

SUPER **SPEEDWAY**

Synopsis: *Super Speedway*

Buckle up. *Super Speedway* delves into the death-defying drama of Indy car racing and weaves together the stories of some of the masters of the high-speed track. Making astounding use of the giant IMAX® motion picture screen, acclaimed director Stephen Low and the production team of *Super Speedway* have succeeded in capturing a unique experience that has until now been the exclusive domain of a tiny handful of professional race car drivers. *Super Speedway* puts audiences in the cockpit of an Indy car and catapults them into world championship auto racing action at mind-bending speeds in excess of 230 miles per hour.

At the core of the film's action is Michael Andretti and the Newman/Haas racing team he drives for. Together, driver and team test a newly fabricated car and ultimately drive it in hot pursuit of the championship in the PPG CART World Series. Michael's efforts are seen through the eyes of his father, racing legend Mario Andretti, who participates in testing the new car and reflects on his own racing experiences and on the art, science and risk of high-speed competition.

Set against the drama of the track are two story lines that follow the remarkable craft of creating Indy cars: the restoration of a 1964 roadster — a thoroughbred once driven at Indianapolis — and the building of Michael Andretti's state-of-the-art Indy car at the Lola car plant in England.

In Lola's shops the powerful new racing machine for Newman/Haas takes shape: its form is milled and molded, and in time-lapse, the final creation is magically assembled on the plant floor by a team of technicians and engineers. Will the new car perform? Will it be fast and forgiving? Testing the car on some of the fastest tracks in the world, Michael Andretti and the Newman/Haas team prepare for the upcoming season, striving to create the winning synergy between car and driver that will help them take the championship. Mario Andretti lends his expertise, taking the car out himself to probe its behaviour and cornering limits.

As Michael Andretti's Indy car is being readied for the racing season, car restorer Don Lyons is hard at work in his workshop, deep in the Michigan countryside. Lyons' discovery of a vintage 1964 roadster in a farmer's dilapidated chicken coop has lead him into an extraordinary restoration

project that will take two solid years to complete. Only as the film unfolds and Lyons' lovingly restored machine approaches completion does the illustrious identity of the roadster become known.

Struggling toward the PPG CART World Series, the Newman/Haas team turns to wind-tunnel testing with a model to fine-tune the aerodynamic forces at work on Michael Andretti's car. Smoke and ultraviolet dye stream across the car, highlighting the moving envelope of air around the machine and helping the engineers pinpoint adjustments that need to be made.

At race speeds, a delicate balance of aerodynamic forces helps keep the car's tires in contact with the track and gives the driver crucial control in turns. Testing a new car is an unpredictable, high-risk venture: "You just don't have the sense of what this animal is going to do," comments Mario Andretti in the film, "these things can bite." As Michael Andretti and Mario Andretti scream around the track, pushing the limits of the untried machine, audiences will experience viscerally the driver's true art and courage.

Super Speedway culminates in a spectacular portrayal of the racing season: never-before possible giant screen footage captures the drivers, machines and teams of the PPG CART World Series battling each other for supremacy. Watching from the pits, as his son's struggle for victory unfolds, Mario considers the great challenges, joys and perils of the sport; he remembers the drivers and friends he has lost on the track — racers whose luck ran out. On the screen, classic archival footage depicts some of the sport's most dramatic crashes — calamities that are, for drivers, an everyday risk.

The season is a challenging one for Michael and the team, but there are proud moments. In the Winner's Circle, Michael and the other winners douse the press and the audience with jets of champagne. Michael comes in second, after having won five races, more than any other driver, though it is competitor Jimmy Vasser who collects the most points and takes the championship.

Don Lyons' patient restoration work on the 1964 Dean Van Lines Special is triumphantly completed and the white and chrome roadster is rolled ceremoniously out of the workshop and its identity is revealed — it is the very same machine that once initiated Mario Andretti, as a rookie, into the high-profile world of Indy car racing.

In the concluding moments of *Super Speedway* Mario is reunited with the great old machine. "My whole career really began with this roadster," he notes, as a black and white film clip from 1964 shows a smiling young Mario strapping himself into the car for a test drive on a deserted speedway.

In the present, Mario straps himself into the roadster once again as the car's proud restorer stands by. "The car and I were really made for each other," pronounces Mario. "I just put my foot to the floor and, as they say, the rest is history." The engine roars to life and Mario takes the resurrected machine for a drive — hurtling nostalgically through the fall colours of the Michigan countryside.

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The Production

C O N T E N T S

Production Notes

Company Profile –

Openwheel Productions Inc. / The Stephen Low Company

Production Team Members

PRODUCTION NOTES

Once in a Lifetime

Pietro Serapiglia, the producer of *Super Speedway*, describes acclaimed IMAX® director Stephen Low as “a visionary who makes great films.” Low is also a man who seeks out challenges, and he and his collaborators have pulled off a remarkable coup with the making of the new IMAX film *Super Speedway*. Some of the world’s most respected racing personalities and organizations came together in a unique collaboration with The Stephen Low Company to help in the creation of *Super Speedway*, making it a once-in-a-lifetime opportunity for audiences to experience the thrill, magic and danger of Indy car racing.

From start to finish, the *Super Speedway* project took just over four years. By the time the pieces of the production puzzle fell into place, the producers of the film had succeeded in getting Newman/Haas Racing, a top racing team, to field and maintain an actual Indy car equipped with an IMAX camera; convinced legendary driver Mario Andretti to pilot the camera car; landed Mario and his son, racing star Michael Andretti, as subjects of the film; and secured IMAX coverage of the teams and drivers of the PPG CART World Series on the track and in racing action. To top it all off, the production team had miraculously stumbled across the work of expert car restorer Don Lyons. Lyons was in the process of restoring the wreckage of a classic 1964 roadster — a unique, hand-built machine (the last of its kind ever made) that was driven in 1964 by a rookie driver named Mario Andretti.

For Real

Stephen Low and Mario Andretti were only interested in shooting a film that conveyed the reality of driving a race car at speeds up to 240 miles per hour. On the track, Andretti proved to be an exceptional camera operator with a natural feel for shooting, an instinctive finesse that contributed strongly to the power of the final movie experience. “Stephen explained that even with that big lump of a camera on the car, he expected me to drive as hard as I could,” says Andretti. “And I thought, now you're talking my language. I didn't want to just cruise around and be a donkey out there. They were looking for somebody who really wanted to put some teeth into the deal. I said to him, ‘Well, okay, let's not use any trickery in the filming, no speeding up the camera. Let's just be realistic. If we can represent reality, then I'll do it.’ And we never looked back.”

The First Spark

The production of *Super Speedway* got under way in 1993. Low, a longtime enthusiast of open-wheel racing, had harboured the dream of producing a film about auto racing since his father, acclaimed filmmaker Colin Low, filmed Jimmy Clark winning the Indy 500 in 1965. There was no doubt in Low's mind that he had chosen the perfect subject for an IMAX film: Indy car racing was the most competitive form of racing, the cars were technologically the most interesting, and the types of race courses—ovals, big ovals, road courses and city courses—were the most varied. Pietro Serapiglia recalls that Low had plans for an Indy car film in mind as they were completing Low's previous film, *Titanica*: “I remember we were in Newfoundland finishing the movie about the *Titanic* when Stephen said, ‘think Indy car’.” Later, Low took Serapiglia to a race, where he felt the adrenaline rush of thousands of fans as the race reached its climax. At that moment he was sold on the idea, and the experience fueled his ambition to raise the financing for the film.

Fueling the Project

The initial step for Low was to convince executive producer Goulam Amarsy that an IMAX film about Indy cars was a worthwhile project. Amarsy quickly recognized that Low's keen passion for the subject coupled with the potential power of car racing on the giant screen made for a good project. Low and Serapiglia both feel that without Amarsy's efforts in lining up sponsors and securing financing, as well as obtaining the cooperation of key people in the racing world, *Super Speedway* could not have been made.

Raising funds for the project was accomplished over a three year period. Serapiglia and Amarsy, persistent in their efforts, were helped by Low's reputation for successful large-format films, the hot subject matter and the growing market for giant-screen entertainment. Because of Low's name, they were ultimately able to attract two principal sponsors (Texaco and Kmart), secure financing from the Banque Nationale de Paris, and convince the Quebec film-funding agency, SODEC, to back the first IMAX project from Quebec.

The company adopted a shrewd strategy by approaching theatres individually in an effort to open up their own international support network — a network of theatres that would commit financially to exhibiting the film before it was even fully shot. The strategy was successful. Initially in 1993, The Stephen Low Company succeeded in securing pre-lease agreements with four IMAX theatres. To attract other venues, Serapiglia showed theatre managers an assembly of test footage that Low had shot in late 1995 and early 1996 at tracks in Sebring and Homestead, Florida. When they saw the material the managers were stunned by the magic of experiencing Indy car racing on the IMAX®

screen and rushed to sign pre-lease agreements. Altogether, 37 theatres signed early-lease agreements for the film — far more than any other project in the history of large-format cinema. As a result, the film will be seen by record numbers of viewers across North America and internationally.

Opening the Doors

Making the film meant finding an Indy car team willing to cooperate with the project. This was not an easy job. The world of Indy car racing is a closed one, and not just anyone can enter with camera loaded and ready to shoot. Low needed a team that would allow the production crew to get behind the scenes as the team pursued a championship over the racing season, something that had never been done in other racing movies such as *Winning*, *Grand Prix*, and *Le Mans*.

The only Indy car team to show an interest in the project was the team run by Carl Haas and Paul Newman, which in 1996 was fielding cars driven by Christian Fittipaldi and Michael Andretti. According to Low, every film has a godfather, and in this case it was Neil Richter, the man in charge of finances for Newman/Haas Racing. Richter was very interested in the film from the beginning, and was able to convince Carl Haas that the project should be taken seriously. He was also instrumental in opening doors at Championship Auto Racing Teams (CART), the governing body for Indy car racing, and getting the attention of other racing teams. Low's credibility as a filmmaker was an important factor; without it, Richter would not have pursued the concept. "At the end of the day," he says, "you want a high-profile, quality product. The people who are producing it have got to be top-notch."

Behind the Wheel

Once the Newman/Haas team was involved, Low had to find out if a 1,600-pound Indy car with a large IMAX camera mounted on the roll-bar could reach race speeds. This was a perilous proposition: Indy cars are delicately balanced machines worth close to half a million dollars, and their performance is altered even by the weight of a few extra litres of fuel. Could the car safely withstand the aerodynamic drag and extra burden of a camera and mount?

To develop the specialized mount for a real Indy car, the team turned to race engineering expert Alec Greaves. Working with camera specialist Bill Reeve, Greaves engineered a mounting system that allowed the camera to be mounted in a range of positions on the car: on the nose cone, off the side pods, over the roll bar and directly under a specially modified rear wing. Combined with varied camera angles and lenses, the mounting system provided an infinite number of fixed position mounts

on the car including the side-views that were ultimately to capture neck-to-neck duels with drivers Mark Blundell, Bryan Herta and Al Unser Jr.

The insurance companies, racing officials and other drivers were still nervous. This was where racing giant Mario Andretti came in. Originally, Low had thought he would do the filming using Michael Andretti between racing engagements. It soon became clear that the logistics of this were impossible. At the urging of Newman and Haas, Low and his team approached the elder Andretti about testing the car and camera. Andretti, recently retired but eager to get back behind the wheel of a race car, was intrigued by the project and agreed to meet Low.

Andretti was skeptical at first: "I looked at the car and thought - oh man, we'll be lucky to average 150." However, all doubts about the ability of a camera-equipped car to run at racing speeds disappeared when Andretti took the car to 210 miles per hour in his first practice session. But the initial tests failed anyway: as the car reached speeds upwards of 200 miles per hour high-frequency vibrations from its engine tore the camera's electronics apart. The team persevered, and after engineering some additional dampening into the camera mounts, was finally able to resolve the problem. It was only when Low reviewed the first rushes and saw how amazing 200 miles per hour looked in IMAX® that he realized he could make the movie he had long dreamed of making.

Low found that Andretti was the perfect person to operate the camera. Andretti was able to switch the camera on and, in Low's words, "go crazy for a lap or two or three." Low came to respect Andretti's instincts about what to film. His vast experience in auto racing and his thoughtful approach to the *Super Speedway* project enabled him to recognize a good opportunity when he saw it.

It Must Be Something Good

Andretti's involvement was critical to the success of the project. As Serapiglia describes it, "The day we got Mario to participate was the day other people became interested in the film. They said, 'Hey, if Mario is doing it, it must be something good,' and more doors swung open." CART agreed to work with Low in May 1996, organizing four races for Andretti to drive in with the camera on the car. Securing the cooperation of the other 26 CART teams was another story; Low, Andretti and company had to overcome the various fears of the teams, the sponsors, the drivers and the insurance companies. In time, thanks to Andretti's influence, Low's reputation and Richter's enthusiasm, the doubts of the other teams subsided, then disappeared completely when they saw the initial footage.

Enthused by the calibre of the IMAX racing footage, many of the drivers and teams became actively involved in making the project work. Drivers such as Mark Blundell, Bryan Herta and Al Unser Jr., were keen supporters, sacrificing time from tight schedules to race Mario Andretti and the camera car in specially arranged exercises.

The Car

The camera car driven by Mario Andretti was a two year-old Indy car acquired from Newman/Haas and maintained by Newman/Haas mechanics. The same car was driven by Mario Andretti and Nigel Mansel in competition in the 1994 PPG CART World Series.

While the engine output of competing CART cars is constrained by stringent rules, the camera car was not under similar restriction. Competing cars are equipped with a mandatory 'pop-off' valve which governs the maximum power engines can generate and helps keep race speeds within acceptable limits. The 'pop-off' valve on the camera car was deactivated, providing the machine with significant additional power. The aerodynamic design features of the older car also generated greater downforce than has been available to cars under more recent CART rules. (Downforce, the product of wings and body shape, is the aerodynamic force which helps keep a fast moving car pressed to the track).

The superior power of the camera car helped offset the encumbering effects of camera weight and drag, while superior downforce helped counteract the destabilizing effects which resulted from having the camera mounted high above the chassis. Both power and downforce provided Mario Andretti with the speed and control necessary to manoeuvre with the competing cars and drivers from the PPG CART World Series.

Specially placed microphones on the car accurately picked up the sound of the car and the unique sound experiences of driving in the racing environment, including the powerful oscillating effect created as the car blasted along speedway walls.

Filming On the Track

Initially, shooting was accomplished at team practices only. Mario Andretti and the production team and car crew, worked in narrow windows of opportunity, sometimes with over 20 cars on the race course at once. Coordinating via radio, the production team helped synchronize the efforts of the different teams and drivers, and kept camera car operator Mario Andretti apprised of the constantly changing situation on the track.

Participation in the project reached a climax when the full support of CART and the teams was obtained to put virtually all the cars in the series on the track for the camera just moments prior to the start of actual races. Twenty-five cars and drivers blasted around courses in Toronto; Brooklyn, Michigan; Lexington, Ohio; and Elkhart Lake, Wisconsin, just minutes prior to start of each event. This unprecedented exercise provided Mario Andretti and the production crew with a truly unique opportunity to record the racing experience from the driver's viewpoint.

Working around the tight schedules of the teams, the *Super Speedway* crew was ultimately able to cover dozens of practices, including action at Sebring FL and spring practice at Homestead, FL. Altogether they covered five key race events: the U.S. 500 event at Michigan International Speedway, and races in Detroit, Toronto, Mid-Ohio (Lexington, Ohio), and Elkhart Lake, Wisconsin. Through the effort, the production team secured more than enough material to create an extraordinary experiential portrait of the sport.

The Characters

As an IMAX filmmaker, Stephen Low is in a class by himself. He brings drama to the art of documentary filmmaking by finding larger-than-life characters and telling their stories. Indy car racing is an extraordinary event. Low knows that the men who compete in these races have a burning desire to push themselves and their machines to the edge of physical possibility. In this sport he has found his ultimate characters: Mario Andretti, one of the most successful men in auto racing history, and his son, Michael, himself a champion and veteran of the sport.

Low recognized the importance of placing Mario Andretti at the centre of the film. Mario Andretti's experience spans 30 years of racing technology, as well as countless milestones in the ever-evolving sport of racing and he has been teammates with, and raced against, many of the world's best drivers, including his own son.

Low had an additional motivation. As Low explains it, "I like eccentric people. The characters have got to be bigger than life, and you go with it. That's the essence of filmmaking. I was attracted by Mario because he's a funny guy. He was a great choice for the key character because of his charm and thoughtfulness. Obviously, he's an incredible driver, and Newman/Haas wanted him to pilot the camera car, but I didn't have to make a film about him. I could have made it about Michael Andretti or Indy cars in general. But I thought Mario was really interesting. Anybody who has a pig given to him by his wife and who hates it at first but then becomes its best buddy, well, he's got to be quite a character."

While making the movie the two men developed a very special relationship with a tremendous amount of mutual respect. By showing a genuine interest in all aspects of Andretti's life, Low got Andretti to reveal himself. And so Mario Andretti, originally approached for the crucial role of driving the camera car, soon became a key subject in the film as well.

Building the Story

Super Speedway delves into the death-defying drama of Indy car racing and delivers several interwoven story lines. At the core of the film's action is Michael Andretti, taking on the challenge of testing a newly fabricated car and, ultimately driving it in hot pursuit of the championship in the PPG CART World Series. Michael's struggle is seen in part through the eyes of his father, Mario, who participates in testing the new car and reflects on his own racing experiences and on the art, science and risk of high-speed competition. As a driving legend and as Michael Andretti's father, Mario provides audiences with insight into the driver's psyche, the balancing of risk and opportunity, and the unique relationship that exists between two generations of champions.

Set against the drama of the track are two story threads that follow the extraordinary craft of creating Indy cars: the building of Michael Andretti's state-of-the-art Indy car at the Lola plant in England and the restoration of a car from an earlier generation, a 1964 roadster — a thoroughbred once driven at Indianapolis by Mario Andretti.

Early in the project the production team traveled to chassis manufacturer Lola Cars and engine manufacturer Ford-Cosworth in England to film the creation of a new racing machine for the Newman/Haas team — Michael Andretti's car for the approaching season. On the giant screen in time-lapse, viewers witness the shaping of the powerful new beast, including its magical assembly by engineers at the Lola plant.

Will the newly finished car perform? Will it be fast and will it be forgiving? To win races and to stay alive, the driver must be able to feel the car's performance limits and consistently take the machine to this edge without straying beyond. As Michael Andretti and Mario Andretti blast around the track testing the untried machine, the audience experiences the tension and viscerally understands the risk.

An important story counterpoint for *Super Speedway* presented itself when Low learned of auto restorer Don Lyons and his plans to rebuild the 1964 Dean Van Lines Special roadster. Mario Andretti had driven the car as a rookie, and when Lyons discovered it in a chicken coop in Indiana, Low knew he had found another dramatic hook for his film. Lyons has restored more than 50 vintage automobiles since he began his hobby at age 14, and in the film, his passion for his craft is readily apparent as he rebuilds the wreckage of the roadster, striving to restore it to its original glory.

The art and technology of building fast cars has undergone a radical transformation since the 1960s, when tubular, steel-framed roadsters like the 1964 Dean Van Lines Special dominated the Indy car circuit. In the old days, car manufacturers attempted to build faster cars by increasing engine horsepower. Today however, all aspects of a car's design including engine power, are governed by the rules of the sport. These rules change regularly in an effort to limit speeds and enhance safety. In this environment, teams work within and around the rules to achieve the competitive edge; aerodynamics play a key role in the process, making wind-tunnel testing an essential step in the shaping of winning cars. In the film, the Newman/Haas team turns to wind-tunnel testing, using a model in an attempt to fine-tune the aerodynamic forces at work on Michael Andretti's finished car — ultimately they must make the car more controllable and more predictable.

In *Super Speedway*, classic archival footage depicts some of racing history's most dramatic crashes, calamities that are, for drivers, an everyday risk. Although the sport has become progressively safer, it can still yield instantaneous tragedies, a fact driven home for the production team when rookie driver Jeff Krosnoff and a track marshall were killed during a race event being covered for the film.

Super Speedway culminates in a dramatic portrayal of the racing season. Track action was shot with an on-board IMAX® camera and a full field of competing CART teams during specially scheduled pre-race exercises, as well as track-side during actual race events. In the film, never-before-possible giant-screen footage captures the drivers, machines and teams of the PPG CART World Series battling each other for supremacy; among them are Michael Andretti and the Newman/Haas team. From the pits, a proud, encouraging and sometimes apprehensive Mario Andretti looks on.

The season is a challenging one, and in the end it is driver Jimmy Vasser that takes the championship on points, but Michael Andretti and the Newman/Haas team triumph as well. On-screen Michael and other drivers in the winner's circle douse the media and audience with jets of champagne. Michael wins five races — more than any other driver in the series.

Don Lyons' patient restoration work on the 1964 Dean Van Lines Special is finally completed and the sparkling white and chrome roadster is triumphantly rolled out of the workshop. In *Super Speedway's* concluding moments, Mario Andretti is reunited with the car that once initiated him, as a young man, into the high-profile world of Indy car racing. In a final stroke of luck, the production team managed to locate three decade-old archival black and white footage of a young Mario Andretti, strapping himself into the same roadster for an historic career-launching run.

In the present, Mario Andretti, veteran of thirty-six years of high-speed competition, straps himself once again into the great old roadster and roars off through the fall colours of the Michigan countryside.

Super Speedway – An IMAX® Experience™

The IMAX experience of Indy car racing bears no relationship to the television experience. On-board action as seen through the narrow window of television has the effect of slowing down the action, and as a result television does not give a true picture of what the racers see and feel. Mario Andretti should know. According to him, "This IMAX stuff will keep you on the edge of your seat because everything is happening the way *we* see it."

The way producer Pietro Serapiglia sees it, "*Super Speedway* is like no other racing film ever made. In IMAX, 200 miles per hour is suddenly wonderfully fast. Nobody in the history of cinema has ever experienced what it's like to sit on a roll-bar. In the film, all that's missing is the wind. For the first time audiences will viscerally know what auto racers experience—the speed and the danger." Stephen Low says, "For the better part of the century people have wondered what it was like to sit in the cockpit, and now we're going to show them."

COMPANY PROFILE - *Openwheel Productions Inc. / The Stephen Low Company*

Openwheel Productions Inc., the producer of *Super Speedway*, draws its technical resources and talents from The Stephen Low Company, an established Montreal-based team of motion picture professionals dedicated to the conception, production, distribution and marketing of leading-edge, giant-screen film experiences.

History

Established in 1986 under the direction of filmmaker Stephen Low, The Stephen Low Company has developed powerful cinema events for major corporations, world expositions, museums and science centres. The company is a key user of the world's most advanced cinema technologies: giant-screen IMAX® and IMAX® 3D motion picture systems.

Filmography

In pursuit of unparalleled imagery and dramatic subjects, The Stephen Low Company has put IMAX cameras into formation with flying geese, paddled them about the underwater habitat of a family of beavers, and navigated them through the wreckage of the steamship *Titanic* two and a half miles below the surface of the Atlantic.

The company has been directly responsible for the realization of six IMAX films: *Across the Sea of Time* (IMAX 3D for Columbia Pictures and Sony New Technologies, 1995); *Titanica* (IMAX for Imax Corporation, 1993); *Flight of the Aquanaut* (IMAX, 1993); *The Last Buffalo* (IMAX 3D for Imax Corporation and the Sentry Pavilion at Osaka, 1990); *Beavers* (IMAX for Dentsu Inc., Japan, 1987); and *Skyward* (IMAX for Imax Corporation and Tsukuba Expo '84). *Super Speedway* is its latest large-format production.

Team Members

The key members of the company's production group are: Stephen Low, Director/Producer; Pietro L. Serapiglia, Producer/Distributor; and Goulam Amarsy, Executive Producer. In addition, every film involves new creative and technical alliances and the assembly of capable teams appropriate to the demands of the project. Members of the company's established resource pool provide a comprehensive range of motion picture services, including specialists in underwater photography, deep-sea systems, aerial photography, wildlife photography and wildlife management, camera systems engineering, specialized equipment rigging, camera gyro-

stabilization, stereo imaging (IMAX® 3D technology), spatial sound design for IMAX® and IMAX 3D cinema, and optical and digital effects.

Research & Development

Always at the cutting edge of large-format cinema, The Stephen Low Company, in conjunction with select associates, is involved in ongoing research and development efforts such as the creation of original film concepts and the application and testing of new motion picture technologies and techniques. Examples of this work include:

- development of unique new applications for IMAX 3D imaging, including the adaptation of archival stereo photography for the giant screen (1995-1997);
- application of digital enhancement and computer animation technologies to the giant screen (ongoing);
- screen-testing of the Personal Sound Environment (1993-1994), a revolutionary spatial sound system being developed by Sonics Associates of Alabama;
- development and testing of a deep-sea HMI lighting system (applied during the filming of *Titanica* in 1991);
- trial underwater application of the Remotely Operated Vehicle (ROV), or robot *Jason* (Woods Hole Oceanographic Institute) to IMAX filming (Hamilton Scourge shipwreck filming, Lake Ontario, 1990).

In Production

The Stephen Low Company is currently in production on *Mark Twain's America* (IMAX 3D). Created for Columbia Pictures and Sony New Technologies, *Mark Twain's America* revives the spirit of one of the world's greatest personalities and literary figures. Through Twain's own words, audiences will relive the hilarity and horrors of his life and experience the day-to-day reality of the nineteenth century. They will accompany Twain on his journey of discovery and with him will uncover truths about life that are mirrored in their own stories and in the dynamic, ever-changing face of modern America.

PRODUCTION TEAM MEMBERS

Stephen Low

Director/Producer

As a specialist in giant-screen moviemaking, Stephen Low is unique among filmmakers. A veteran of six IMAX® productions, Low is consistently working at the forefront of film technology. Known for his daring, he has repeatedly ventured into uncharted waters.

Most recently, Low directed and produced *Across the Sea of Time* (1995), a time-travel epic for Columbia Pictures and Sony New Technologies. The film marries archival stereo images with IMAX® 3D, the cutting edge of motion picture technology. In the pursuit of extraordinary images and stories for the giant screen, Stephen Low has taken IMAX cameras into some of the most hostile and unusual environments on Earth, including the abyssal depths of the ocean (Genie-nominated *Titanica*, 1993, and *Flight of the Aquanaut*, 1993), and the aquatic habitat of a family of beavers (*Beavers*, 1987). He has also sent cameras aloft, where they captured the flight of a flock of Canada geese (*Skyward*, 1984).

In 1990, Low directed *The Last Buffalo*, an award-winning film that took viewers on a surreal exploration of the Alberta badlands. Shot in the IMAX 3D format for Expo '90 in Osaka Japan, it was the fair's most popular attraction.

Born in Ottawa, Low studied political science at Lakehead University in Thunder Bay and graduated in 1973. His innovative approach to documentary filmmaking has resulted in over 40 awards worldwide, including, in 1981, the prestigious Grierson Award for achievement in documentary film. Low has been praised for his mastery in evoking the drama in non-fiction, and he brings this unique creative ability to his work as he blends contemporary storytelling with the cutting-edge technology of the IMAX format.

Low began his film career in 1976, working as a cameraman and editor in Newfoundland. Four years later, in conjunction with the National Film Board of Canada, he directed and produced the award-winning documentary *Challenger*. He first experienced the unlimited possibilities of the giant screen when he served as researcher on Imax Corporation's space shuttle film *Hail Columbia!*

In 1986, he founded The Stephen Low Company. Since then, in addition to directing and producing, Low has developed innovative strategies for filming in the IMAX® format, and has helped push forward the development of a wide variety of specially designed equipment, including underwater camera housings, underwater HMI lights and camera mounts for racing cars. Low was a consultant on the feature-length IMAX concert film *Rolling Stones: At the Max*, and served as executive producer on a four-hour environmental television series entitled *The Human Race*.

Low is currently directing *Mark Twain's America* for Sony New Technologies and Columbia Pictures, an IMAX® 3D journey through the life and times of America's legendary humorist.

Pietro L. Serapiglia

Producer/Distributor

In a career that spans almost 25 years, Pietro Serapiglia is at the forefront of IMAX film production. As producer of the Genie-nominated IMAX film *Titanica*, Serapiglia was responsible for one of the most significant international expeditions to ever explore the wreck site of the *R.M.S. Titanic*. He also produced the dramatic underwater ocean adventure *Flight of the Aquanaut*. His participation in IMAX film production began with collaborations on *The River*, a film produced for the 1984 New Orleans World Fair, and *Beavers*, a pioneering IMAX nature documentary.

The Quebec native received his initial training in film in 1973 when he joined the ranks of the renowned National Film Board of Canada. Since then, Serapiglia has collaborated, in senior capacities, on over 35 documentaries, TV dramas and feature films, including the Oscar-nominated documentary productions *Adventures in History* and Gwynne Dyer's seven-part series *War*. He has also produced award-winning music videos for CBS, RCA and Atlantic Records.

Goulam Amarsy

Executive Producer

As a partner of Openwheel Productions, Goulam Amarsy is responsible for both the development, planning and financing of new IMAX theatres and the production of original IMAX film projects. He is currently working on the IMAX format production *Supertrain*.

Amarsy draws from a solid background in business administration, having studied at Harvard University. He has spearheaded the development of major commercial centres, including the Rockland Center (Montreal, 1983) and the Eaton Center (Montreal, 1987). Amarsy served as

Director of Commercial Development for the Euro-Disney project in France, where he was responsible for the coordination of real estate development and entertainment retail.

James Lahti

Film Editor

James Lahti has edited almost every type of production imaginable. His extensive resumé includes commercials, music videos, documentary films, feature films, television dramas and miniseries. Over the past few years, Lahti has acted as Associate Producer and Editor on three IMAX® films directed by Stephen Low: *Flight of the Aquanaut*, *Titanica* and *Across the Sea of Time*. Most recently, he served as Editor on the IMAX film *Whales* for National Wildlife Productions.

Since receiving his honours degree in film from York University in 1977, Lahti has worked as an editor, cutting film on projects such as the Emmy Award-winning miniseries *Anne of Green Gables*, as well as its sequel. His other IMAX credits include *The Last Buffalo* (3D) and *Echoes of the Sun* (IMAX/SOLIDO).

Andrew Kitzanuk

Cinematographer

As a director of photography, Andrew Kitzanuk's work encompasses some 60 films, including documentaries, dramas and feature films. He has worked on a variety of different film formats and has directed the application of a wide range of special effects techniques. Kitzanuk's track record in giant-screen cinematography includes seven outstanding IMAX productions, among them: *Beavers*, *The Last Buffalo* (IMAX® 3D), the IMAX/SOLIDO film *Echoes of the Sun*, and the feature-length IMAX concert film *Rolling Stones: At the Max*. More recently, Kitzanuk served as cinematographer on the avant-garde IMAX 3D film *Imagine* for the Tajon World's Fair in Korea, and on the IMAX nature film *Africa: The Serengeti*.

Bill Reeve

IMAX® Camera Specialist

Bill Reeve supervised the engineering and fabrication of the IMAX camera mounting system for *Super Speedway*; as well, he acted as camera operator and provided camera technical support and research services for the production.

Reeve served as Cinematography Specialist with Imax Corporation from 1984 until 1996. His work included the development of environmental housings, 3D underwater optical research, 3D and high-speed camera development, aerial mounts, cinematographic testing and effects. Reeve has provided technical support and served as cameraman on over 16 IMAX productions, including camera operation and technical support for the deep-ocean submersible filming of the *R.M.S. Titanic (Titanica, 1991)*.

Reeve graduated from Ryerson with a bachelor's degree in motion picture production in 1977 and has worked as a camera assistant, cameraman and director of photography on over 40 productions, including commercials, documentaries and feature films.

Gilles Ouellet

Composer

Composer, orchestrator and conductor for la Société Radio-Canada (SRC) in Quebec City from 1976 to 1988, Gilles Ouellet is presently very active in different fields of music writing. His long association with the Quebec Symphony Orchestra established his expertise as an orchestrator/conductor for concerts and special events. Ouellet has worked with many renowned artists, including Céline Dion, Diane Dufresne, Serge Lama and Francis Cabrel.

Ouellet has served as an orchestrator for numerous films (*Rafales/Fiero, L'été des secrets*) and as a composer for SRC dramas and Télé-Québec productions. He currently teaches harmony, composing and arranging techniques at the Notre-Dame-de-Foy school of music in Quebec City.

Participating Organizations

Super Speedway is a Stephen Low film produced by Openwheel Productions Inc., Montreal; Pietro L. Serapiglia and Stephen Low, Producers; Goulam Amarsy, Executive Producer.

Participants in the project include:

- Newman/Haas Racing (technical and logistical support and on-screen participation)
- Texaco (sponsor)
- Kmart (sponsor)
- Championship Auto Racing Teams (CART), (location support and team participation)
- Banque Nationale de Paris, Canada (production financing)
- SODEC (Société de développement des entreprises culturelles), Quebec
- CAVCO (Canadian Audio-Visual Certification Office)
- 37 Giant-Screen theatres via exhibition pre-leases

CORPORATE SPONSORS - A PROFILE

Texaco

Since 1917, Texaco has been a prominent name in racing. In 1989, the company joined *Kmart* in the sponsorship of Newman/Haas Racing, home of Indy car's first father-son team, Mario and Michael Andretti. Continuing in this tradition, Texaco is proud to be associated with the production of *Super Speedway*.

Texaco reaches a key audience by generating publicity in motorsports arenas. In fact, racing enthusiasts are some of the company's most dedicated customers. They are brand loyal, purchasing Texaco's gasolines and motor oils, as well as other of the company's vehicle products. For Texaco, there is no better place to showcase their premium goods than at the racetrack. The drama of daring athletes in engineered racing machines competing against each other in exciting contests of speed and skill is the perfect atmosphere in which to demonstrate the superior quality of Texaco products.

Kmart

Of all the sporting events and organizations sponsored by Kmart, none enjoyed as long a relationship as the one shared by Kmart and Newman/Haas Racing. The company's sponsorship of Newman/Haas Racing began in 1988, and continues to strengthen with its participation in *Super Speedway*. Kmart stores across North America support Kmart's racing teams by displaying banners, hosting driver autograph sessions and coordinating in-store racing display contests.

Using the racing theme as a conduit, Kmart created a drug awareness program called *Kmart Kids Race Against Drugs*. Children participate in the program by driving modified lawn tractors on specially designed tracks in Kmart parking lots across North America. Each time a race participant crosses the finish line, Kmart makes a donation to the local drug abuse prevention charity. Organizations including *D.A.R.E.* (Drug Abuse Resistance Education) and *RAD* (Race Against Drugs) participate in the program by interacting with the young racers and their families at the events. In 1996, *Kmart Kids Race Against Drugs*, through The Kmart Family Foundation, donated a half-million dollars to local drug abuse prevention charities.

NEWMAN/HAAAS RACING - COMPANY PROFILE

When Paul Newman and Carl Haas decided to combine their talents in 1983, they established one of the best Indy car teams ever. While Paul Newman may be the most famous Indy car owner in the world, Carl Haas has been called one of the most powerful. Since its inception, Newman/Haas Racing has won 51 Indy car events and has had some of the world's best-known drivers race for them.

The team is headquartered in Lincolnshire, Illinois in a 32,000-square-foot state-of-the-art facility. Among the milestones for Newman/Haas Racing are three PPG Cups won: one in 1984 by Mario Andretti, one in 1991 by Michael Andretti and one in 1993 by F-1 Champion and rookie Indy driver Nigel Mansell.

Paul Newman

Paul Newman first took an interest in auto racing while filming the 1968 motion picture *Winning*, in which he played the role of an Indy 500 driver. He has been active in auto racing ever since, competing as a driver and fielding teams. His first professional race came in 1972 when he drove a Lotus Elan at Thompson, Connecticut. Early in his driving career he competed in modified stock car races at Daytona.

In 1976, Newman won his first Sports Car Club of America (SCCA) national title in the D-Production category, and three years later was the C-Production champion. He won the GT-1 championship in both 1985 and 1986, and was a semi-regular in the Trans-Am series, where he won his first professional race at Brainerd, Minnesota, in 1982 and Lime Rock, Connecticut, in 1986. He drove to victory in the last race he entered—the 24 Hours of Daytona GTS Class.

Before joining forces with Carl Haas as a team owner, Newman had fielded cars in the Can-Am racing series for five years. During that time some of the world's best racers drove for him, including Danny Sullivan, Bobby Rahal and Al Unser.

Carl Haas

As a team owner, Carl Haas has won 11 championships in the past two decades of auto racing. As a driver, he competed in many races between 1952 and the early 1960s (several of which he won), piloting exotic cars like Ferraris, Porsches and Jaguars. He gave up driving, choosing to focus on team ownership instead. Presently, his time is spent managing his numerous racing interests, which include Championship Auto Racing Teams (CART) and Winston Cup teams.

Other racing-related business includes sitting on the board of directors of the Road America race track and managing the Milwaukee Mile track. He is also chairman of the Pro Racing Division of SCCA Enterprises, a road racing grassroots organization that sanctions professional and club-level events. In addition, Haas is a member of the board of directors of CART, the sanctioning body for the PPG Cup championship, making him the only individual to hold executive positions with two sanctioning organizations. Recently, he retired after a record four terms as chairman of the board of directors of the SCCA, America's largest motorsports membership body. Haas is an avid collector of art and exotic automobiles.

CHAMPIONSHIP AUTO RACING TEAMS (CART)

President and Chief Executive Officer: Andrew Craig

Founded: November 25, 1978

First President: U.E. "Pat" Patrick

First Event: March 11, 1979 at Phoenix (Ariz.) International Raceway (won by Gordon Johncock)

Type of Racing: Open-wheel. Powered by turbocharged, four-cycle, overhead camshaft, eight-cylinder engines, CART cars are capable of producing 800 horsepower and traveling at speeds in excess of 230 miles per hour.

Types of venues: CART events are held at four different types of venues: Superspeedways, short ovals, temporary street circuits and permanent road courses.

Chassis Manufacturers: Eagle, Lola, Penske, Reynard, Swift

Engine Manufacturers: Ford Cosworth, Honda, Mercedes-Benz, Toyota

Tire Manufacturers: Firestone, Goodyear

Official Sponsors: PPG (title sponsor of the PPG CART World Series), MCI, Budweiser, Craftsman, Domaine Chandon, Featherlite, Ford SVO Technology, Holmatro, Honda Motorcycle, Honda Power Equipment, Marathon Coach, Mercedes-Benz, Motorola Racing Radios, Omega, Toyota Trucks and Valvoline.

Broadcast Reach: CART events are seen on a live or tape-delay basis in 197 countries.

1997 Schedule: The PPG CART World Series includes 17 events in four countries (United States, Canada, Brazil and Australia) on three continents (North America, South America, and Australia). The season opened with the Marlboro Grand Prix of Miami presented by Toyota on March 2 at the Metro-Dade Homestead Motorsports Complex in Homestead, Fla.

CART will debut in Asia in 1998 with the recent announcement of a new event at the Twin Ring Motegi in Japan.

Championship: Drivers compete in the PPG Cup championship. The winning driver receives a \$1 million cash bonus at the conclusion of the CART season, as well as the PPG Cup from PPG Industries. Jimmy Vasser of Las Vegas, Nev., won the 1996 PPG Cup championship, driving a Target/Chip Ganassi Racing Reynard Honda on Firestone tires.

PRE-LEASE THEATRES

City

Albuquerque, New Mexico
Baltimore, Maryland
Brussels, Belgium
Calgary, Alberta
Cape Town, South Africa
Crow's Nest, Australia
Chicago, Illinois
Dallas, Texas
Detroit, Michigan
Edmonton, Alberta
Fort Worth, Texas
Hampton, Virginia
Hutchinson, Kansas
Jersey City, New Jersey
Louisville, Kentucky
Lubbock, Texas
Memphis, Tennessee
Montreal, Quebec
Myrtle Beach, South Carolina
Paris, France
Phoenix, Arizona
Quebec City, Quebec
Regina, Saskatchewan
Rio de Janeiro, Brazil
Rotterdam, Netherlands
San Bernadino (Ontario Mills),
California
San Diego, California
Seattle, Washington
Spokane, Washington
St. Louis, Missouri
Sudbury, Ontario
Syracuse, New York
Toronto, Ontario
Vancouver, British Columbia
Winnipeg, Manitoba

Theatre

New Mexico Museum of Natural Science
Maryland Science Center
Kinopolis
IMAX® Theatre at Eau Claire
IMAX Cinema
The Edge Maxvision Cinema
Henry Crown Space Center
The Science Place
Detroit Science Center
Devonian IMAX Theatre
Fort Worth Museum of Science and History
Virginia Air & Space Center
Kansas Cosmosphere & Space Center
Liberty Science Center
Louisville Science Center
Science Spectrum
Memphis Pink Palace Museum
Le Vieux-Port de Montreal
IMAX Discovery Theater
La Geode IMAX Dome Theatre
Arizona Science Center
CINEMAX Quebec Inc.
Saskatchewan Science Centre
Parques Tematicos SA
IMAX Waterstad Theater
UltraScreen™ Theatre

San Diego Space & Science Foundation
Pacific Science Center
Riverfront Park
St. Louis Science Center
Science North
Bristol Omnitheater
Ontario Place Cinesphere
Alcan OMNIMAX Theatre, Science World
IMAX® Theatre at Portage Place

In Conversation

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In Conversation with Director **Stephen Low**

When did you get the idea to do a racing film?

Ever since I've been making IMAX® films I've been hoping to do a racing film. I've been an enthusiast of open-wheel racing since my father [acclaimed filmmaker Colin Low] filmed Jimmy Clark winning the Indy 500 in 1965. I tried to put together a film about Gilles Villeneuve in the late seventies, when he was racing Formula 1. I was about to start researching when he was killed.

What were some of the technical obstacles?

We were only going to make the film if we could get authentic-looking footage shot at real speeds. The first serious question was whether an Indy car could carry an IMAX camera while going 230 miles per hour without scaring the hell out of the driver, ourselves and the insurance company. I didn't believe we could speed up the action and keep it looking realistic.

How did Mario Andretti get involved in driving for the production?

Mario was approached by the Newman/Haas team to drive the camera car for us. The first thing he worried about was whether or not we were going to run at race speeds because he didn't want the footage to look phony. I remember standing on the side of the track when the camera first went out. It looked unwieldy on top of the roll-bar, and one of the engineers said he'd be lucky to get up to 150 miles per hour. But he smoked by at 210. I think from that point on the expectations rose substantially. That's when we realized we could make this movie.

Why did you choose Mario as a focal point in the film?

There are a few reasons. First of all, Mario Andretti is easily *the* best all-around driver of all time. He has won everything – sports cars, sprint cars, stock cars, Indy cars, and Formula 1.

Second, he is a timeless subject, who embodies the spirit and the history of the sport. Mario raced professionally from 1959 to 1994 and is, miraculously, still active in the field. His championship career has spanned the enormous changes in technology over the last three decades. He is one of the few people around with first-hand experience driving both the old-time roadsters and the latest, most technologically sophisticated Indy car. Third, Mario is a charming, charismatic, larger-than-life character, which makes him a great subject for a film. There is also an interesting

contrast: here's an intense guy with an overwhelming desire to win — a hero in a violent, macho sport. At the same time, he's an incredibly gentle, sympathetic human being, with a terrific sense of humour. I liked the fact that he's a bit eccentric, too — I, mean, this is a man who is best buddies with a pig.

How was Mario as the cameraman?

Mario always used his common sense, and it worked. We gave him tips on how close he should get and how much movement we wanted and when to switch the camera on or off, but basically, he had good instincts. Mario would see an opportunity and he'd get it.

When it came to shooting scenes on actual race-days with all the cars on the track, timing was critical — we had this narrow window of opportunity just before the start of the race and the special lightweight IMAX camera we were using on the car could hold only three minutes of film. We were in contact with Mario by radio, and with the other teams, trying to juggle incoming information and keep Mario up-to-date on the fast changing situation on the track: what cars were approaching and what the next opportunity might be. It was strategically very complex and challenging, but Mario managed to seize all the right moments — he was wonderful.

***Super Speedway* has racing scenes filmed on the track with more than two dozen Indy cars — how were you able to get that footage?**

That was a big hurdle, to see if we could get at least 25 cars in the shots at race speeds. It required enormous amounts of politicking with all the teams. Producers Goulam Amarsy and Pietro Serapiglia and myself had tremendous help from people like Neil Richter and Carl Haas and Mario Andretti. They helped convince the Indy car community that this project was a good idea.

Are you surprised with what you accomplished?

It's amazing to think we put our camera in the middle of race-type conditions in Toronto with 25 cars going through the streets at 200 miles per hour on the straight. I would have thought it was impossible, politically and physically. But we did it somehow.

How did you obtain the footage?

We built special camera mounts onto the car that were hard-mounted with some rudimentary dampening to get rid of the highest frequency vibrations. I've never been much for dampening because it's always been my experience that it introduces more problems than it solves, but in this

case it was effective. We preset the focus on the camera and Mario had a switch he could turn on if there was something worth filming.

What is the key to making this kind of film?

The essence of documentary filmmaking is to have an idea with a good mixture of conflict, counterpoint and character. It's important that the character be larger than life. You also have to work hard to shape your story. But a lot can happen during the process to change things in ways you don't expect. We juggled an unbelievable number of variables to get this footage. Mario's and Michael's schedules alone were enough to discourage us from making this movie. It took weeks of work just to coordinate with them.

How dangerous is this sport?

For the first time in history viewers will viscerally experience what race car drivers experience. They'll realize that the danger is very, very real. On TV it looks abstract. IMAX® reminds you of how serious a game this really is.

I remember standing on the edge of the track at the start of the Toronto Indy and noticing how tight the cars were as they headed down the main straight at 200 miles per hour. It was terrifying. They were so close together and there were 28 of them. An hour later a driver and a track marshall were dead.

What have you learned about the public's fascination with racing?

I think people want to see how other people confront danger. They wonder what they themselves might do. Everyone knows they have to die and everyone is scared of dying, so they want to see what it looks like. Watching is a natural instinct.

What will the audience experience?

If you've ever wanted to know what car racing is really like, now you're going to see it, smell it and feel it in your bones. It's pretty savage. Racers are modern warriors, because racing is really a form of war where the bravest and most skilled and luckiest get the rewards.

In Conversation with **Mario Andretti**

You retired as one of the top Indy car drivers the world has ever seen. Do you still have that craving to race?

I still race, but only long distances. I've done a couple of 24-hour races, and I've done Le Mans the last two years. To drive while doing *Super Speedway* and to try to run as competitively as possible was a great thing for me. I welcomed it with open arms because making the film was doing something that would last, and at the same time it gave me an opportunity to get back into the cockpit of an Indy car. For that I'm very, very thankful.

How did you get involved with the IMAX® film?

Stephen Low and the crew came to me after they had already done a deal with the Newman/Haas team, before firming up a driver. I think at first they thought they'd use one of the current drivers of Newman/Haas, either my son Michael or Christian Fittipaldi. They thought that in the lull between their activities these guys could probably drive the camera car. But then all of a sudden they realized they had a guy here who was idle and chomping at the bit to get back into a car. When they thought about involving me with the project they met with my manager and we did the deal in a hurry.

What was your initial reaction when Stephen approached you?

My initial reaction was positive. I was very, very interested right from the outset. When I met Stephen I knew very little about IMAX films, but when he told me about his background and about some of his projects, like diving for the *Titanic*, I became even more interested. Stephen explained that even with that big “lump” of a camera on the car, he expected me to drive as hard as I could. I thought, now you're talking my language. I didn't want to just cruise around and be a donkey out there. They were looking for somebody who really wanted to put some teeth into the deal. I said to him, "Well, okay, let's not use any trickery in the filming, no speeding up the camera. Let's just be realistic. If we can represent reality, then I'll do it." And we never looked back. From day one, we surprised ourselves with how quick we could be.

You drove the camera car. Were there any technical difficulties?

When we first put the camera on the car and tested at Indianapolis, it didn't really work. It was okay up to 210 or 215 miles per hour, but beyond that the camera would shut off. It was because they didn't have enough experience with it. There were some harmonic vibrations that were killing the electronics in the camera when the engine reached a certain rpm.

So although we initially didn't get what we wanted, we knew that even with that extra weight on the car we could still go around Indianapolis at over 200 miles average. But prior to that I'd looked at the car and thought, oh man, we'll be lucky to average 150 to 160. Then when we hit the 200 mark, I said, "Okay, now I feel good, now I know we're going to be representative." I realized the film was truly going to show the reality of racing, which made me feel good about the project and pushed me to continue.

From there, we went to a variety of circuits around the States. We went to Homestead in Florida, which is an oval, and to lots of other places. We even did Toronto in Canada. We got a tremendous variety of driving done, on superspeedways and short ovals, and we also filmed street racing. We even managed to capture some racing in the rain.

At what point did the film develop into a film about you?

The same way my relationship with Stephen developed. He started to read me, to see that I was excited about the project. I really, really believed in it. I think that's when Stephen realized I was more than just a cameraman for him. So he developed the idea of featuring my son Michael and me.

I opened up my life to Stephen. He's someone who's always interested in details and personality. When we were at dinner together the conversation would never be about politics. He would really probe. He was interested in the important things in my life. He wanted to find out what I was all about and what I believed in.

How did your experience in racing contribute to the production of the film?

It doesn't take people long when engaging in conversation with me to discover the deep passion I've always had, and always will have, for the sport. That includes how I worked my

way up through the ranks and all the disciplines I've driven in. I competed through an era of huge changes. A few years ago I was one of the few active drivers who was current with what was going on who also went back to the days of the skinny tires and front-engine cars of the early sixties. I go back to the roadster, the sprint cars, the midgets... I had that kind of background. I know about the evolutions of tire development, engines, turbocharged engines and aerodynamics, and not just surface aerodynamics but ground effects. Because I went through these changes I had the wide range of experience Stephen was looking for. I can talk racing with a veteran from the fifties and sixties and with the guys who are at the leading edge of our sport today, such as my son Michael.

Were there risks in operating the camera car?

With the camera car, I felt I had to come up with whatever it took to get the footage. At Indianapolis, a person would look pretty silly going 35 miles per hour in testing. Anyway, you can never really know what's going to happen until you dive into a corner at over 200 miles per hour, because otherwise these cars don't react. To test the camera on the roll-bar I had to dive into the corners hard. I know anyone could handle that at 130, 140, 150 miles per hour, so I said to myself, okay, I'm going to try, and I have to believe that if something weird happens, I'll be able to handle it. That's how you reason these things out. Is it madness? I don't think so.

What do you think is unique about *Super Speedway*?

Not only is the footage different, you're not going to see something like this again for a long, long time. You have no idea what Stephen Low pulled off when he got a team to field a car for me, an actual race car with actual race team mechanics to maintain it, which I drove during actual activities, all with the event competitors around at different times. We're talking about millions of dollars of race car equipment. The logistics of that happening again are remote in the foreseeable future. People who see the film will probably take a lot of it for granted, but those are the things I really appreciate.

The fact is, the in-car cameras we have today for TV coverage don't produce anything like what you're going to see on the IMAX® screen. With an in-board video camera, you don't really get a true picture of what's going on. This IMAX stuff will keep you on the edge of your seat because everything is happening the way the drivers see it. The things we were able to do with the big IMAX camera look awesome.

Where did you learn to operate an IMAX® camera?

Even though I was under Stephen's direction, I went by feel. They would say, "you only have three minutes of film to play with, so use it the best way possible." I had to try in my own way to do that, and I think I got lucky as hell because you can't always predict what will happen. I don't think we missed any good shots, and I was thrilled for Stephen. We needed a variety of shots, and as a bonus it was sunny. There were times when a lot of things weren't right, but somehow it all worked out in the end. I told Stephen, "I like to work with people who are lucky." And he was one lucky guy.

Did you and Stephen see this film the same way?

The shooting I did was something that would have been impossible to really design. Obviously, I wanted to know as much as possible what Stephen was looking for, and then it had to either happen or not. There were times when I could have been totally wrong, but I was lucky. I can't take any special credit. I really believed in the project from day one. I wanted it to succeed and I had a lot of enthusiasm. I appreciated what Stephen was trying to put together. It seemed like all our ideas were matching. I did my best while driving the car to create situations that would be good for the camera, like trying to put other drivers in certain situations, and it worked. I loved to see Stephen's eyes beam whenever he played back the tape, because then I could say, okay, we're on the same page.

In Conversation with **Michael Andretti**

Did you realize what your involvement in *Super Speedway* would be?

To be honest, I didn't know what I was getting myself into at first, although I realized it would be work. But the more I learned the more interested I became, and when I was finally able to see some of the product in Toronto I was truly impressed. After that I was really excited about the rest of the year and doing whatever it took to do this thing right.

What was your impression of the footage?

I was genuinely impressed. It's unbelievable how fast racing looks on the big screen. When you're driving you're focusing forward, so it seems like things are coming at you a lot slower. But when you're watching from your seat in the theatre you're not in that concentration mode and everything feels much faster. The sensation you get sitting in the theatre is almost like what you feel when you're in the car. It's pretty exciting.

Does the footage alter your perspective?

It gave me some new perspective on what I do. I was amazed at the speeds we go in the car. It never seems quite that fast when I'm driving because I'm concentrating so hard. It's a little scary to see on film.

How was it to work with your father?

It was good. I think he had a lot of fun driving the car. He really got into it and he shot some excellent footage. What amazed me was how fast he was able to go with that camera mounted on the car. It was great working with him and seeing him out on the track because I knew he was having a good time doing it.

Was there anything about the production that surprised you?

It was pretty amazing. What a camera! I know a lot of stress is put on every inch of a race car, but when you're driving you don't realize the types of harmonics that are involved. If you attach something to a car that wasn't made for it, it doesn't work. When we originally put the first camera on the car, it almost fell apart because of the vibrations. It's hard to imagine the force that goes through every piece of a race car, and your body too.

What will surprise the audience about this project?

People won't understand that what Stephen accomplished is truly amazing. To have an Indy car on the track during practice with other Indy cars is a huge feat. There were lots of things he was able to pull off that were unbelievable. The footage he got is priceless. Hopefully, that's really going to show up in the film. My hat's off to Stephen for making it happen. He even had me go out and spin a car on purpose—I'd never done that before in my life. How did he talk me into it? I did a full 360 for the camera, and it looks pretty neat on film! That's the kind of stuff Stephen was able to do.

In Conversation with **Carl Haas** of Newman/Haas Racing

Was *Super Speedway* your first experience in filmmaking?

I'd done some movie-related things before. I get a lot of requests and I tend to be leery of them. They require considerable effort and aggravation. But when this project was shown to me, I thought it would be a really good thing for us and our sponsors. We knew we'd have a very good product out there.

Obviously, our engineers should be mentioned, and Mario and Michael. You have to give Mario a lot of credit because the project wouldn't have been nearly as successful without him. I must say, Paul Newman has been very impressed with the cuts he's seen. I'm really looking forward to the movie.

Who was primarily responsible for convincing you?

Neil Richter was very excited about the project from day one, and he passed that excitement on to me and the engineers. I'm really glad I came on board.

Were there any risks to either Newman/Haas or its drivers?

I don't think there were any particular risks to the drivers; however, there was a certain amount of disruption. The work we had to do to put the camera car together and mount the camera and coordinate the testing, all of that was disruptive. Because of that at first I had some reservations about doing it. But they paid some of the monetary costs for us, so I decided to get involved because of the eventual overall product. Over the last six months we've been very happy that we went along with it.

Did the production of the film affect the performance of your racers?

No it didn't. We had to put some more people out, but no. This is a very intense business, and generally, people don't understand what it takes to keep a race team like this going. We did an extraordinarily good job last season. When we last won the championship, in 1991, it was easier, the equipment had fewer problems. Considering everything we had going on, I think we did one of the best jobs ever.

In Conversation with **Neil Richter** of Newman/Haas Racing

You have been dubbed the "godfather" of *Super Speedway*. How did you first come upon this project?

Well, approximately two to two and a half years ago, Ralph Hansen, who's our marketing director and who deals with all the sponsorship programs that Newman/Haas is involved in, brought Stephen's proposal to me. Ralph was interested in doing a film about racing and he asked if I would work with him on the file. It sounded interesting. We met with Stephen and Goulam early in the '94 season and listened to their concept and basically fell in love with the idea.

I've seen other film proposals, but none with such credible people and none in the IMAX® format. We see many film ideas because the team has a very high-profile image, as do the owners and the drivers. But most of the proposals we receive don't consider how our team would benefit. They're mainly self-serving projects.

My thought was that this film would be a tremendous boon to Indy car racing, and that perhaps its underwriting could best be attacked by bringing it to the governing body and having them take it on board as a racing project. They could utilize Newman/Haas as the featured team in the project.

What happened then?

At that point we went to Championship Auto Racing Teams (CART) and made the presentation. Andrew Craig, the CEO, was very familiar with IMAX®, and in fact he had a proposal on his desk from another organization to do an IMAX film. In the interim, I had gone through a due diligence and had satisfied myself as to the credibility of Stephen and his group. At the end of the day you want a high-profile, quality product. The people who are producing it have got to be top-notch, and there isn't anybody better in the industry than Stephen.

What were the sponsors looking for?

Sponsors are looking for exposure. That's the name of the game. They began to realize that this was an international project and that as sponsors of Newman/Haas Racing they were going to be a focal point of the program. They realized that of all of the teams that were hopefully

going to participate in the project, the Newman/Haas team would be the highlight, and that would mean they would receive the highest degree of visibility. I think that whetted everyone's appetites. Some of our sponsors came on board as title sponsors based on the fact that, in addition to the film, there was going to be an educational and audience aspect to the project. It's a very worthy project in terms of dealing with museums and children, and it allows the sponsors to get involved with some of the educational foundations. I believe this created a desire on the part of a few of the sponsors to fulfill not just their normal business desires but also to pursue some of the other things they were involved with.

For example, Kmart has a substantive *Race Against Drugs* program dealing with the younger community, and I think the project ties in with their plans in that area. It allows them to bring a certain message to the children who will be part of the viewing audience. Kmart and Texaco are the two sponsors that took an interest in this project.

What does the educational spin of the film mean to Newman/Haas?

The educational spin deals more with Indy car racing than just with Newman/Haas. Even though it's a widely watched sport, one of the things you constantly try to do is grow your fan base. By bringing Indy car racing into a format that will be seen by people who aren't traditionally fans, you're showing them what this kind of racing is really about. It's more than just getting into a race car and driving fast. Understanding the technology we use and seeing the space-age aspect of what we do is going to tremendously enhance the audience's enjoyment of the film. I think it will appeal to both parents and children because it will deliver more than what people usually expect from racing. That will be very beneficial to the industry.

Obviously, as the industry grows in popularity, Newman/Haas, because it's one of the top teams, is also going to benefit. We'll get our larger-than-average share of the interest.

Who was responsible for convincing CART to get involved?

I felt that this project was too good for the sport to let pass by, so whatever influence I had I used, and I finally got CART's CEO, Andrew Craig, to look at some of the initial footage. Once the organization's members saw the footage on the giant screen they realized the film wasn't going to be a game or a video or a TV show. It was larger than life, and it generated a tremendous amount of interest.

Newman makes films, and he's one of the biggest stars ever. I'd spoken to Paul, and even he didn't understand the project until he saw the test footage. Once he saw it, he fell in love with it and told Carl Haas that it was the finest bit of footage he'd ever seen on racing. The task was always to overcome the inability of people to understand what the IMAX® format was all about. You had to bring them into the theatre and show them the scope of the screen and talk about the potential. That's when the film became much easier to explain.

What surprised you?

It surprised me that it took so long to convince people.

Was the film production itself disruptive to the Newman/Haas racing team?

It was difficult because, in addition to all the normal work we had to go through during the season, we had to assign several people to take care of the camera car. It was a race car like any other, except that maybe it didn't come under the same stress the competing cars did, but nevertheless, the driver had to be well protected, and the camera too. Everything had to function perfectly so that when an opportunity arose to take a shot, it could be done. All that took some extra personnel and added responsibility.

I was able to convince a couple of people involved in our program at the engineering level, including the team manager, as to the tremendous benefits this project could bring over the long haul. Then they were able to convince the rest of the crew that it was doable.

I would also like to pay a compliment to Stephen and his crew. They were highly in tune with the complexities of the racing program, and very seldom did we ever experience any problems. They were patient and always willing to work around the schedule that was allotted them.

I enjoyed watching the transition the project went through. At first it was just some added work imposed on the crew, but before long they were really into it and had a lot of fun. It was a real pleasure to watch everyone at work. There was a genuine blending of the organizations, between Stephen and the production team and the race team. That was nice to see happen.

I think kudos should be paid to the engineering effort, which took us from the initial concept of the camera to the actual engineering of the car with the camera. I don't know if enough can be said about the complexity of dealing with film under these circumstances—in varied weather conditions, at high speeds, with all the stresses imposed on the car, the camera and the drivers.

There are always conditions you don't have much control over. For the crews to work together to get this footage was remarkable. I don't think anybody can really explain to the viewing public how much of an accomplishment it was. The public will be thrilled with the speed and with the proximity to the car and the race track. For my part, I have respect for what everyone had to go through to obtain this footage.

The key people from the Newman/Haas side were Peter Gibbons, Brian Lises and Lee White. These are the two engineers and the team manager. Of course, all the support guys were great too. But these three were responsible for either doing the work or for delegating the responsibility and overseeing it.

On-Camera Personalities

C O N T E N T S

Mario Andretti

Michael Andretti

Don Lyons

ON-CAMERA PERSONALITIES

Super Speedway features two of the most powerful competitors in the history of motorsports: the legendary Mario Andretti and his son, Michael. For the past four decades, the Andretti name has signified excellence, dedication, pride and, above all, victory.

Michael is a 13-year veteran of Indy car racing and continues to dominate the PPG CART World Series for Newman/Haas. Although Mario retired following the 1994 season, he remains very close to the sport. Not only are both father and son profiled in Super Speedway, they also help provide the action. Mario drives the car that was specially modified to carry the IMAX® camera, and Michael is shown in much of that footage practising and competing over the course of the 1996 season.

Mario Andretti

Often referred to as "the greatest race car driver of all time," Mario Andretti has proven himself a winner at every level of competition, from Sprint cars to Formula 1 to Indy cars. He remains Indy car racing's all-time leader in pole positions won (67) and laps led (7,587). He is second only to A.J. Foyt in career victories (52 versus 67), and held the world closed-course speed record of 234.275 miles per hour in qualifying on July 31, 1993 at the Michigan International Speedway. With his 52nd Indy car victory at the Phoenix 200 in April 1993 (which was also his 100th major career victory), Mario became the first driver to win Indy car races over four decades and the first to win races over five decades.

Born in Montona, Italy, in 1940, Mario's love of cars and motorsports began at an early age. His mother, Rina, will tell you that racing runs in his blood. As five-year-olds, Mario and his twin brother, Aldo, used to race a handcrafted wooden car through the hilly streets of their hometown. Nothing could stop that car, says Rina, not even the German soldiers when they came to Montona during World War II.

In 1959, soon after the Andretti family immigrated to the United States, Mario's phenomenal racing career began. His first victory came in his premier race while driving a 1948 Hudson Hornet Sportsman stock car. He went on to win 20 races in the modified stock class over the next three seasons.

Mario's first Indy car appearance was in Trenton, New Jersey, on April 19, 1964, where he finished 11th after starting 16th. A year later he won his first Indy car race, the Hoosier Grand Prix and the USAC Indy Car championship. He also earned Rookie of the Year honours at the Indianapolis 500.

In 1968, Mario entered the Formula 1 Grand Prix racing circuit, taking the pole position in his very first race, the Watkins Glen Grand Prix. His first win came in 1971 in South Africa. From 1975 to 1981, he focused primarily on the Grand Prix circuit, winning 12 more races and earning 16 additional pole positions. The culmination of his international career was in 1978 when he won the Formula 1 World Championship. Mario remains one of only three men to win both the Formula 1 and Indy car championships.

In a career that spanned 36 years (including 31 in Indy cars), Mario won a total of four Indy car championships (1965, 1966, 1969 and 1984) and drove to 52 Indy car victories. Other career highlights include his celebrated win of the Indianapolis 500 in 1969, and winning the Michigan 500 in 1984 and the Pocono 500 in 1986 to complete a sweep of Indy car "Triple Crown" oval tracks.

Mario's skillful and versatile driving also resulted in victories in 1967, 1970 and 1972. In addition, he won the USAC National Dirt Track Championship in 1974 and the title at the International Race of Champions in 1979.

He is one of only two men to win Driver of the Year honours three times (1967, 1978 and 1984), and the first to do it over three decades! In 1992, he was further honoured when he was named "Driver of the Quarter Century." This distinguished champion campaigned in his final season of Indy car competition in 1994, after which he retired from active participation in the sport.

The track record of Mario Andretti speaks for itself. As a driver he mastered his sport and has been an inspiration to many. He once said he would like to be remembered as a guy who gave 110 percent, a man who really enjoyed his work. "I love motor racing," he says. "It's been my life, and I've given it all I could."

Mario Andretti Career Highlights:

- Four-time Indy car Champion (1965, 1966, 1969, 1984)
- Formula 1 World Champion (1978)
- Daytona 500 winner (1967)
- Three-time Indy 500 pole winner (1966, 1967, 1987)
- Indy 500 winner (1969)
- Three-time 12 Hours of Sebring winner (1967, 1970, 1972)
- USAC National Dirt Track Champion (1974)
- International Race of Champions titlist (1979)
- Driver of the Year (1967, 1978, 1984)
- Driver of the Quarter Century (1992)
- All-time leader in Indy car pole positions won (67)
- All-time Indy car lap leader (7,587)
- All-time record holder for Indy car starts (407)
- All-time leader in Indy car victories from-the-pole (14)
- World closed-course speed record holder (234.275 mph) set July 31, 1993 in qualifying at Michigan International Speedway (broken by Jimmy Vasser, age 31, in 1996)
- Only driver to win Indy car races over four decades
- Only driver to win races over five decades
- Oldest race winner in recorded Indy car history with 1993 victory at Phoenix (53 years, 34 days)

Michael Andretti

Michael Andretti, the eldest son of motorsports legend Mario Andretti, was probably destined to fall in love with auto racing. As heir apparent, he grew up at the track, travelling with his parents from race to race, learning the art and science of the speedway.

At the end of the 1996 season, at 33 years old, Michael is the active leader in career Indy car wins with a total of 35 victories. Driven to succeed, he continues to establish records, claim poles and win races. An incredibly quick learner, he is acclaimed as the fastest America has to offer in an open-wheel car. The media calls him fearless, relentless and aggressive—a competitor who never backs down. They say winning runs in his blood, and Michael never disappoints.

Even as a business major at Northampton Junior College in Pennsylvania, Michael knew he would follow his father into the “family business.” From a very young age he had exhibited the true desire and raw talent of a future champion. At 10, he was racing go-karts. From 1972 to 1979, Michael won more than one-third of the events he entered.

Always at his side was Mario, known throughout the world as “the greatest race car driver of all time.” In 1980, Michael qualified for his Sports Car Club of America amateur and national licenses, then won the Toyota Pro-Celebrity contest at Watkins Glen. These first outings made a strong impression on his father. In his book, *Andretti*, published in 1994, Mario recalls:

“It's talent and instinct, but it's also that desire, that pride that comes with accomplishment. I remember watching Michael. The first go-kart race I ever put him in, that kid knew he had to get up front. I thought, this kid is going to win every race he can. If he finishes second, it will be because it's impossible to win that race. This is not something that grows into your character. You are either born with that desire and instinct or you're not.”

Michael entered his first full Indy car season in 1984 and finished seventh in PPG Cup points. Qualifying fourth and finishing fifth, he was named Co-Rookie of the Year with Roberto Guerrero at Indy. In 1986, he scored his first of 35 Indy car victories, winning at Long Beach, California. At the season opener in Phoenix that same year, he qualified second to Mario,

establishing the first father-son front row ever. Michael took his first pole and oval track win at Milwaukee and finished the season second to Bobby Rahal in PPG Cup points.

The world of racing saw Michael establish himself as a dominant driver in the 1980s. When he joined the Newman/Haas team after the 1988 season, he and Mario again made history as Indy car's first father-son team. Michael finished the 1989 season third in points and was runner-up for the 1990 campaign, having led more than 25 percent of all laps raced.

In 1991, Michael's efforts and dedication culminated in a nearly perfect season. He took command of the circuit, seizing the PPG Cup with a record eight wins and eight poles, receiving Driver of the Year honours. He was also named Outstanding Athlete of the Year by the Philadelphia Sports Writers Association.

Michael continued his domination of the Indy car circuit in 1992, adding another five victories and seven pole positions to his career totals. His lap-leading percentage of 53.8 (1,136 laps led out of a total of 2,110) is the third highest in the 80-year history of the Indy car series. Yet despite his impressive performance, Michael missed taking the championship — by just four points.

After 10 years in Indy car and four seasons as his father's teammate, Michael left Newman/Haas Racing at the end of 1992 to join McLaren International Limited to compete on the international Formula 1 circuit. As teammate to the late Ayrton Senna, he faced the challenge of learning a new chassis and engine, adjusting to new tracks, and adapting to new practice and qualifying rules, all with very little testing time. His best finish was third place in his final F-1 race at the Italian Grand Prix at Monza.

When the opportunity arose to return to Indy car racing and compete one last season against his father in 1994, Michael joined Chip Ganassi Racing Teams to pilot the untried Reynard chassis. In the rain-plagued season opener in Surfers Paradise, Australia, he marked his comeback with a victory.

In 1995, Michael returned to the Newman/Haas team and proceeded to lead more races (12) than any other driver. Among the highlights were winning at Toronto for the fifth time in his career, ranking first in most laps led, and scoring three pole positions.

Today, with his famous father cheering from the sidelines, Michael Andretti keeps building on his remarkable record of achievement. The 1996 season proved to be another spectacular year. He had a season high of five wins and finished second with 132 points. In 1997, he will mark his 14th year in Championship Auto Racing Teams (CART) racing and his seventh with Newman/Haas. As he climbs the all-time leader board for poles won, laps led, career earnings and Indy car wins, Michael demonstrates why he is one of the most dominant and successful drivers ever. Clearly, Michael Andretti has come into his own.

Michael Andretti Career Highlights:

- Winningest active Indy car driver in races won (36)
- Active Indy car leader in poles won (30)
- Active Indy car leader in laps led (5,219)
- Indy Car PPG Cup winner (1991)
- Driver of the Year (1991)
- Career earnings at \$13,862,619 (fourth all-time highest)

Don Lyons

Consultant and Auto Restorer

Don Lyons is a dedicated collector and restorer of vintage, antique and specialty automobiles. Although he owns and manages the manufacturing company Lyons Industries Inc., he spends almost all of his free time reconstructing cars from his home in Dowagiac, Michigan.

Serving as a consultant during the filming of *Super Speedway*, Don Lyons also spent six years restoring the 1964 Dean Van Lines Special that appears in the film. Recovered from a chicken coop in Indiana, this roadster was built by Eddie Kuzma and driven by Mario Andretti at the beginning of his career. According to Lyons, it was the prettiest, most sophisticated and fastest roadster ever made. It was also the last.

Lyons remembers the restoration as a labour of love. “ I bought the car out of a chicken coop on New Year’s Day, 1990, and spent four years looking for parts and two years doing the actual restoration work. Now it goes like a bomb!”

Lyons has been working with old cars since the age of 14, when he and his father rebuilt a 1929 Packard. Since then, his hobby has become more complex and increasingly costly. Famous among the cars he has worked on is the 1951 Blue Crown Spark Plugs Special driven by Henry Banks. In 1952, Banks qualified the car at 135 miles per hour at the Indy 500. He has also restored the 1909 Stoddard-Dayton that ran in the 1909 race at the Indianapolis Speedway and the 1966 Gerhardt-Offy car driven by Jim Hurtubise at Indianapolis.

Of the more than 50 automobiles he has rebuilt, many are still owned and driven by Lyons, while others have been traded. Although several of the cars are worth hundreds of thousands of dollars, Lyons refuses to have them locked away in storage. For him, they are meant to be driven.

Fast Facts

C O N T E N T S

Fast Facts

Background on Indy car Racing

Race Schedule 1997 CART World Series

FAST FACTS

- At top speeds in excess of 230 miles per hour, an Indy car is traveling more than a football field every second.
- An Indy car weighs only 1,550 pounds, 220 pounds less than the diminutive Suzuki Swift!
- An Indy car rolling chassis (the car without its engine, turbocharger, electronics or tires) costs \$420,000 U.S.
- It costs a minimum of \$8 million U.S. per year to run a car in the PPG CART World Series.
- Indy cars have a maximum length of 16 feet 3 inches (4.95 metres), a maximum width of 6 feet 6 inches (1.99 metres) and a maximum height of 2 feet 8 inches (.81 metres).
- Four major car manufacturers —Ford, Honda, Mercedes-Benz and Toyota—are fighting for supremacy in designing the fastest engines for the PPG CART World Series.
- Sweating can cause a driver to lose up to 10 pounds (4.5 kilos) during a two-hour race.
- At speed, Indy cars produce so much downforce they could drive upside down on an inverted track!
- Indy cars can generate four Gs (four times the Earth's gravity) of lateral acceleration driving around the fastest corners.
- The side tunnels of Indy cars generate so much suction that manhole covers found on temporary street circuits must be welded down so they are not sucked off when the cars pass over them.
- Michael Andretti has won more CART races than any other active driver. He has captured 35 wins since he began in the series in 1983.
- Mario Andretti held the world closed-course speed record; he lapped the Michigan International Speedway at a speed of 234.275 miles per hour (377.042 km/h) on July 31, 1993 (broken by Jimmy Vasser, age 31, in 1996).
- In 1990, Al Unser Jr. drove the fastest 500-mile race ever, averaging a speed of 189.727 miles per hour (305.347 km/h) at Michigan International Speedway.
- In 1995, Canadian Jacques Villeneuve became the youngest ever PPG CART Champion at the age of 24.

BACKGROUND ON INDY CAR RACING

Each year the prestigious PPG CART World Series—the pinnacle of open-wheel racing in North America—stages 17 events over four different countries. It is a multimillion-dollar business and its stars are the best drivers and the most talented young racers from around the world. Each race-weekend lasts four days and involves engineers, mechanics and drivers in an intensely competitive effort, of which the grueling two-hour-long race is the culminating event.

Ever since the first recorded road race in France in 1894, people have had an insatiable obsession with automotive speed. The race is the ultimate challenge. It requires harnessing the power of the modern machine within the limits demanded by the laws of physics and according to the capability of the individual driver.

For almost 100 years, Indy car drivers have been meeting this challenge. With the support of their highly skilled teams—specialized engineers, designers and mechanics—they have long attempted to surpass the limits of the machine to conquer the track.

The first American automobile race was staged in 1895. The sport's governing body, the American Automobile Association (AAA), began sanctioning major races in 1904. Injuries and fatalities were an all-too-common occurrence at early races. In a short-lived and unsuccessful effort to reduce casualties, the AAA required that Indy cars carry a riding mechanic to look after on-board maintenance. While the sport tried to maintain acceptable safety standards, Indy car teams used the rules and regulations as a springboard for pursuing innovative car design.

In its infancy, auto races were held solely on dirt horse-racing tracks. In 1911, Carl Fisher purchased 320 acres of land in Indianapolis, paved the track with three million bricks, and built what he dubbed the "World's Greatest Race Course." In its inaugural season, Ray Harroun averaged just under 75 miles per hour to win the first Indianapolis 500.

The "Golden Age" of racing, the 1920s, saw the 100-miles-per-hour barrier broken. During the Depression, many American tracks went bankrupt and engineers and race owners were forced to adapt to a climate of waning resources. This era saw the introduction of the more affordable and efficient stock-block engine.

Because virtually every track apart from the Indianapolis Motor Speedway was a dirt oval, drivers who dreamed of winning the season championship had to develop and employ different skills to meet the demands of the various tracks. Teams yearning for victory began experimenting with racers with front-wheel drive, which were lighter, and with the even lighter conventional rear-wheeled cars.

In 1956, the United States Auto Club (USAC) took over as the sanctioning body of Indy car racing. Mario Andretti made his entry into Indy car competition towards the end of the roadster era (between 1952 and 1966). The roadster, as compared to the then standard upright car, featured a low frontal profile and a wider chassis, which allowed the drive shaft to pass beside the driver instead of beneath him. The result was a car that could take corners at 10 to 15 miles per hour faster and turn out lap speeds topping 148 miles per hour.

The roadster, however, had its shortcomings. Compared to the newly introduced rear-engine cars, it suffered from having an overly high centre of gravity. High speeds combined with this and its aerodynamic makeup often resulted in cars flipping over. Fortunately, by the mid-sixties, a new revolutionary design of Indy car proved both safer and faster. When Mario Andretti finished the 1964 season driving his Dean Van Lines Special, the roadster era came to an end.

One year earlier, Dan Gurney had approached the British designer Colin Chapman with an idea. He wanted to implement Chapman's rear-engine design concept, which the designer had perfected in an Indy car, his Formula 1 Lotus 25. The model was an immediate success; its lower centre of gravity increased the car's cornering speed and its monocoque chassis added rigidity and greatly reduced the car's weight. The design proved successful in competition when Jim Clark became the first driver to average over 150 miles per hour at the Indy 500.

In 1965, Mario Andretti, in his first full year of Indy car competition, dethroned the reigning champion, A.J. Foyt. Andretti repeated this feat the next season and became the first driver to win with a rear-engine car. By the 1966 season, wholesale changes were being made to Indy car racing. Turbocharged and supercharged engines reappeared, tires were widened, and the wedge (a side radiator arrangement) and wings (which added stability to the car) made their first mark on racing.

The traditional dirt race tracks that had always distinguished Indy car racing were completely eliminated from the championship circuit in 1971. By then, race cars were so specialized to a

particular surface that dirt track Indy cars hardly resembled the Indy racers meant for paved surfaces. It was simply too expensive for teams to field both types of cars.

In 1972, American Jerry Grant became the first driver to break the 200-miles-per-hour barrier at Indy. In the late seventies, Indy car owners, unhappy with their representation within the USAC board of directors, decided to create their own organization to sanction Indy car races. On November 25, 1978, they announced the formation of Championship Auto Racing Teams Inc. (CART), an organization exclusively dedicated to Indy car racing. Soon after, they signed PPG Industries as the title sponsor.

The year 1979 marked the introduction of ground effects to Indy car racing—a Colin Chapman design that used the bottom shape of the car and the ground beneath it to create a low-pressure area. Ground effects caused the car to be sucked to the pavement, thus improving its traction and stability. Jim Hall's Chaparral 2K was the first Indy car to make use of this innovation.

In the current era, Indy car racing's greatest challenge has been to combine a responsible approach to safety with the incredible power of the modern machine. In 1984, Mario Andretti won his fourth Indy Car National Championship driving for Carl Haas and Paul Newman. That year, CART implemented the creation of the Indy car safety team, a state-of-the-art safety, rescue and medical unit to service the PPG Indy Car World Series. In 1989, Michael Andretti joined his father on the Newman/Haas team and they became the first father-son Indy car teammates.

Today, races take place on four basic track types: superspeedways (ovals of more than one mile), short ovals, temporary road courses and permanent natural terrain road courses. With each track a different configuration of car is fielded and drivers are required to employ a variety of disciplines and skills.

Eighty-five years after maxing out at 75 miles per hour, Indy cars are today breaking the 240-miles-per-hour barrier. At the same time, officials and drivers continue to address the issue of safety by implementing rules to reduce speeds and by using methanol as fuel instead of gasoline. Race cars are fitted with automatic fire-extinguisher systems and drivers wear specially designed fire-resistant uniforms. Only six crew members are allowed over the pit wall to work on the car during the race, and they too must wear fire-resistant uniforms. Finally, in 1996, the Indy car safety team unveiled their new million-dollar medical centre, a mobile trauma and physical therapy facility.

During the last 10 years the competition has been amazingly fierce, with any number of different drivers capable of winning individual events and claiming the championship. In 1991, Michael Andretti won a then record eight races and eight pole positions on the way to capturing his first PPG Cup Championship.

The sport of Indy car racing continues to grow rapidly. The 1997 schedule features 17 CART-sanctioned races each broadcast internationally on television to record viewing audiences. With the circuit featuring many of the world's most famous driving stars, including Michael Andretti, Christian Fittipaldi, Bobby Rahal, Al Unser Jr. and Jimmy Vasser, spectator attendance and purse money have grown dramatically. As it prepares for the future, CART racing perpetuates its tradition of technical innovation and exhilarating driving, consistently generating thrills for millions of fans around the world.

RACE SCHEDULE - 1997 PPG CART WORLD SERIES

March 2	Marlboro Grand Prix of Miami (Homestead, FL)	ABC
April 6	Indy Carnival (Gold Coast, Queensland, Australia)	ABC
April 13	Toyota Grand Prix of Long Beach (Long Beach, CA)	ABC
April 27	Bosch Spark Plug Grand Prix Presented by Toyota (Nazareth, PA)	ABC
May 11	Rio 400 (Rio de Janeiro, Brazil)	ABC
May 24	Gateway International Raceway (Madison, IL)	ABC
June 1	Miller 200 (West Allis, WI)	ESPN
June 8	ITT Automotive Detroit Grand Prix (Detroit, MI)	ABC
June 22	Budweiser/G.I. Joe's 200 Presented by Texaco/Havoline (Portland, OR)	ESPN
July 13	Medic Drug Grand Prix of Cleveland (Cleveland, OH)	ABC
July 20	Molson Indy (Toronto, Ontario, Canada)	ABC
July 27	U.S. 500 Presented by Toyota (Brooklyn, MI)	ABC
Aug. 10	Miller 200 (Lexington, OH)	ABC
Aug. 17	Texaco/Havoline 200 (Elkhart Lake, WI)	ESPN
Aug. 31	Molson Indy Vancouver (Vancouver, British Columbia, Canada)	ESPN
Sept. 7	Toyota Grand Prix of Monterey (Monterey, California)	ESPN
Sept. 28	California Speedway (Fontana, CA)	ESPN