Jim Seay, president of Premier Rides, engineers the ultimate E-tick

"E ticket." It's an expression most of us understand without really knowing its origins. You have to go back to the 1950s and Disneyland for that. Basically, it describes an exciting, interesting or expensive experience, and most commonly the word "ride" is included in the phrase.



That's because E-ticket rides were the newest, most thrilling attractions that Disney's famed amusement parks (including Walt Disney World) had to offer through the early 1980s. The E ticket was part of a coupon book that visitors could purchase to partake of the facilities' rides. Denominated A through E, the tickets gave park-goers access to a variety of experiences, from the tamest, least expensive "A ticket" rides, to the latest, wildest, most costly "E ticket" thrillers.

e Today, many of the most creative, advanced and exciting amusement park rides and attractions in the world are built by a company right here in the Baltimore area: Premier Rides. In business since 1994, the company has built a reputation as one of the top three firms manufacturing and supplying attractions and rides globally. Premier's president, Jim Seay, has guided the company through the roller coaster-like ups and downs of the rides and attractions business for the last 12 years. Now Premier Rides, he says, is about to expand to a higher level business-wise – perhaps to a position atop the industry in America.



LIQUID COASTER

The future for roller coasters, Jim Seay says, is the expansion of the concept of "blended attractions." Already part of the landscape of modern rides, blended attractions combine the traditional roller coaster experience – the thrilling combination of speed with dynamic lateral and vertical motion – with themed environments, largely from the world of movies.

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Rides like Premier's "Revenge of the Mummy – The Ride" at Universal Studios Hollywood and Universal Orlando Resort, "The Italian Job: Stunt Track" at Canada's Wonderland and Kings Island and "The Italian Job Turbo Coaster" at Kings Dominion feature roller coasters that traverse movie landscapes. In this case, the movie settings derive from the "Mummy" series (three so far starring Brendan Fraser, including the 2008 release "Tomb of the Dragon Emperor") and the 2003 remake of "The Italian Job" (starring Mark Wahlberg, Charlize Theron, Edward Norton).

Thrill-seekers will find many more movie-themed rides designed and built by Premier's competitors at other major parks but these will be surpassed, according to Seay, by attractions that make visitors more active participants in the action.

"Putting film technology and the traditional coaster experience together has been very popular over the last decade," Seay says. "I think that trend will continue and the next step will not only be blending in special effects but making the rider less passive and more a part of the experience."

For example, one of the attractions that Premier Rides produced for Hard Rock Park allows riders to interact with guests below. "The guests try and shoot water cannons up at the riders," Seay says. "And with RF (radio frequency) technology, the riders have the ability to wirelessly communicate with the vehicle control system that's running the ride. If they see a guest about to hit them, they can activate big showerheads and dump water on the people below. There's a great opportunity to blend rider interaction with the traditional coaster experience and special effects, taking attractions to the next level."

"Slippery When Wet" is Premier's first "liquid coaster" and is attracting signifi-



cant interest, according to Seay. Featured at Hard Rock Park in Myrtle Beach, SC, the nation's newest amusement park (opened April 2008), it's a 21st century E-ticket ride, built on the shoulders of generations of coasters that came before, including one of the original E-ticket rides – a roller coaster Jim Seay had a chance to ride in his childhood.

Built in 1929, the all-wood Dragon Coaster went into operation at Playland Park in Westchester County, NY, just a year after the county-owned park opened. Still in operation today, it's a historic relic of the first golden era of roller coasters, and though he had no idea that roller coasters were in his future, the Dragon Coaster left an indelible mark on Seay.

"I remember going on that coaster at Playland as if it were yesterday," he says. "As a kid, you thought the world was about to end. It made an impression. I loved the idea of being on an attraction where, essentially, you're leaving your fate in other's hands."

SLIDE RULES AND SAILBOATS

Born in Switzerland and raised in Connecticut by hard-working parents who were part of the New York art world, Jim Seay worked hard to control his fate early on. He graduated from Cornell University in the early 1980s with degrees in aerospace and mechanical engineering. Prior to graduation, he learned that Los Angelesbased Hughes Aircraft Company was offering internships. The dual attraction of working with a well-regarded aerospace firm and southern California's mild climate proved too tempting. In 1982, he went west to start a new life as an engineer in

"I loved the idea of being on an attraction where, essentially, you're leaving your fate in other's hands." Hughes' research and development department, working on laser communications and stealth cruise missile technology. The company's vibrant work environment, Seav remembers, still resonated with the personality of its founder Howard Hughes, who died in 1976.

"I was there when the company still had a real entrepreneurial feel," Seay says. "There was a lot of development going on.

Hughes had died but the guys who were his right-hand men were still there. There was a guy in my department who was the co-pilot of the Spruce Goose. People still had an attachment to Howard Hughes and a mentality of creating things that were on the cutting edge, using the latest technologies. It was a dream job environment."

The dream started to fade, however, even as the aerospace industry flourished. Howard Hughes left no will, and shortly after his death, there were numerous claims to his estate. Nearly a decade of legal battles ensued, ultimately leading to the sale of Hughes Aircraft in 1985 to General Motors. The dynamic aerospace player was now under the thumb of the world's largest corporation, and with the change came a rapid deterioration in the working environment at Hughes.

"You went from a very creative entrepreneurial environment to one that was very structured," Seay recalls. "Suddenly there were meetings about profit levels and staff reductions on projects were discussed. Hughes had been in research areas like ion propulsion, looking at its feasibility for spacecraft 25 years down the road. It was hard to provide a profit formula for something like that."

The more restrictive atmosphere dimmed the young engineer's enthusiasm. Fortunately, he had taken up several rewarding activities outside of work, one of which would lead him in a new direction.

"One of the things I'd done with my leisure time was race sailboats," Seay says. "It was very popular in L.A. There were a number of people from the Walt Disney Company who raced out of Marina del Rey, including Roy Disney. He was recognized as one of the best racers on the West Coast. You would get opportunities to race on his boat or with others in the industry who knew him, and little by little, you'd start learning about the entertainment industry."

In the mid-1980s, the two largest industries in the Los Angeles area were entertainment and aerospace. Hughes Aircraft, via its founder, had connections with show business, and as Seay learned, cross-pollination between the two industries was not uncommon.

"It was a period when a lot of very significant ride attractions were being developed by the major amusement parks and it was competitive," Seay says. "The idea of 'ride the movies' came into being with companies like Universal Studios. Disney was building great attractions and Six Flags was building very tall, very fast coasters. Sailing brought me together with people in the business and I learned that there was the opportunity to take the skill set from aerospace and apply it to these new attractions. They needed new technology and people who understood it. They needed highspeed processors and rigorous analysis because of the safety implications of designing higher speed, more dynamic rides. They needed better vehicles to withstand the new speeds and G-forces generated. It was a natural progression to switch from one industry to the next."

"You suddenly the 'roller coaster arms race." The aerospace industry had created the tools to push the industry to the next generation."

ARMS RACE

Jim Seay left Hughes Aircraft in 1988, taking an engineering management position in the Los Angeles-area corporate offices of Six Flags, Inc. Tasked with overseeing new capital development and safety at the company's Magic Mountain theme park in Los Angeles, Seay found himself in an unfamiliar role – but somehow in a familiar environment.

"I had no inkling I'd be there after six years at Hughes Aircraft, but there is a level of professionalism that is very similar in the technical realm to what I was used to in the aerospace industry," Seay says. "To work in our industry, you have to be passionate about the safety of guests. That passion pushes you to be technically on top of everything. That's true whether you're with a Six Flags or Disney or Universal."

The late 1980s and early 1990s were a very competitive time for amusement parks. The analog era of roller coasters and other rides was over. The digital age had arrived and with it came new possibilities for ride design and dynamics. One after another, the major parks debuted fresh attractions, each more advanced than those that preceded it as they vied for the distinction of having the latest, greatest roller coaster.

"You suddenly had what they called the 'roller coaster arms race,'" Seay says. "The aerospace industry had created the tools to push the industry to the next generation. Rides like the Dragon Coaster that I rode on were all designed by hand calculations. Now you had finite element analysis capabilities from the aerospace industry that allowed you to begin building rides in a computer-based environment using CAD-CAM programs."

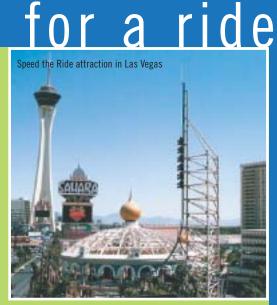
Engineers could evaluate modern roller coaster designs before the coasters were ever built, running 3D simulations to determine efficient and safe design parameters that would yield acceptable levels of G-force and dynamics – enough to excite and



At amusement parks throughout the United States and beyond, Premier Rides' diversified menu of offerings includes LIM coasters, water coasters, liquid coasters, traditional coasters and family attractions. Here are a few of the best and where to find them.

THE ITALIAN JOB

"The Italian Job: Stunt Track" at Canada's Wonderland Park (Maple Ontario, Canada) and Kings Island (Mason, OH) and the Backlot Stunt Coaster at



Kings Dominion (Doswell, VA) are LIM terrain-following coasters that place riders in 75 percent reproduction replica BMW Mini Cooper S cars. The cars fly through movie stunt driving scenes derived from the 2003 remake of the 1969 classic film, "The Italian Job." Racing through parking garages, down subway stairs, dodging police cars and much more, these coasters immerse the participants in the middle of the movie's madness at speed.

REVENGE OF THE MUMMY

"Revenge of the Mummy: The Ride" at Universal Studios Florida (Orlando, FL) and its counterpart at Universal Studios Hollywood (Universal City, CA) are examples of Premier Rides' LIM dark coasters. This movie-themed ride is based on the popular Mummy series of movies starring Brendan Fraser and Rachel Weisz. These unique thrill rides take parkgoers through some truly frightening scenes from the movies in pitch black darkness, combining the thrill of a coaster with the fear of darkness and the sensation of being part of the movies' action.

THE JOKER'S JINX

"The Joker's Jinx" at Six Flags America (Bowie, MD), "Poltergeist" at Six Flags Fiesta Texas (San Antonio, TX), "Flight of Fear" at Kings Island and Kings Dominion, and "Mad Cobra" at Kingdoms of Discovery in China are examples of Premier Rides' award-winning LIM catapult coasters. The LIM launch system catapults trains out of the queue house in an extraordinary burst of speed. An intense electromagnetic wave rockets riders to 60 miles per hour in just over three seconds. The LIM launch creates enough energy to propel the trains through 500-ton steel mazes including 30 vertical curves, 25 horizontal curves and four upside-down loops.

SLIPPERY WHEN WET

"Slippery When Wet" at Hard Rock Park (Myrtle Beach, SC) is the latest coaster to come from Premier. This unique liquid coaster allows riders a wild ride while spectators pummel them by shooting water cannons. Riders get revenge by dumping water on spectators below them.

BATMAN

"Batman: The Ride" at Six Flags Great Adventure (Jackson, NJ) is the only dueling LIM shuttle loop coaster in the world. Premier's one-of-a-kind attraction is two roller coasters in one. Offering two completely different courses, each coaster travels through the wild track work both forward and backwards. Both sides also utilize LIMs to catapult riders to extreme speeds.

SPEED

"Speed: The Ride" was custom-designed by Premier Rides for the Sahara Hotel & Casino, Las Vegas, (Las Vegas, NV). This shuttle loop LIM coaster operates at the NSACAR Café Entertainment Complex at the Sahara. Launching riders out of the station using LIM technology for an extraordinary burst of speed, the coaster runs parallel to the famous Las Vegas Strip. Riders travel underground, turn upside down, enter another launch zone that blasts them through the hotel's neon marquee before shooting straight up in the air 224 feet at a 90-degree angle. Riders are then sent through the entire course of twisted steel track again — in reverse.



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entertain riders, not torture them. The technology allowed designers to exercise creativity in new ways as well, producing ride experiences the like of which had not been seen before. It was a technical environment in which Seay felt comfortable, and though the business of designing rides was new, some of the players were familiar.

"At Hughes, there were a myriad of subcontractors that we worked with that did a lot of analytical work," he says. "When I joined Six Flags, we'd pull in those same subcontractors on a number of projects."

A highlight of Seay's six-year stint with Six Flags was his shift from the company's corporate offices to park management at Magic Mountain itself. Managing the park's rides and maintenance staff provided terrific insight into the real-world challenges of maintaining safe, reliable rides on a daily basis and an understanding of the issues park staff routinely face. It's the kind of knowledge that serves Seay well today.

"Part of the problem with engineers is that they can very easily spend their lives behind a computer," Seay says. "One of the reasons Premier is successful is not only do we have very strong engineering, we have extremely strong frontline guys. I know how valuable those people are and that they are the means by which we're going to understand how our equipment actually functions and how to make it better and more reliable."

A MARKED MAN

According to the International Associations of Amusement Parks and Attractions (IAAPA), there are 400 amusement parks in the United States. Three hundred more can be found in Europe, and an undetermined but rapidly growing number are emerging in Asia and the Middle East. In the United States alone, 335 million visitors to the nation's amusement parks helped the industry generate \$11.5 billion in 2006.



Statistics for the mid-1990s show an industry roughly two-thirds its current size. But the figures were moving steadily upward. By 1995, Jim Seay was considering a move of his own. Universal Studios was actively recruiting Six Flags' talented executive, randomly polling other industry players for appraisals of his skills. One of the notables Universal contacted was a Severna Park, MD-based entrepreneur named Peter Schnabel. Schnabel was a veteran of the rides and attractions business and the former president of the American division of a Swiss rides and attractions design company called Intamin AG. Universal had a great deal of experience buying rides from Intamin, and as a consequence, knew Schnabel well.

Widely regarded as one of the leading salesmen in the industry, Schnabel had recently struck out on his own when Universal called. In fact, he had founded Premier Rides less than a year before. Schnabel was well acquainted with Seay and his abilities, the two having dealt with each other frequently over the years. Aware of Universal's interest in him, Seay kept it to himself. But the park's phone call was a useful tip-off for Schnabel – information that presented an opportunity. And according to Seay, Schnabel never misses an opportunity.

"I walked into my office one day and my phone rang," Seay remembers. "I picked it up and heard the words, 'Did you get the package?' Peter has a distinct German accent and I could tell it was him. I asked if it was and he said again, 'Yes, did you get the package?' I looked down and there was the package on my desk. Inside there were two first-class tickets to fly from LAX to BWI, leaving the next morning. I asked Peter what this was about and he said, 'Well, I hear you're leaving Six Flags.' I was mortified that anyone would even know I was thinking about that because I loved Six Flags."

Still, Universal had a made Seay a very tempting offer, promising him quick advancement to a senior position, a very generous salary and company car, and a significantly shorter commute from his Manhattan Beach residence. Schnabel couldn't hope to match Universal Studios offer but he was undaunted. He wanted Seay on his team and that was that.

"Peter said, 'Don't worry, I'm not talking to anybody else. Do me a favor: don't talk to Universal today. Take tomorrow off, come to the airport, bring whoever you'd like to bring and stay at my house," Seay says. "At that point, I should have known that with Peter, it was a done deal. Instead of the cushy corporate life, he would convince me to join his new start-up with virtually no salary and the prospect of traveling almost non-stop for the next year. And I'd be moving to Maryland, a state I only knew of from hitch-hiking through it on the way to Daytona Beach for spring break."

Won over by Schnabel's persuasive charm and the prospect of building a company from the foundation up, Seay moved from L.A. to Maryland for a brand new challenge.

LINEAR INDUCTION

Premier Rides' new executive vice president of engineering arrived in Maryland to find a start-up that was already on its feet. That's because Peter Schnabel, following German tradition, had worked to establish Premier as a service company initially. His philosophy was that Premier would be able to service any attraction in the industry. It was a strategy that would yield multiple benefits.

The rides and attractions industry is one in which many companies fail. Schnabel made sure Premier had the human capital and physical inventory to service any ride, even those created by firms that were no longer in business. The company quickly built a good reputation for service, making it well known to the amusement park and rides manufacturing industries while generating modest cash flow. Along the way, Premier's engineers and service technicians were able work on just about every existing ride or coaster, learning their operational strengths and weaknesses. That familiarity would pay dividends when Schnabel decided it was time for his company to begin building its own attractions.

With Jim Seay on board, all of the pieces were coming together to allow Premier to sell its first rides. "I was there to be the person who was familiar with the whole attraction creation process: the engineering, the building and what the parks' expectation levels would be," Seay says. "Peter felt that the best way to have a superior company was to hire people from the park side of the business who understood the industry from the inside and who could communicate with the parks to extract the kind of information that could help us make our equipment better, tailoring it to their desires." Premier was undertaking its first design projects just as Seay found his feet with the company, and by the summer of 1995, Premier had debuted "Runaway Mountain," a standard coaster at Six Flags Over Texas, and "Total Tower," an observation tower at Six Flags Elitch Gardens in Denver. The company's next project was one Seay was to be intimately involved with, an effort that resulted in a new kind of roller coaster – the "LIM coaster."

Developed jointly by Premier Rides and Paramount Parks (now owned by Cedar Fair Entertainment), linear induction motor roller coasters use electro-magnetic force to propel the coaster's vehicles rather than traditional chain lift or modern hydraulic or pneumatic power for "launched" or "high acceleration" roller coasters. Large pulses of electric current are supplied directly to electrical coils called stators. The stator coils, mounted in sequence along the coaster track, create an electro-magnetic force that is received by aluminum fins on each side of the coaster train as they pass the stators. The force pulls the train along, allowing terrific acceleration and deceleration. The technology is similar to that which will be employed in the catapult aircraft launch system of the U.S. Navy's next generation aircraft carrier.



"Outer Limits: Flight of Fear" (now known simply as "Flight of Fear") debuted at Kings Dominion in the summer of 1996. One of the first LIM coasters to appear, it could accelerate riders to 70 miles per hour in just three seconds. Reviews of the award-winning, two-minute-and-24-second thriller were very positive, and the coaster is still one of the most popular in the nation.

The same summer that Premier's first LIM coaster debuted, Seay was named president of the company. Under his leadership the firm has created a wide range of award-winning coasters and attractions including its trademarked "liquid coaster" and several unique versions of LIM coasters. Innovation has been the hallmark of his tenure at the helm of Premier Rides and the firm has grown steadily.

NEW MARKETS

Today, Seay is the sole owner of Premier Rides. More than 40 employees work from its Millersville headquarters, bolstered by a half dozen long-standing subcontractors whom the firm's leaders refer to as "Premier Team Members." Undertaking five to six projects per year, the company currently averages between \$75 million and \$90 million in revenue each year. From concept to design and manufacturing, Premier does it all, says Seay.

"We can execute projects from the foundations up – all the electronics, the ride structure, the ride itself, the vehicles, the launch and lift systems and the pneumatics," he says. "Often we'll also be involved in special effects. It depends on the client and their level of sophistication. The less sophisticated a client is, typically the broader the scope of project for us. More traditionally, we deliver a kind of erector set, which is a box of equipment that is all fabricated, and the park facility, like a Six Flags, will put the equipment up itself. They're sophisticated enough to control the construction. However, we still work on site in an advisory role."

Domestic business continues to be healthy, especially on the service side of the company, which remains an important part of the firm. But overseas clients are driving much of the company's growth. As much as 70 percent of Premier's business comes from projects outside the United States. As Seay explains, the American



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market for rides and attractions is very mature, and the family-owned theme parks of the past, which added new attractions every year, have virtually disappeared. Corporate owners have streamlined operations, keeping coasters and other attractions in service longer than ever before. Periodic upgrades and careful maintenance keep the equipment running, paying back cash-strapped parks that make the large capital investment modern rides require.

But foreign markets are different story. With its manufacturing (performed by subcontractors) carried out primarily in United States and the relative low value of the American dollar, Premier can compete strongly for business internationally. And Seay points out, developing economies have developing tastes.

"Business outside the United States is our primary focus right now because there's so much significant development," he says. "Areas like the United Arab Emirates and Singapore have incredibly vibrant entertainment industries. I just returned from two weeks in China. If you looked at that country just a couple of decades ago, the concept of entertainment as we know it was largely foreign to them. But with a population of 1.3 billion and a younger generation that is very supportive of an entertainment culture, China will be developing new entertainment venues for years to come. The same is true in Macao and Taiwan."

In a business that would seem to be very sensitive to the current turndown in the domestic economy, Premier is thriving. Again, the availability of work beyond American borders makes all the difference, says Seay.

"A lot of people talk about the economy being tough right now, but the fact is that exports are very good," he says. "I called for shipping containers this week and it

used to be that we could get a container in five days. Now it's six weeks minimum. That to me is an indicator of the economy – when I can't get containers for one and a half to two months that means the economy is firing on all cylinders from an export standpoint."

As much as 70 percent of Premier's business comes from projects outside the United States.

Premier Rides isn't totally isolated

from economic shocks, however, and neither are its customers. After all, the company is part of industry that relies on significant quantities of building materials to execute the vision of its designers. Thus, volatile commodity prices like those experienced over the last two years can wreak havoc with the quotes Premier gives for projects. Fluctuations in the price of steel, copper and other materials can dramatically alter the cost of mounting an attraction in a matter of days.

Shielding Premier and its customers from exposure to volatility comes down to one man, Seay explains. Randy Schmidt is Premier's CFO and, together with Seay and Schnabel, he has been responsible for the company's long-term viability and growth. A partner in a regional accounting firm, he gained familiarity with the rides and attractions industry as part of the audit team Schnabel employed at Intamin. In 1996, he joined Seay and Schnabel at Premier and became integral to the company's bidding and execution.

Commodity fluctuation is a natural part of the business environment Premier operates in, says Schmidt, and most of Premier's clients are sophisticated enough to understand dynamics of the attractions manufacturing.

"Once somebody has decided that they want a particular project, the price we quote is only good for a very short period of time," Schmidt says. "We've had projects where we've given an initial quote and let the client know the quote is good for 30 days because we know that within a month our subcontractors might give us a different price. Back in April and May when volatility was really high, our subs would say, 'This price is good for a week.' So our price for a particular attraction would be one thing for a week and then a different price a week later."

Hedging on commodities is not really an option, Schmidt explains, because Premier doesn't buy commodities on a consistent basis. At times, the company may go 10 months without purchasing steel. Moreover, Premier's engineers aren't always sure how much of a commodity will be needed.

"Many times a prototype ride hasn't been fully engineered and you don't know how much steel is going to be in it so we'll quote a price based on 'X' number of pounds of column steel," Schmidt says. "If the required amount is more than that, the price increases. If there are fewer columns the price decreases. We've developed techniques to deal with fluctuations and a group of subcontractors who are accustomed to that. We don't compete on price; we compete on ideas, and our clients – Disney, Six Flags, Universal, Cedar Fair, Busch Gardens – generally understand that. It gets a bit tougher when we do business overseas, but often we're dealing with American companies that represent foreign entities."



Premier Rides' success has placed it among an exclusive group. There are only a handful of firms worldwide that have comparable levels of expertise. Premier will gain ground over its competitors, Seay says, by continuing to pioneer the next E-ticket ride and by looking for opportunity abroad.

"We are already at a very healthy level where we are recognized in the industry for producing unique equipment," Seay says. "With the global economy expanding as it is, it's taking us to that next level, one that I don't know if any other company like ours has been able to achieve yet. Anywhere from 15 million to 20 million people ride our attractions every year. It's a satisfying business. We're creating a positive lifetime memory for millions of people."

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