cracks a line of small holes [is] drilled along the crack to allow insertion of a hypodermic needle. The crack is then injected full of thin epoxy resin, which bonds the damaged wood fibers together again. [...] Wooden shims are never used to fill cracks, because they act as a wedge to force the crack deeper into the wood, and make the problem worse." (Anderson 98)

"Once all of the damage to the wood has been repaired, the animal is primed, sanded and readied for repainting. If the figure is part of a private collection, and the valuable original paint is still intact, [the restorer] simply touches up the paint and applies a coat of clear varnish to the animal. If the figure is part of an operating carousel, however, she covers the varnish with several coats of fresh paint so that the original isn't damaged by the riders." (Fraley 99) To determine the original colors of a carousel horse the painter uses a Munsel color system to match the original Japan colors (Sweeney 17).

Because the original primers contained lead, modern primers must be used. Modern primers are of a very thin consistency in comparison. It usually takes three coats of primer and three complete hand sandings to achieve the final level of finish needed before color paint is applied (Anderson 145-147).

Before any color is applied to the horse, "a detailed plan for the paint job is completed. [...] The plan is devised to allow the painting process to move forward as rapidly as possible, so that each coat will have time to cure properly." (Anderson 147-148) The carousel restoration professionals I spoke with prefer to use Japan oil paints when repainting a carousel horse (Hardison, personal interview, Feb. 4, 2003; Baker, personal interview, Feb. 25, 2003). Some restorers will use standard tube oil paints. They then "coat the figure with an antiquing glaze for an aged appearance, then top it with varnish to protect it from humidity and temperature changes." (Fraley 99) "Each thin layer of varnish must be allowed sufficient time to cure before the next coat is applied." (Anderson 149)

Bill Finkenstein, a professional carousel restorer says, "Hopefully we've been innovative in the sense of our thought of going back to what made it happen to begin with. The old hide glues in the crock-pot. We heat up the glue. We take all that time to do that. Why? Not because it isn't faster to go to epoxy, but because that's what they used. There's a rule of thumb in the art restoration field and that is never do anything to a piece of art that you can't reverse." (qtd. in Papa 141)

Some carousel restorers feel that using more modern techniques, tools and glues is better because they are far superior to those used at the turn of the century (Anderson 133). In the case of power saws and tools they may be. The New England Carousel Museum uses Elmers® Carpenters Glue to repair laminations and a polyurethane to seal the horses because it does not discolor the way the old varnishes do (Baker, personal interview, Feb 25, 2003). But as Bill

Finkenstein continues, "A lot of these epoxies, you can't reverse the epoxies. You can't reverse the polyurethanes. So, if you start working with these things, you don't know what trouble you're going to make later on." (qtd. in Papa 141)

Constraints on Preservation

The biggest obstacle in the preservation and restoration of the Paragon Carousel is funding. The carousel relies on donations from the general public to keep it operating. The operation of the carousel is seasonal due to its location on the beach. It does not make sense to keep the carousel open and operating during the winter months when there are no visitors to the beach, thus no visitors to the carousel. During the time the carousel is closed, maintenance is performed and restoration takes place. Because of the lack of income during the winter months the staff of the carousel is reduced to a minimum and the restoration taking place is delayed.

Another constraint on the restoration of the carousel that is also finance-related is the high cost of liability insurance. Because of this cost the carousel does not even consider restoring and using the brass ring machine. If they were to use the machine the cost of insurance would double. The carousel must also be fenced within the pavilion to prevent people from attempting to board or exit the carousel while it is in motion and injuring themselves (Hardison, personal interview, Feb. 4, 2003).

Other constraints include time and staffing. Again these are related to the financial state of the carousel. Without staffing during the winter, the restoration will take many years. With better funding, Mr. Hardison, the curator, restorer and historian of the carousel, could have more help to complete the restoration in a more timely manner. Currently the restoration has been ongoing for the last eight years and is only half completed. By the time the remainder of the carousel is restored, they will have to start over again as the paint will have worn and dulled on the pieces that were completed first (Hardison, personal interview, Feb. 4, 2003). At this time, the first pieces restored are already showing wear.

The Paragon carousel is greatly affected by the economy of the area in which it is located. During the late 1980's, after Paragon Park was closed, the Nantasket Beach area became very depressed. It was a difficult time for the Paragon carousel.⁴ Recently the area has undergone a complete revitalization, and hopefully this will trigger a renewed interest in the carousel.

⁴ These are personal observations.

It appears that the biggest constraint on restoration that all other concerns are dependent upon is funding. Without money the carousel cannot be restored and cannot continue to operate.

What else can be done to help to preserve the Paragon Carousel?

The most important thing one can offer to do to help to preserve the Paragon Carousel is financial support. The restoration of a carousel is an expensive undertaking. In 1980, the typical cost to restore an entire carousel was in the \$400,000 range (Papa 206-207, Manns et al. 221). It is most certainly more today. Carousels tend to be worth more when broken apart than when intact and operating (Manns et al. 221, <http://www.carouselmuseum.com/preservation.html>). With individual horses selling for as much as \$15,000 each (Manns et al. 234), it is not difficult for an owner to justify selling a carousel off in pieces.

Between 1986 and 1996 the owners spent nearly a half a million dollars to operate and maintain the Paragon Carousel (Nealon 1996:25). This included the cost of insurance and the costs of regular maintenance on both the carousel and the pavilion that houses it, as well as labor costs for those who maintain and operate it.

As with any 75-year-old antique object, proper care is important to preserve it for the future. Financial support also insures that the carousel receives regular daily maintenance as required (Hardison, personal interview, Feb. 4, 2003).

The Friends of the Paragon Carousel make it easy to support their carousel. Through their web site, (http://www.enjoy-hull.com/join_the_friends.htm), one can become a member of the Friends of the Paragon Carousel. Membership is available at a variety of levels from basic membership for \$25 to sustaining member for \$100. Through another link on the web site one can make a larger investment if they wish. A person can "adopt a horse" for a \$10,000 donation and have a brass nameplate with their name on it placed at the foot of the horse. Or a person can purchase a park bench or flower planter for a smaller donation. The Friends also have a program in which one can purchase an engraved patio brick that is set into the patio surrounding the pavilion. Depending on the length of the engraving, the cost of the bricks range from \$75 to \$500 (http://www.enjoyhull.com/Invest_in_a_Legend.htm).

If one does not want to invest that much financially, the simplest way to support the carousel is to ride the carousel. For a couple of dollars one can take a magical ride back in time. Or one can purchase t-shirts and post cards from the gift shop. Every dollar counts toward the carousel's ongoing operation and preservation.

And lastly, support the carousel through word of mouth; tell people about the carousel (Papa 14). Teach the children, when they ride, to respect it as a piece of functional art. Too many young people today don't understand the value of an antique carousel. They do not care that it is 75 years old or that the animals were hand carved by men who came to this country to start new lives. To many young people today, it is just a carnival ride (Papa 206-207). By providing education and making people aware of what it is and how it is historically significant, one can help to preserve the carousel for future generations (Fraley 90).

© 2003 Donna M. Dube. All rights reserved. No portion of this paper may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or any information storage retrieval system, without written permission of the author.

References Cited

- Anderson, Sherrell S. Carousel Horses A Photographic Celebration. London: PRC Publishing. 2000.
- Baker, Judith. Restoration Manager, New England Carousel Museum. Personal Interview/Discussion. February 25, 2003.
- Fraley, Tobin. The Great American Carousel, A Century of Master Craftsmanship. Vancouver, BC.: Raincoast Books. 1994.
- Hardison, James. Curator/Historian of The Paragon Carousel. Personal interview/Discussion, February 4, 2003.
- International Museum of Carousel Art. "Preserving Carousels and Carousel Art." n.d. <<http://www.carouselmuseum.com/preservation.html>> (cited 1/31/03)
- Jacques, Charles J. "Master Carvers." Amusement Park Journal. Vol. 5, No. 4. (1984:18-27)
- Luna, Jonathan. Tour Guide, New England Carousel Museum. Personal Tour. February 8, 2003.
- Manns, William, Peggy Shank and Marianne Stevens. Painted Ponies. Santa Fe: Zon International Publishing Company. 1986.
- Nealon, Patricia. "Local group appears ready to buy antique carousel." Boston Globe. February 29, 1996: 25.
- Papa, Carrie. The Carousel Keepers, An Oral History of American Carousels. Blacksburg Virginia: McDonald & Woodward Publishing Company. 1998.
- "The Paragon Carousel." n.d. <<http://www.enjoy-hull.com/history.htm>>. (cited 1/31/03)
- "The Paragon Carousel." n.d. <http://www.enjoy-hull.com/join_the_friends.htm> (cited 3/17/03)
- "The Paragon Carousel." n.d. <http://www.enjoy-hull.com/Invest_in_a-Legend.htm> (cited 3/17/03)
- Sweeney, Noreen and Mike Sweeney. "Brass Ring Entertainment Restores New York State Carousel." Carousel News and Trader. Vol. 19, No. 1. (Jan/Feb 2003): 14-22.
- Weedon, Geoff and Ward, Richard. Fairground Art. London: White Mouse Editions. 1981.

Other References

- International Museum of Carousel Art. "Restoring Carousel Art." n.d.
<<http://www.carouselmuseum.com/restoration.html>> (cited 1/31/03)
- Jacques, Charles J. "Building PTC Carousels." Amusement Park Journal. Vol. 5, No. 4.
(1984: 12-17)
- Jacques, Charles J. "PTC Carousels - World's Finest and Most Substantially Made." Amusement Park Journal. Vol. 5, No. 4. (1984: 3-11))
- Jacques, Charles J. "Ups and Downs." Amusement Park Journal. Vol. 5, No. 4. (1984:28-35)
- Largent, Bette. <Painttheponies@aol.com> "PTC Restorations." Personal e-mail.
February 9, 2003.
- Nealon, Patricia. "Antique Carousel may face last lap." Boston Globe. August 25, 1995: 25, 31.
- "Old Carousel will get a new spin in Hull thanks to loans, grants." Boston Globe.
March 21, 1996: 92.
- The New England Carousel Museum. "Restoration Department" n.d.
<<http://www.thecarouselmuseum.com/restoration.html>> (cited 1/31/03)
- Ragan, Rosa. <rosaragan@earthlink.net> "PTC Restorations." Personal e-mail.
February 9, 2003.
- Somerville, Peter. National Park Service. Updated April 30, 2000. "Glen Echo Park, The Dentzel
Carousel." <<http://www.nps.gov/glec/caro/carousel.htm>> (cited 1/31/03)