



Racing in America

"From the Curators"



Transportation in America



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Racing in America

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Racing in America

Introduction

“Auto racing” is a troublesome term, for unlike “baseball” or “basketball” the term doesn’t refer to a clearly defined sport. Instead, it refers to several possible sports—Indianapolis-style racing, stock car racing, drag racing, sports car racing, land speed record racing, off-road racing, go-kart racing and a good many other subspecies besides. Each of these types of auto racing has its own governing body, rules, cars and fans. The Appendix to this report describes the major forms of American racing in more detail. The challenge of the report itself is to find themes that cut across the dividing lines and tie the various forms of racing together.

I have identified four such themes:

- The American-ness of American auto racing—what sets racing in this country apart from other areas of the world?
- The twin meanings of performance—auto racing as going fast and auto racing as theater.
- The role of risk—the risk of injury, the risk of damage, the risk of losing, the risk of seeing someone get hurt.
- The vital role Southern California plays in virtually every form of American racing except stock car racing.

The American-ness of American Auto Racing

Ensclosed between two oceans, Americans have developed their own brands of racing that appeal to deep-seated American sensibilities. The characteristics of American racing include:

- **A love of pure speed:** While Europeans race on tracks with many twists and turns, putting heavy demands on suspensions, transmissions and brakes, Americans, as historian Bob Post puts it, “tend to favor their speed contests neat—

in the case of autos, racing around superelevated ovals that are essentially one continuous straightaway, or, even more peculiarly, they actually do go in a straight line.” From the converted horse tracks of the early 20th century to the amazing, high-banked wooden speedways of the 1920s to the concrete “superspeedways” of today, speed has fascinated Americans more than handling. Even more basic is drag racing—sprinting down a quarter-mile straightaway.

- **A desire to see the whole track at once:** European-style road courses offer views only of particular turns or sections of the track. Ovals and drag strips can be seen in their entirety, giving the viewer a better sense of how the whole race is going.
- **A preference for short races:** The Indianapolis 500-mile race is the most famous American race, but for years it was an anomaly. Much more typical were 100-mile races on one-mile ovals. Distances have grown longer in recent years, but the higher speeds of the superspeedways keep the total time reasonable. Drag races are even shorter—a race takes only 5 to 10 seconds, and dozens of races can be run in an afternoon or evening.
- **Insularity:** Americans have had a resistance to outside influence, especially European influence. As American racers have gone their own way, they have also disdained the ways of others. For decades, American Indy-car racers and fans were contemptuous of Europeans, dismissing them as “tea baggers” who couldn’t compete with “real men.” That attitude proved costly when in the 1960s Europeans came across the pond and beat us at our own game. Today we see some of that attitude repeated by those who oppose the entry of Toyota into NASCAR.

American racing insularity does not begin at the water’s edge. The different forms of American racing are isolated from one another. Indy-car fans look askance at NASCAR racing and vice versa. There is generally little overlap between drivers and owners, and the technologies employed in different forms of racing are vastly different. Those

who race sports cars have been the most outward-looking, bringing European cars, people and sensibilities to America. But sports car racers have also historically been isolated from other American racers. The land-speed racers who run at Bonneville and the off-road racers who tackle the desert of Baja California in stripped-down pickup trucks are worlds unto themselves. Drag racing is so specialized as to offer little overlap with any other form of racing.

- **Commercialism:** Using auto racing to advertise is as old as automobiles and auto racing. The Duryea brothers entered the first American auto race in 1895 as a way of testing and advertising the car they planned to offer for sale in 1896. Some auto companies, such as Stutz and Duesenberg, actively raced to promote sales. Makers of auto-related products like oil and spark plugs also sponsored race cars. The Indianapolis 500 even drew sponsorship from non-automotive firms like Vita-Fresh orange juice, Drewrys Beer and Dean Van Lines.

But since the early 1970s, sponsorship has grown enormously. Now everything from Cheerios to Tide to Viagra is advertised not only on race cars but also on race drivers' suits, and both tracks and specific races sell naming rights to the highest bidder. As more races began to be televised in the 1980s, advertisers got very creative. Any in-car camera had one or more corporate logos in its field of view. Winning drivers learned to say, "The Budweiser Chevy was running real well today." R.J. Reynolds Tobacco Company skirted restrictions on cigarette advertising by sponsoring both NASCAR's and the National Hot Rod Association's whole racing series.

Calvin Coolidge famously said that the business of America is business. For better or worse, the business of racing has become business.

- **A love of spectacle:** All auto racing, everywhere in the world, has much in common with Roman circuses. Helmet-clad gladiators in colorful, distinctive, incredibly noisy vehicles defy death for the amusement of the crowd. But the American racing spectacle tends to be grander and gaudier than most. Pre-race ceremonies commonly include marching bands, pop singers, balloon releases and

military jet flyovers. Race winners do tire-smoking burnouts, climb fences to reach their fans and do back flips off the tops of their cars. Drag racing is the most spectacular form of all. Flames belch from exhausts, cars come in fantastic shapes, drivers do burnouts to warm up before the race and each race is a one-on-one, gunfighter shootout—the winner advances and the loser goes home.

The Twin Meanings of Performance— Auto Racing as Going Fast and Auto Racing as Theater

Performance: A musical, dramatic or other entertainment—Or—The manner in which or the efficiency with which something reacts or fulfills its intended purpose.

—Random House Dictionary

Racers speak often of performance in terms of the second definition, and most fans think of performance this way—speed, handling, acceleration, power, efficiency. This sort of performance is obviously the prime object of racing. Drivers and crews are judged by their performance—that is, their ability to finish and win races. The most often-told racing stories revolve around this definition, and technology is usually at the center of those stories. A few of the most significant technological improvements in racing include:

- Improved tires that grip the track better, allowing higher speeds. Rivalries between tire manufacturers have been important in improving tire technology.
- Superchargers that increase engine power. This technology has gone in and out of favor, but Americans have been leaders in it.
- Fuel injection systems that are more reliable and rugged than carburetors and deliver fuel more precisely.
- Special racing fuels, especially in drag racing. Mixtures of volatile liquids like nitromethane and benzene are much more powerful than gasoline, allowing dragsters to cover a quarter mile in less than 5 seconds at speeds of over 300 miles per hour.

- Highly sophisticated aerodynamic devices. Since the 1960s, race cars have sprouted wings and other devices that use flowing air to push cars down on the track, allowing faster times.
- Special chassis designs like the slingshot dragster or the roadsters that dominated Indianapolis for a decade.

Another aspect of winning performance is organization and preparation. The teams that plan best and make the most meticulous preparations are the ones that win the most.

But the first definition of performance in the definition quoted above—“a musical, dramatic, or other entertainment”—also applies to racing. Auto racing is entertainment; it is a performance. For promoters, a successful performance is one that sells tickets and fills the stands. For sponsors, a successful performance is one that helps sell their products. Even for the fans, a successful performance doesn’t have to include racing success. My most memorable racetrack experience was hearing the incredible noise made by one of the famous supercharged Novi race cars as it failed to qualify for the Indy 500. Forty years later the sound still rings in my memory; it was an unsuccessful racing performance but a boffo theater performance. Some elements of this definition of performance include:

- **Sounds that stir the emotions:** Much of auto racing’s visceral appeal comes simply from the sounds that high-performance engines make. Today a popular activity at drag strips is the “cackle-fest,” in which engines of vintage dragsters are simply started and revved, allowing fans to revel in the noise made by stationary cars.
- **Showmanship:** In our discussion above of spectacle as a beloved characteristic of American racing, we have referred to elements of showmanship like burnouts, flyovers and celebrity singers, which have become integral parts of racing.
- **Sex:** While women were kept out of competition, they were still made part of the show. “Femo-phobic” Indianapolis nearly always had a movie actress to greet the winning driver in Victory Lane. The swimsuit-clad trophy queen was a fixture at tracks across the country.

For years, the best-known woman in racing was Linda Vaughn, the abundantly endowed “Miss Hurst Golden Shifter,” who advertised Hurst products, such as custom wheels and shift linkages, and who kissed winning drivers.

- **Changing the rules to promote parity:** Race officials want close competition. If one car or team wins too often, fans may get bored and lose interest. So organizers sometimes adjust the rules to equalize competition. Right now NASCAR is experimenting with its Car of Tomorrow, which is basically a standardized car that emphasizes driver skill over technological superiority. This is one place where the two definitions of performance are in direct conflict.
- **Paying special attention to appearance:** A car with a colorful, custom paint job is no faster than one painted in gray primer, but the brightly painted car looks better and so makes a better show.
- **Interacting with the fans:** Friendly drivers who sign autographs and chat with the crowd sell more tickets than reclusive, sullen drivers whose only interest is the race. When drivers interact with fans, the show starts well before the race starts and ends well after the race is over.

An important part of the show is who gets to perform in it. Racing has traditionally been a white, male activity, although not a WASP activity. American racing is liberally sprinkled with names like Agajanian, Agabashian, Rickenbacker, Offenhauser, Vukovitch, Romcevitich, Granatelli, Tuffanelli, Lesovsky, Balchowsky, Karamesines, Kalitta, Ivo, Reventlow and Zink. But much rarer were names like Manuel Ayulo, Takeo “Chickie” Hirashima and Roland Leong. And for decades blacks and women were largely excluded from all levels of American racing. There was an all-black racing circuit in the 1920s and 1930s, but it eventually died out, and no black mechanics or drivers reached the top levels.

Women were even rarer than blacks. Superstitious American drivers claimed women were bad luck, and females were excluded from garages and pits. A woman racing driver was unthinkable. Sports car racing, which grew rapidly after World War II, offered the best opportunities for women.

Women were very much part of the European racing scene, and American sports car enthusiasts followed the continental lead. Drivers such as Donna Mae Mims, Suzy Dietrich, and Denise McCluggage (with her trademark polka-dot helmet) were familiar figures at American sports car events. It was not until 1977 that a woman, Janet Guthrie, finally qualified at Indianapolis. In 1992, Lyn St. James became the first woman to win Rookie of the Year honors at Indy.

In recent years, racing promoters have realized that women drivers can sell tickets. Sarah Fisher and Danica Patrick have proven immensely popular at Indianapolis. Ironically, women have been most successful at the macho sport of drag racing. Three-time National Hot Rod Association champion Shirley Muldowney was the first woman to win any sort of championship, and other women drivers have included Paula Murphy, Shirley Shahan and Ashley Force Hood. Kim LaHaie Richards served as chief mechanic for her father, Dick LaHaie.

Black participants are still rare, although drag racing has also led the way here as well. Black participants and fans were always part of organized drag racing. One of the most successful teams of the 1960s—Stone, Woods and Cook—featured two black owners (Stone and Woods) and a white driver (Cook). Wendell Scott was a regular on the NASCAR stock car circuit in the 1960s with an underfinanced team, and Willy T. Ribbs qualified for a couple of Indy 500s, again with underfinanced operations. Racing promoters, governing bodies and sponsors are finally realizing that women and minorities constitute potential audiences that they have overlooked.

The Role of Risk—the Risk of Injury, the Risk of Damage, the Risk of Losing, the Risk of Seeing Someone Get Hurt

The dangers of life are infinite, and among them is safety.

—Goethe

The desire for safety stands against every great and noble enterprise.

—Tacitus

American history began with risk takers. The risk-averse do not leave settled Europe, make a dangerous sea voyage to a distant wilderness and overcome the violent resistance of that wilderness's native inhabitants. The risk-averse do not stage a revolution against the world's leading military power. The risk-averse do not continually move westward across a dangerous frontier. The risk-averse do not establish new businesses and industries. The risk-averse do not go to the moon. Modern societies have drastically reduced everyday risk through things like better medicine, fire-resistant buildings and government-funded social safety nets. But we still seek out the thrill of risk by participating in extreme sports or watching others take risks on "Survivor." Or we participate in or watch the inherently risky sport of auto racing.

One of the key questions about auto racing is how much risk is acceptable. For decades, racing was one of the most dangerous activities on the planet. To look at historic photographs of racing drivers is to confront the faces of men who literally lived fast and died young. For instance, of the 33 drivers who took the green flag at Indianapolis in 1955, 18 would die in racing accidents—one before the end of the race and two more before the end of the year. All of the top 5 finishers eventually met their death in racing cars. Is any activity worth a 55-percent death rate?

Racing can also be dangerous for spectators. One reason for the ultimate demise of races on public roads, like the early Vanderbilt Cup races, was the virtual impossibility of controlling crowds. The great surprise is not that some spectators were killed and injured; the surprise is that more were not. Even the shift to closed courses with grandstands did not remove spectator risk. Cars or flying parts from crashed cars

would still occasionally careen into crowds. In 1955, a Mercedes crashed along pit road at the Le Mans 24-hour race, and flying parts killed some 80 people. The event still haunts the racing community on both sides of the Atlantic. Even today, the danger remains. Just a few years ago, a flying wheel killed two spectators at Michigan International Speedway, one of the safest, best-run tracks in the country.

The two definitions of performance play an important part in the discussion of risk. You win races by being the fastest, and the attraction of risk is part of the show. But only a tiny fraction of fans actually want to see someone die—the vast majority want to see someone face death and survive. So those who put on the show take steps to attenuate risk. A common way to do this is to reduce the size of engines, but savvy race engineers always find ways to make the smaller cars as fast as their predecessors. Since the carnage-filled days of the 1950s and 1960s, racing safety has made great strides. Fireproof clothes, better helmets, safety harnesses, roll cages, automatic fire-suppression systems, limits on fuel capacity and energy-absorbing racetrack walls have drastically reduced the death and injury rate. But racing can never be made safe, merely safer. And if racing could be made truly safe, with virtually no chance of death or injury, would it retain its attraction for both drivers and fans?

In the end, risk is part of life—none of us knows how or when we will die. We may have an aneurysm silently ticking away inside us, or we might fall off a ladder cleaning the gutters. The great Italian driver Tazio Nuvolari summed it up: When queried about how he found the courage to get into a racing car, he replied by asking the questioner, “How do you want to die?” “In bed, asleep,” was the reply. “Then how,” Nuvolari responded, “do you find the courage to turn out the light at night?”

The Vital Role Southern California Plays in Virtually Every Form of American Racing Except Stock Car Racing

For nearly 100 years, Southern California has exerted a pervasive influence over most forms of American auto racing. Other regions have certainly been important. The Charlotte, North Carolina, area is the intellectual and spiritual center of stock car racing. Daytona Beach has hosted races since 1902, first on the beach itself, later on a combination road and beach course, now on a superspeedway. The Northeast—Pennsylvania, New York, New Jersey—was once dotted with oval tracks and race shops that constituted Indy-car racing’s “high minor leagues.” And the presence of the Indianapolis Motor Speedway made the Midwest a key region. But Southern California has had more influence on more kinds of racing for a longer time than any other region of the country.

What is the cause of this dominance? There are no pat answers. Perhaps it goes back to risk takers who sought gold or farms or simply an escape from the Dust Bowl. Perhaps it was the climate that allowed year-round good driving. Certainly it is tied to Southern Californians’ general embrace of all things automotive. The presence of large numbers of skilled people trained in the aircraft industry was important after World War II. And perhaps it is because 19-year old Harry Miller of Menomonie, Wisconsin, drifted to Los Angeles in 1895.

Miller was a self-taught artist-engineer, a mechanical genius who built the most successful American race cars between the world wars. Miller also attracted a cadre of supremely talented metal workers, draftsmen and mechanics, who extended his influence long after his death in 1943. The Offenhauser engine that dominated American racing from the late 1930s into the 1970s was built in California and based on a Miller design.

Craftsmen like Emil Deidt, Eddie Kuzma, Quinn Epperly, Frank Kurtis, and A. J. Watson set up shop in the Los Angeles area. Between 1947 and 1964, only a single Indianapolis 500 winner was not built by one of those men. In Southern California’s racing hothouse, even America’s traditional

insularity broke down. Ted Halibrand's magnesium wheels carried Indy cars, dragsters and sports cars. Stu Hilborn's fuel-injection systems were similarly pervasive. Dean Jeffries created striking paint jobs for cars that raced at Indy or at the drag strip. Jim Travers and Frank Coon were mechanics on Indianapolis winners and built engines for racing sports cars.

Southern California is to drag racing as North Carolina is to stock car racing. Organized drag racing was born in California, and for years it was dominated by Californians like Keith Black, Mickey Thompson, Art Chrisman and Doug Cook. Many of the drag racers also raced on the vast dry lakes east of Los Angeles and at the Bonneville Salt Flats. The two prime hot-rodding organizations, the National Hot Rod Association and the Southern California Timing Association, both grew up and are headquartered near Los Angeles. Off-road racing has its roots here as well, and even the go-kart was invented by a Californian, Art Ingalls.

American sports car racing was revived after World War II by wealthy amateurs from New York and New England, but Southern Californians like fabricators Dick Troutman, Tom Barnes and Max Balchowsky, and drivers like Dan Gurney, Phil Hill and Carroll Shelby, came to dominate the sport.

Famous California racetracks included board tracks like Playa Del Rey, Beverly Hills, Culver City and Fresno; sports car tracks like Riverside and Laguna Seca; and pioneering dragstrips like Pomona and Bakersfield. Legion Ascot was America's most famous, and most deadly, dirt track during the 1930s.

Even the best racing publications, like *Hot Rod*, *Road and Track*, *Rod and Custom*, and *Speed Age*, were based in California.

As racing's popularity has risen during the last two decades, spreading across all areas of the country, California's dominance has receded somewhat. Nevertheless, it is still an amazing concentration of talent and passion that continues to profoundly influence American auto racing.

Appendix to Racing in America: From the Curators

This appendix consists of short histories of the major forms of American auto racing; each form is discussed through its major transformative people, its technological developments, its nontechnological developments and its most important geographic locations.

The major forms of American auto racing are:

- Indianapolis-style racing
- Stock car racing
- Drag racing
- Sports car racing
- Land speed record racing
- Off-road racing
- Other forms of racing— a catchall category that includes a variety of oval track racing below the top levels.

Indianapolis-Style Racing

Indianapolis-style racing is most often done on large, paved, oval tracks in single-seat, open-wheel cars built strictly for racing. This type of racing takes its name from the Indianapolis Motor Speedway, first opened in 1909. The Speedway, and its signature 500-mile race (first run in 1911), are the most influential institutions in American auto racing. For decades, the Indy 500 was the only auto race most Americans knew anything about. The Speedway's oval track became the model for most American racetracks. Spectators liked ovals because the entire track was visible at once and because the racing was generally close and exciting. Promoters liked ovals because they were compact and could be enclosed by a fence, and ticket sales could thereby be controlled. Road races, featuring left and right turns and long and short straightaways, allowed only a portion of the track to be seen at any one time and made crowd control much more difficult. There were several famous early American road races such as the Vanderbilt Cup, the American Grand Prize and

the Elgin Road Race, but U.S. spectators generally preferred races held on oval tracks.

Except for Indianapolis, most early American tracks were not paved but were surfaced with dirt or clay. In 1910, a promoter built a high-banked wooden speedway at Playa Del Rey in Southern California. Its popularity spawned imitators, so that a series of one- to two-mile oval “board tracks” went up from Beverly Hills, California, to Sheepshead Bay, Long Island. They were the ancestors of our modern, concrete superspeedways. Engineers developed highly specialized cars for these tracks, cars with powerful engines but rudimentary brakes and transmissions.

Board tracks were expensive to maintain, and they died in the Great Depression. Most American racing returned to the dirt ovals; it was only in the early 1960s that we began to pave our dirt tracks. American racing remained insulated from European trends until a few technologically superior, rear-engine European cars entered the Indy 500. When one of those cars finally won the race in 1965, it transformed American racing forever. The Indy cars finally left dirt tracks behind, but American copies of the European car designs had only mixed success. By the late 1970s, most American Indy cars and engines were built in England.

The 1980s and 1990s saw an influx of foreign drivers from Europe and South America. Racing on road courses also grew in popularity. But the people who supervised Indy-car racing split into camps, in part over the issue of foreign influence. There are now two Indy-car organizations, only one of which actually races at Indianapolis. This split, and the rise of stock car racing to national popularity, has taken away some of the luster of this form of racing. Indy-style racing is the only form of American racing that was important before World War II. All the other forms discussed below matured after the war.

Transformative People

- **Carl Fisher:** An Indianapolis businessman who developed the Indianapolis Motor Speedway and founded the 500-mile race. He later developed the resort city of Miami Beach, Florida.
- **Harry Miller:** America’s most innovative pre-World War II race car builder. His cars and engines dominated the board tracks and Indianapolis races from 1918 to 1930. His employees Leo Goosen and Fred Offenhauser extended his legacy into the 1980s.
- **Art Pillsbury and Jack Prince:** Respectively, they were the design engineer and the promoter of most of the board tracks.
- **Tony Hulman:** A Terra Haute, Indiana, businessman who bought and renovated the decaying Indianapolis Speedway after World War II, preserving and extending its influence.
- **Dan Gurney:** A great American driver of the 1960s, Gurney brought British race car builder Colin Chapman together with Ford Motor Company in 1963. Chapman’s rear-engine Lotus cars, powered by Ford, would successfully introduce European technology to American racing.

Transformative Technological Developments

- **Superchargers:** Harry Miller perfected this technology, and it helped his engines dominate the competition.
- **The Offenhauser engine:** Based on Harry Miller’s designs, the “Offy” was the principal engine used in Indy racing for nearly 50 years.
- **Board tracks:** These smooth, fast tracks put a premium on engine power, not on brakes and suspension. American racing brakes and suspensions remained primitive even after the board tracks’ demise.
- **Rear engines and independent suspensions:** These European technologies finally made the descendants of the board track cars obsolete.
- **Aerodynamics:** In the 1970s, race car designers found that careful use of aerodynamic devices could create “down force,” which pushes cars against the track, vastly improving road holding and speeds.

Transformative Nontechnological Developments

- **The AAA Contest Board:** In 1909, the American Automobile Association formed a contest board to write rules for and organize auto races. AAA became the major governing body of American auto racing until 1955, when it dissolved the contest board and left racing. A variety of governing groups have followed, but Indy-style racing has generally been marked by organizational instability.
- **Sponsorship:** This is an old idea in auto racing. Oil companies, tire companies and auto accessory companies have long been willing to help pay for a car in return for having their name prominently displayed on the car. But in the 1970s, savvy race car and track owners pushed sponsorship to new heights. They reached out to tobacco companies, retail sales companies, soft drink companies and beer companies. Cars and their drivers became rolling and walking billboards, covered with the names of products. Specific races and entire tracks sold naming rights. This brought an infusion of money into the sport but had the effect of also raising the cost for everyone.

Important Geographic Locations

- **Indianapolis:** Indy has long been the symbolic center of American racing, and Indy-style racing was heavily concentrated in the Midwest.
- **Southern California:** This part of the country embraced all facets of automobility. Harry Miller's shop was in Los Angeles, as were the shops of many other chassis and engine builders, along with several of the board tracks. The coming of European technology in the 1960s lessened Southern California's importance to Indy racing.

Stock Car Racing

The term “stock car” originally meant a car from a dealer's stock, one that was unmodified. Racing such stock cars, usually with the fenders removed, began in the early 1900s. Some stock car races were held in the 1920s and 1930s, especially in the South, but stock car racing as we know it today is primarily a post-World War II phenomenon. The key figure in the development of modern stock car racing was Bill France, a mechanic and driver who in 1947 organized a group of other mechanics and drivers into the National Association for Stock Car Auto Racing—NASCAR. Centered in the Southeast, NASCAR in its early years was dominated by a group of men who learned how to build and drive fast cars while running illegal moonshine. NASCAR was not the only stock car organization, but the aggressive France made it the biggest, best known and ultimately most successful. NASCAR grew up on dirt ovals but in the 1950s began building paved, high-banked superspeedways at places like Darlington, South Carolina, and Daytona Beach, Florida. Also in the 1950s, NASCAR attracted the attention of Detroit's Big Three automakers, who believed in the principle, “Win on Sunday, sell on Monday.” But France was careful to promote drivers as stars, building fan loyalty in anticipation of the day when Detroit would lose interest.

Over time, the cars became less and less stock as more modifications made them safe for racing. By the early 1970s, stock cars were purpose-built race cars with bodies generally reminiscent of real Fords, Chevrolets and Plymouths.

NASCAR stock car racing has arguably become America's biggest form of auto racing. It has broken out of the South and has attracted mainstream corporate sponsors. The cars are rolling billboards, the drivers are promoted as individual stars and the only way to tell a Chevy from a Ford is by the decals.

Transformative People

- **Bill France:** A dictatorial visionary without whom there would be no NASCAR today, he took an activity only barely more respectable than professional wrestling and made it into a billion-dollar enterprise. Bill France is dead, but NASCAR is still run by the France family.
- **Carl Kiekhaefer:** Another dictatorial visionary, whose real business was building and selling Mercury outboard motors, Kiekhaefer was one of the first nonautomotive businessmen to see the advertising potential of stock-car racing. Kiekhaefer-sponsored cars dominated NASCAR in 1955 and 1956. He hired the best drivers and mechanics and brought a new level of professionalism to the sport. His cars, his drivers, his mechanics and even his car-hauling trucks were all immaculately turned out. He left racing in 1957 but showed others the secret to success.
- **Richard Petty:** With the most wins in NASCAR history, the tall, soft-spoken Petty was the first stock car driver to become a national figure. “King Richard” was the model for the fan-friendly, sponsor-friendly drivers that are NASCAR’s ideal.

Transformative Technological Developments

- **Superspeedways:** NASCAR may have grown up on short, dusty “bull ring” dirt tracks, but it became famous for racing on high-banked concrete speedways. The first was Darlington, South Carolina, opened in 1950. The most famous superspeedway, in Daytona Beach, Florida, opened in 1959. Built by Bill France, Daytona’s D-shaped “tri-oval” was the model for many future tracks.

Transformative Nontechnological Developments

- **Sponsorship:** Before Carl Kiekhaefer came to NASCAR, most businesses that sponsored race cars had something to do with autos or racing. Typical sponsors were garages, oil companies, tire companies and battery companies. Kiekhaefer showed that racing could sell nonautomotive

products. Today’s NASCAR cars advertise everything from Tide to Viagra, but the influx of sponsor money has driven up costs, making sponsors even more necessary. For today’s NASCAR driver, winning is not enough. He must be personable, must represent the sponsor well and indeed must be able to attract sponsorship money before a team will hire him. In 1972, NASCAR entered into an agreement with R.J. Reynolds Tobacco Company to sponsor the whole stock car season, so that NASCAR racing became Winston Cup racing. Reynolds and other tobacco companies used auto racing as a way to get around advertising restrictions until they were forced to give up that form of advertising as well. NASCAR’s association with Reynolds ended in 2003, and stock car racing acquired a new chief sponsor, Nextel, for the 2004 season.

- **Television:** Broadcasting of portions of NASCAR races at Daytona began in the early 1960s. When television cameras were still large, stock cars were the only race cars large enough to accommodate them, so viewers got their first opportunity to “ride” with the drivers. NASCAR was the first of the major racing organizations to fully utilize television’s potential for both broadcasting races and selling sponsor’s products.
- **The death of Dale Earnhardt:** Earnhardt succeeded Petty as NASCAR’s great star. His death in an accident late in the race at the 2001 Daytona 500 shocked the NASCAR world. It caused a reevaluation of driver safety, leading to the adoption of new in-car safety devices.

Important Geographic Locations

- **Daytona Beach, Florida:** Daytona is to stock car racing what Indianapolis is to Indy racing: both the most important track and a spiritual home.
- **Charlotte, North Carolina area:** Most NASCAR race teams are headquartered near Charlotte. This grouping forms the Silicon Valley of the sport, where the best technical work is done.

Drag Racing

This is one of the simplest forms of racing: Two cars line up, race from a standing start for a quarter mile and the first one to the finish line wins. Drag racing has four things Americans love—noise, spectacle, brevity (most races are only 5 to 10 seconds long), and clear winners and losers (the winner advances to the next round, the loser goes home).

Drag racing may be the oldest form of racing in the world—it is, after all, what sprinters running foot races do. But drag racing as an organized sport has its roots in hot rod races on public roads. Such racing is obviously dangerous to participants and nonparticipants alike. In the late 1940s, a few hot rodders realized that the antisocial nature of street racing could cause legal restrictions on their hobby. One Southern California hot rodder in particular, Wally Parks, set out to civilize drag racing by moving it off the street to safe, legal, purpose-built drag strips. Working with hot rod clubs, local police departments and local politicians, Parks and his National Hot Rod Association established drag strips, wrote safety rules, codified rules for competition and promoted races. By the mid-1950s, the NHRA was holding national championships in Kansas, Oklahoma City and Detroit. The NHRA was not the only drag racing organization, but Parks' vision and drive made it the largest and most important.

Drag racing started as an amateur sport, but by the late 1960s a few participants were eking out livings as full-time racers. Like stock car racing, drag racing's growth was fueled by television, but the NHRA had to rely on cable, while NASCAR was popular enough to attract the major networks.

One of the keys to drag racing's popularity is the wide variety of classes in which one can race. There are classes for everything from 1950s sedans to 5,000-horsepower dragsters.

Transformative People

- **Wally Parks:** Parks took an outlaw activity, populated by semisocialized adolescent males, and applied middle-class American values to create a billion-dollar sport. His accomplishment mirrors that of Bill France.
- **Don Garlits:** In the early 1960s, Garlits became drag racing's first nationally known figure. More important, as one of the first drag racers to actually make a living being a drag racer, he introduced professionalism to the sport.
- **Shirley Muldowney:** Muldowney was not the first female race driver, or even the first female drag racer, but she was the first female racer of any kind to ever win a national championship (eventually she won three). Drag racing now has more women participating at the highest levels than any other form of motor sport.

Transformative Technological Developments

- **Fuel:** A generic term for any specially blended racing fuel that is not gasoline or alcohol. Fuel always contains a high percentage of nitromethane, a highly volatile chemical that vastly increases both engine power and the likelihood of an engine explosion. It is nitro that makes 5,000-horsepower dragsters possible.
- **The slingshot chassis:** To maximize traction between tires and strip, drag racers try to get as much weight on the rear wheels as possible. In the early 1950s, a few car builders put their engines so far back in the chassis that the driver actually sat behind the rear wheels, "like a rock in a slingshot." The slingshot dragster dominated competition for several years.
- **Rear engines:** After losing part of his foot when a clutch exploded in front of him, Don Garlits decided he wanted to swap places with his engine. In 1970–1971, he perfected a dragster with the engine in the rear. It was so successful that it supplanted the front-engine slingshots.
- **The Christmas Tree:** Developed in the early 1960s, this automated starting system, consisting of a stand with colored lights that flash in sequence to signal the start of a race, replaced human flagmen. The Christmas Tree removed the starter from a dangerous position and insured even, consistent starts.

Transformative Nontechnological Developments

- **The formation of the NHRA:** As explained above, the NHRA made drag racing respectable, safe, legal and profitable.
- **Sponsorship:** Sponsors now play a role in drag racing similar to their role in stock car racing.

Important Geographic Locations

- **Southern California:** Drag racing has spread across the country, but the headquarters of the NHRA remains in Southern California, where much of the technical innovation happens.
- **Indianapolis:** The NHRA's biggest race, the U.S. Nationals, has been held at Indianapolis Raceway Park (not connected at all to the Speedway) for over 30 years.

Sports Car Racing

Sports cars are high-performance vehicles, often open-topped, with full fenders. They originally raced over public roads temporarily closed for racing, but this proved dangerous to both drivers and spectators. Gradually the sport has moved to purpose-built tracks featuring a variety of turns, hills and straightaways that resemble real roads. Because sports cars have always been bigger in Europe than in the U.S., this is the most European type of American racing.

American sports car racing before World War II was generally a small-time affair, dominated by well-to-do amateurs with European cars. In the late 1940s, these people began organizing larger races, even bringing a major international race to a makeshift track at the Sebring, Florida, airport. Most of the vehicles raced were foreign, although some racers successfully adapted Detroit's new, powerful V-8 engines for racing. American builders like Briggs Cunningham and Lance Reventlow often successfully challenged Europe's best,

and American drivers such as Dan Gurney, Phil Hill, Carroll Shelby and Masten Gregory drove for the top European teams and won major races like the 24 Hours of Le Mans.

In the 1960s, Ford Motor Company made the most massive sports car racing effort ever seen in America. Using sophisticated chassis but engines based on production V-8s, Ford eventually won the World Manufacturers' Championship and the Le Mans race four times in a row, 1966–1969.

Perhaps the greatest American sports car racing series was the Canadian-American Challenge, or Can-Am, run between 1966 and 1984. At their peak, these races featured the world's fastest sports cars, usually powered by large, heavily modified American V-8s.

In recent years, the sports car scene has been somewhat confused by the existence of rival sponsoring organizations and conflicting rules. Nevertheless, this form of racing thrives, with important races held throughout the country that attract teams from all over the world.

Transformative People

- **Jim Hall:** This Texan was the most innovative figure in American racing since Harry Miller. From the early 1960s to the early 1970s, his sleek, white Chaparral sports cars featured fiberglass chassis and remarkable experiments in aerodynamics. The wings and other devices pioneered by Hall found their way to virtually every other type of racing car.
- **Carroll Shelby:** By fitting a Ford V-8 to a British AC chassis, Shelby created the Cobra sports car that won a world championship and became an icon.

Transformative Technological Developments

- **Aerodynamics:** Before Jim Hall, racers concentrated on streamlining to lower wind resistance. In the late 1960s, Hall showed people how to use aerodynamic devices to actually make cars handle better and run faster. Virtually every racer running today owes a debt to Hall.

- **V-8 engines:** In the late 1940s and early 1950s, Detroit manufacturers brought out new, lightweight, powerful V-8 engines. Racers of all types quickly began to modify V-8 engines to increase power, and many sports car racers saw them as alternatives to expensive, highly strung European engines. The big V-8s offered power, simplicity and reliability but relatively low efficiency compared to European engines.

Transformative Nontechnological Developments

- **Sponsorship:** This affected sports car racing in much the same way as it has other forms of racing.

Important Geographic Locations

- **Southern California:** The sheer concentration of automotive racing talent in the Los Angeles vicinity affects all forms of racing. Sports car racing is less geographically concentrated than some other forms, but Southern California is still important.

Land Speed Record Racing

Land speed record racing is even simpler than drag racing. One car at a time races down a straight course several miles long and is timed over some portion of the distance, usually one mile. The goal is to attain the fastest average speed over that mile. Such competitions were once held on beachfronts, which were long, straight and pounded smooth by the waves. Cape May, New Jersey, and Daytona Beach, Florida, held early competitions, with Daytona becoming the most popular location. As speeds grew, competitors looked for safer locations, eventually moving to places like the dry lakebeds of Southern California and the vast Bonneville, Utah, salt flats.

The absolute land speed record is held by a jet-powered car at over 700 miles per hour, faster than the speed of sound. But land speed racing is not just about the absolute top speed; it is also about going as fast as possible within certain

constraints. Land speed racers compete in a dizzying array of classes based on chassis type, body type, fuel type and engine size. Cars can be large or small, modified from stock or custom-built.

Among the major types of racing, this is the last refuge of the amateur. There is no money to be made in land speed racing. Spectators are few; mostly they are other competitors waiting to race themselves. Yet land speed racers are a close-knit group, bound together by a mutual love of speed and mutual respect. The chief organizations for land speed racing are the Southern California Timing Association (SCTA) and Bonneville Nationals Incorporated (BNI). They organize and sponsor competition at El Mirage dry lake in California and at Bonneville in Utah.

Transformative People

- **Ab Jenkins:** A mayor of Salt Lake City, Jenkins also set speed records in his spare time. In the 1930s, he broke many records at Bonneville, playing a major role in publicizing the salt flats as a place for breaking records.
- **Craig Breedlove:** In 1964, Breedlove became the first person to break a world record with a jet-powered car. He was also the first to go 500 mph and then 600 mph. He demonstrated that jet cars were feasible and that they were the choice for absolute top speed.
- **Bob Summers:** Summers was a purist who believed that real cars are driven by the traction between tires and the ground, not the reaction of a jet engine. With his brother Bill, he built Goldenrod, a long, slim 1965 streamliner that established the paradigm for future wheel-driven cars. Today the fastest wheel-driven cars at Bonneville all demonstrate their debt to Summers' innovative thinking.

Transformative Technological Developments

- **Jet cars:** These changed the nature of the quest for absolute top speed but may have also put a cap on the record. Now that the sound barrier has been broken on land, there is little interest from potential sponsors in paying for anyone to go faster.

- **Aerodynamics:** Improved aerodynamics not only allow cars to go faster, but properly done also help cars run in a straight line.

Transformative Nontechnological Developments

- **SCTA:** The founding of the Southern California Timing Association in 1937 formalized the sport, created a structure and put a proper emphasis on safety.
- **Save the Salt:** For many years, potash mining has been undermining the salt at Bonneville. Ironically, the only people who seemed to care were the hot rodders who raced there. Of necessity they had to become environmental activists, forming the group Save the Salt and pushing themselves in directions they never thought they would go.

Important Geographic Locations

- **Bonneville:** This is the Indianapolis Motor Speedway of land speed racing. Racers not only love the racing, they seem to develop an affinity for the unearthly beauty of the desolate salt flats.
- **El Mirage:** One of the dry lake beds northeast of Los Angeles, El Mirage is not as big as Bonneville but is much easier to get to. Hot rodders have been racing there for 70 years.
- **Southern California:** Yes, again.

Off-Road Racing

As the name implies, off-road racing is racing over unpaved trails. The most popular vehicles are highly modified pickup trucks or specially constructed dune buggies.

Off-road racing was born in California in the 1960s. The best-known event is the Baja 1000, run through the desert of Baja California, Mexico. The difficulty of selling tickets for races across open country led to the development of so-called stadium courses, built in places like the Los Angeles Coliseum. The stadium series lasted from 1979 through 1991. A group called Championship Off Road Racing sponsors a series of races on specially built circuits only a few miles in length.

Since the largest off-road events, like the Baja 1000, have few spectators, competitors race more for the challenge and personal satisfaction than the exposure. Sponsorship exists, but is targeted mainly at truck and motorcycle owners who like to go off-road themselves.

Transformative People

- **Mickey Thompson:** Thompson, a well-known hot rodder who became a successful promoter of off-road races, devised the stadium format. His murder in 1988 was the beginning of the end for stadium off-road racing.
- **Parnelli Jones:** A former winner of the Indy 500, Jones' participation in off-road races gave the sport legitimacy.

Transformative Technological Developments

- Special dune buggies, originally based on modified Volkswagens.

Transformative Nontechnological Developments

- The stadium format.

Important Geographic Locations

- Southern California.

Other Types of Racing

For much of the 20th century, the minor leagues of American racing consisted of short tracks where people raced cars that were essentially scaled-down Indy cars. These were variously known as (somewhat confusingly) big cars, sprint cars and, at the lower end of the scale, midgets. This was once the training ground for Indy drivers and mechanics. But the rear-engine, European-style cars that now dominate Indy racing are so different that serving an apprenticeship in midgets and sprint cars is no longer useful to aspiring Indy drivers. Sprints and midgets, often featuring huge upside-down wings that help keep them glued to the track, have become a world unto themselves, in the already insular world of American racing. The major sanctioning body for winged sprint cars is the World of Outlaws.

American championship racing once included races run on one-mile dirt ovals, and the same cars raced on the dirt and at Indianapolis. The dirt ovals now constitute a racing sub-culture called the United States Auto Club (USAC) Silver Crown series. USAC also runs races for non-winged sprint cars and midgets.

Stock car racing has its own minor leagues, with various versions of late-model cars running on short tracks all around the country. Sometimes these tracks are part of national organizations like the Auto Racing Club of America (ARCA), but often the track sets its own rules.

Yet another form for oval-track cars is supermodified, purpose-built racers with minimal body work, V-8 engines, and, often, big wings. They run in a variety of short tracks around the country, many sanctioned by the International Super Modified Association.

Amateur sports car racing in America is dominated by the Sports Car Club of America (SCCA). SCCA racing is for participants, not spectators. The club does little to promote its races beyond the circle of people who actually want to race.

Another growing form of amateur racing is vintage racing, featuring cars that are obsolete for current competition. Vintage racing includes stock cars, Indy cars, sports cars and even drag racers. The rules usually discourage extremely close racing so as to prevent accidents, reduce costs and encourage wide participation.

The major training ground for young racers is now go-karts. These small vehicles can go surprisingly fast and teach the fundamentals in a relatively low-cost, low-risk environment. Karts largely supplanted the miniature race cars known as quarter-midgets and half-midgets.

Before there were go-karts, there were soap box derby racers, motorless cars built by kids that coasted down long hills. Sponsored for years by Chevrolet, the soap box derby racer's popularity waned as go-karts became more widely available.

The Henry Ford's Auto Racing Collection

Here is how our collection fits into the seven categories described above:

Indianapolis-Style Racing

- **1901 Ford "Sweepstakes"**: Henry Ford's first race car. The publicity he gained from winning helped him finance his second car company.
- **1902 Ford "999"**: Henry Ford's second race car. First driven by Barney Oldfield, it helped make Oldfield's reputation, while garnering more positive publicity for Ford.
- **1906 Locomobile Old 16**: Built for road racing, it won the 1908 Vanderbilt Cup when that was the major American auto race. A rare unrestored survivor. Has been called the "Mona Lisa of American Racing Cars." Driven in 1906 by Joe Tracy and in 1908 by George Robertson.
- **1935 Miller-Ford**: Not one of Harry Miller's most successful designs, but illustrative of his superb workmanship and sheer artistry as a designer/builder. Our particular car never made it to the Indianapolis Motor Speedway, so has no driver associated with it. However, since it was never raced, it is the most original Miller-Ford in existence.
- **1965 Lotus-Ford**: The first rear-engine car to win the Indianapolis 500. One of the most significant cars in the history of American racing. Driven by Scotsman Jimmy Clark.
- **1973 McLaren**: This hulk is what remains from one of the worst crashes in Indianapolis history. The crash prompted rule changes to make Indy cars safer. Driven by David "Salt" Walther.
- **1984 March-Cosworth**: British chassis, British engine, with wings to keep it on the ground. A typical Indy car of the 1980s, this one was the fastest qualifier for the 1984 Indy 500. Driven by Tom Sneva.

Stock Car Racing

- **1956 Chrysler 300**: Sponsored by Carl Kiekhaefer. One of the cars that dominated the 1956 season, driven by early NASCAR stars with a moonshine-running background like Tim Flock and Buck Baker. This is a real production car, somewhat modified for racing.
- **1987 Ford Thunderbird**: A typical NASCAR stock car with only a passing resemblance to cars you can drive on the street. Driven by Bill Elliott who was a dominant driver in the late 1980s.

Drag Racing

- **1960 Slingshot Dragster**: Typical home-built slingshot run by two amateurs from the Rockford, Illinois, area, Bob Thompson and Sam Buck.
- **1933 Willys Gasser**: One of the most famous drag cars of all time, winner of multiple national championships. Built and driven by George Montgomery, one of the first people to actually make a living drag racing.

Sports Car Racing

- **1967 Ford Mark IV**: One of the great racing sports cars of the 1960s. Its big American V-8 carried it to victory over a Ferrari at Le Mans in 1967. Piloted by two of America's greatest drivers, Dan Gurney and A.J. Foyt.

Land Speed Record Racing

- **1901 Riker Electric Torpedo:** An early land speed racer, built to break the record for electric cars. Designed and driven by A.L. Riker, who later designed the Locomobile “Old 16” and who became the first president of the Society of Automotive Engineers.
- **1907 Ford 666:** Henry Ford intended for this car to set the land speed record, but it did not. Ford later used the car in oval track races, and his favorite driver, Frank Kulick, was nearly killed when the car crashed.
- **1965 Goldenrod:** Bob Summers’ paradigm-shifting streamliner that held the record for wheel-driven cars for 26 years.

Off-Road Racing

- The closest thing we have to an off-road car is the **1903 Packard “Old Pacific”** that set a record for coast-to-coast driving. In 1903, much of the rural U.S. had no roads, so much of the trip was indeed off-road. Driver Tom Fetch was accompanied by journalist Marius Krarup, editor of *The Automobile*.

Other—this catch-all category includes oval track racing styles below the top levels.

- **1910 Ford “Kulick” Car:** A Model T-based car that raced on short tracks; an ancestor of modern sprint cars. Driven by Ford employee Frank Kulick.
- **1939 Soap Box Derby Racer:** Finished third in the 1939 Soap Box Derby national championships. Built and driven by Mason Colbert of North Platte, Nebraska.