PARACHUTE JUMP: A thrill at the New York World's Fair, its 200-foot drop was so like "hitting the silk" that it was taken over by the Army to train paratroopers.

PRESS ASSOCIATION

SPINNING WHEEL: An old amusement-park favorite, it is better than a hayride for throwing young folks together.

INTERNATIONAL

SCENIC RAILWAY: It speeds up courtship by providing an excuse for her to sink into his arms—sometimes with this result.

RIDE 'EM AND WEEP

By MAURICE ZOLOTOW and HAROLD S. KAHM

Almost $100,000,000 worth of exhilarating mental agony is sold yearly to thrill-seekers who love to terrify themselves in roller coasters, Tilt-A-Whirls, Tumble-Bugs and Loop-O-Planes.

JOE McKEE, a trim little gentleman of some sixty-odd years with kindly blue eyes and a slow-moving air of gentle serenity, is one of the leading American scientists of suffering. McKee is one of the five persons in this country who can design and build you a roller coaster guaranteed to frighten strong men and terrify weak women.

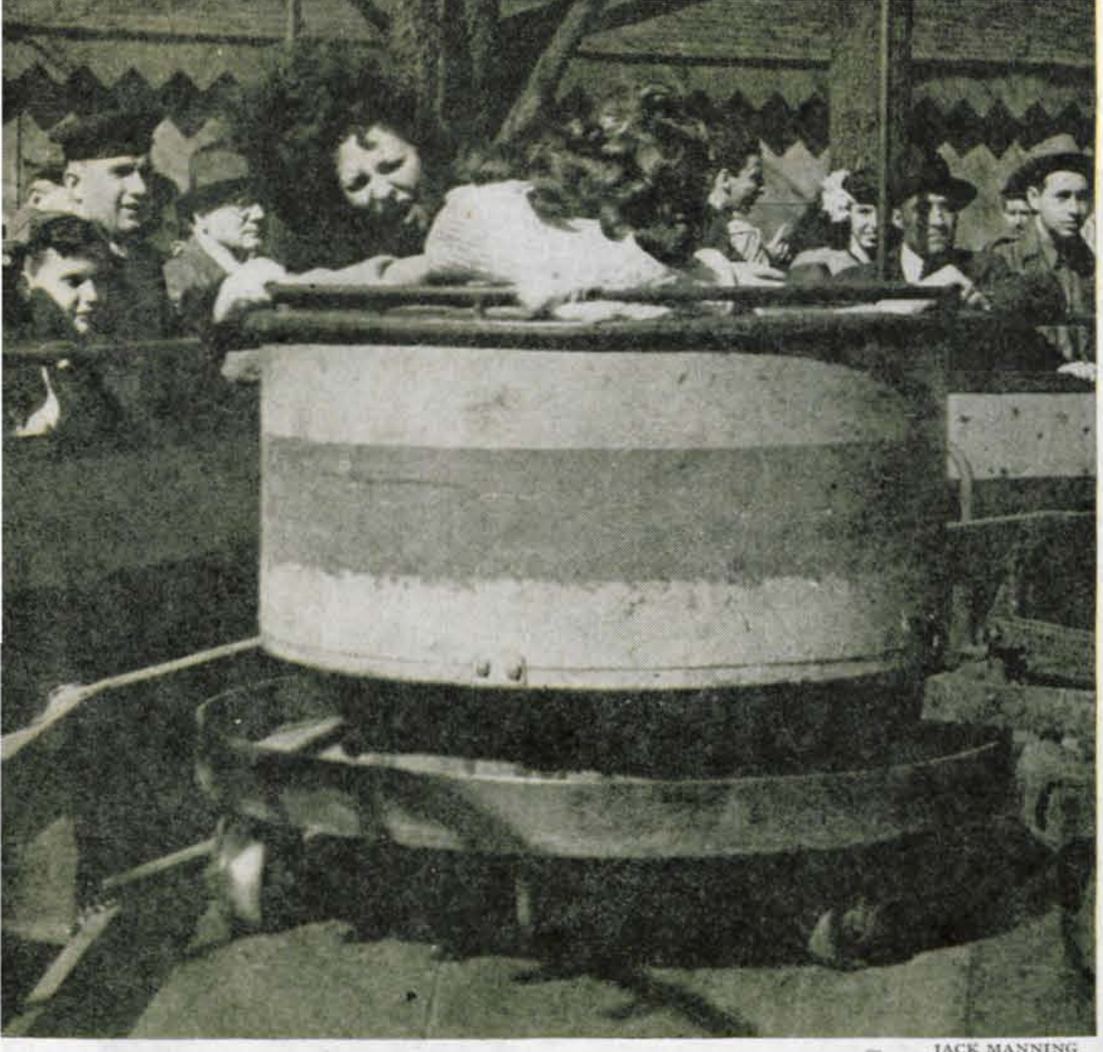
A roller coaster cannot be produced in a factory. It is designed for a specific amusement park, and built right on the premises. A roller coaster, essentially, is just some cars riding around on tracks laid on a skeleton of planks and trestles. What makes the roller coaster the nauseating experience of pleasant agony is the combination of drops and turns, of banks and dips, the contrasts between slow and fast, and the general illusion of danger which the designer creates.

"I been building these twisters about forty, forty-one years, I guess," McKee said. To the ride man, a coaster is known as either a "figure eight" or a "twister." McKee, now the chief engineer in charge of torment, mayhem and hysteria at Palisades Amusement Park, in New Jersey, studied engineering at Carnegie Tech. He has constructed various implements of torture in Mexico City, Coney Island, Chicago, Pittsburgh and Baltimore.

"The main idea of the thing," he explained, his blue eyes twinkling genially, "is you got to scare the people mentally because actually there is nothing to be afraid of in the ride. The whole thing is in the mind. You take the roller coaster. The average twister, she don't do no more than thirty, forty miles an hour. Our Bobsled ride, here at Palisades, she's fast—she does about sixty an hour, just about the fastest coaster in the business. Our Skyrocket does about fifty. Well, sir, you know the average person what will think nothing of doing seventy, eighty in a car, or you take, on the other hand, a pilot on a pursuit plane that does three hundred miles an hour, he will take a ride on the Skyrocket and she'll scare the pants off him. It's all in the illusion, it's in the mind of the rider. That's my angle on it.

"You take a feller in a plane, he's up in the sky all by himself, riding with the clouds, and it don't seem so terrible fast. But we put him in a roller coaster, and we get the cars jangling and screeching, and those wooden posts go by like crazy, and of course the wind is slapping you in the face, and, by gosh, you think you are going like a bat out of hell. It's all in the mind, mister," concluded McKee.

The discovery that normal human beings were willing to pay a substantial sum for being tortured—in a nice way, of course—was made in 1884, when Lamarcus A. Thompson, a Sunday-school teacher and unsuccessful textile manufacturer from Elkhart, Indiana, built the first scenic railway, anywhere, at Coney Island. Since then, more than 6000 rides have been invented. Today, the ride industry is solidly established

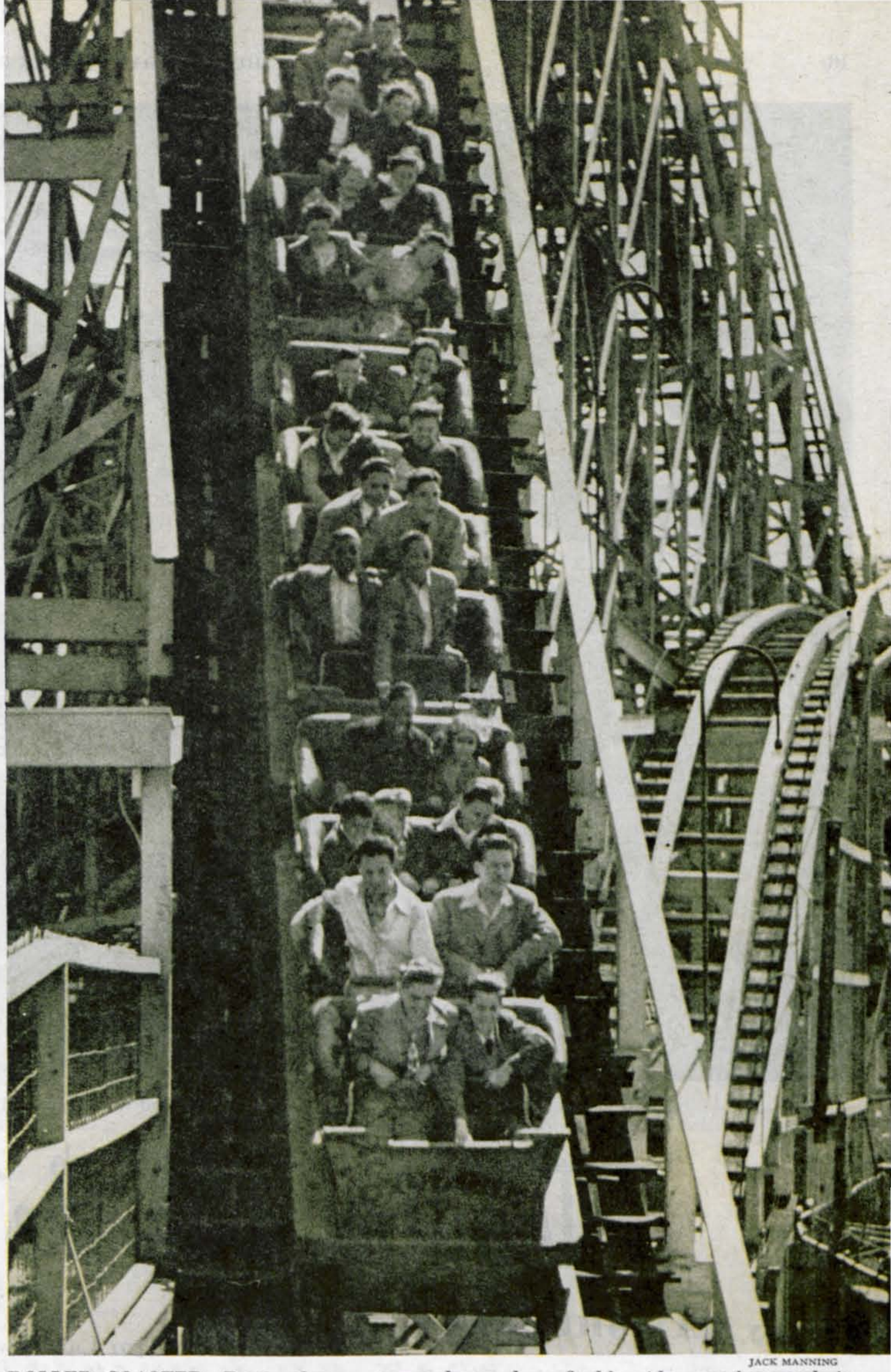


JACK MANNING

DOODLE BUG: It stands high in popularity because it supplies all the thrills of a tank or jeep ride without the contusions.

JACK MANNING

DIVE BOMBER: Born of the war, it gives stay-at-homes the chance to pretend they are aces bagging Zeros in the Pacific.



JACK MANNING

ROLLER COASTER: Easily the most popular and profitable ride ever invented, it must afford a convincing illusion of terrifying speed, flirt with danger, yet be safe.

in the entertainment field, since almost everyone has discovered that—ironic as it seems—you can get a remarkable exhilaration, relief and violent pleasure by paying two bits to have yourself tortured for fifty seconds.

In a thousand amusement parks, traveling carnivals and summer resorts all over the land, happy masochists annually spend close to $100,000,000 having a wonderfully painful time.

The manufacturing of these weird machines, of these Octopuses and Caterpillars, these Tilt-A-Whirls, Whips, Dodg'ems, Skooters, Loop-O-Planes, Ferris wheels and Tumble-Bugs, is concentrated in the devilish hands of less than a dozen Torquemadas, who, in peacetime, turn out from five to ten million dollars' worth of these instruments annually. Most of these gentlemen—like Mangels, who turns out Whips, or Sellner, who makes the Tilt-A-Whirl—are very quiet and peaceful persons. When you talk to them, you get the impression that it is the ingenuity and novelty of the profession that intrigues them.

They have got so used to the rides that the severity no longer frightens them. McKee, for instance, will personally test most of the severe rides in the early morning every day. A large park like Palisades offers a wide gamut of rides. Palisades has thirty-eight, which require at least two hours to experience. Every amusement park, no matter how small, will usually have a merry-go-round, a roller coaster, a Whip and a Dodg'em or Skooter.

The merry-go-round is the nucleus of the park, they all agree. It's not exclusively a children's ride, either—about 40 per cent of the equestrians being more than twenty-one—but it is, on the whole, a mild and peaceable journey, even for children. And yet the whirling horses, with the glass jewels on their harness and trappings, with their painted saddles and leather straps, with their raised forelegs and huge eyes, with their brass rings and the orchestrion blaring an exuberant melody, these are all an integral and basic part of the Mardi-gras atmosphere. The merry-go-round is also the most ancient of all amusement devices. The Romans had merry-go-rounds in the age of the emperors, and there is a miniature bronze carrousel—patinated by green mold—in the Roman-sculpture court at the Metropolitan Museum of Art in New York.

The carrousel—and the correct spelling of the word is not "carousel"—as we know it, was developed by the French around 1660 as a game that imitated the medieval tournaments between knights. The word "carrousel" means a jousting match. The tradition that the riders on a carrousel must be astride horses will not down. William P. Mangels, one of the largest manufacturers of merry-go-rounds, says that over the years people have tried putting roosters, lions, tigers, giraffes, stags and camels on the circling platforms, but the new generations of children always like the horses best.

The amusement-ride business was founded in Philadelphia by G. A. Dentzel, whose father, Michael Dentzel, a German immigrant, had brought the first carrousel to this country in 1814. G. A. Dentzel built the first domestic merry-go-round in 1867. The horses were carefully carved by hand, the platform was powered either by steam or by a living horse, and the ride at evening was illuminated by eighteen kerosene lamps. The Dentzel family continued to make merry-go-rounds until 1927, when the last of the family, William, died and the factory was dismantled. Today, the carrousel—or "flying jinny" as she is known in the trade—is lighted by as many as 2200 electric bulbs, and the modern horses are often cast aluminum. You can buy a fairly nice carrousel for $10,000—including the band organ and motor—but if you want a really fancy job with all sorts of imitation jewelry on the horses, and if you want "jumpers"—that is, horses that move upward and downward on a brass pole—then you may have to invest as much as $40,000.

Amusement-park operators agree that the most popular and profitable ride ever invented is the roller coaster, under any of its fantastic names—that is, Thunderbolt, Skyrocket, Zephyr, Mile Sky Chaser, Cyclone and Giant Racer. Harry J. Batt, who has been operating

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RIDE 'EM AND WEEP

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Pontchartrain Beach, outside New Orleans, for more than twenty years, says, "The Zephyr is our biggest ride. Nothing can ever equal the good old roller coaster for thrills and excitement. An operator is interested in volume and rerides, nothing else. On the average ride—a Skooter or a carrousel or an Airplane Swing—when the ride is over, you have to stop the machinery, unload the riders and load up the new crop. So you got to figure on a dead period.

"But the coaster is in continuous operation. While one train of cars is being unloaded, your two other trains are in operation, completing their rides. The coaster never stops. Also, the capacity is bigger, and you get the most rerides. We figure about sixty per cent of our patrons will take a reride on the coaster. On a good hot Labor Day we can ride ten thousand people on the coaster, and we've done as much as twenty-seven hundred dollars in business on that ride alone in one day."

What seems to make the roller coaster the most zestfully dangerous of all rides is that it involves a speedy rising and falling motion, and also that the car is, so to speak, not under any control, but is proceeding by gravitational pull. The cars of the coaster are drawn up to the high point by a conveyor hoist and, from that point on, they are on their own. After the first drop or dip, the cars gain enough momentum to proceed uphill and downhill all the rest of the way. It is comparable to the sensation of coasting in neutral when you're in an automobile going down a steep circular mountain trail with a sheer precipice on both sides and no brakes in the car.

The human animal is a perverse creature. Dr. Louis Berg, a psychiatrist who has studied this aspect of personality, points out that we seek not only security but also insecurity. "From childhood on," Doctor Berg says, "the human being likes to flirt with danger. Every child likes to be thrown into the air. It will scream in terror, and yet ask you to throw it up again. The child likes to skirt the edge of danger. It is a kind of secure insecurity. And an amusement-park ride must always be dangerous, and yet safe. This tendency goes so deep that I would call it a prepotent reflex, an instinct to seek mild suffering. More people are masochistic than sadistic, really. For the adult to go on a roller coaster is for him to experience a pattern of emotions which brings him back to the 'secure insecurity' of childhood, and this is one of the sources of the perverse pleasure attached to riding on a roller coaster."

This question of the danger of rides baffles most of the men in the industry. Some of them say that an accident actually booms business. Now and then, a drunk or a youthful bravo stands up in the car as the coaster takes the dip, and is flung out to his death. In some parks, there will be a long line of customers at the ticket office the next day. In other places, business will drop off for weeks afterward until the accident is forgotten.

Frequently, also, just like children overdoing a severe game of being thrown into the air, a rider will go on the roller coaster once too often and, in the case of women, will develop a lovely case of hysterical tantrums. Every amusement park has a nurse and first-aid station.

Contrary to the popular notion, shy young lovers aren't the only ones who ride the roller coasters. A good percentage of the customers are singles who ride again and again for a thrill.

The shy young lovers are, of course, a mainstay of the amusement-ride industry. And the imagined dangers of the roller coaster provide the conventional girl with a respectable excuse for seeking the arms of her escort. "We figure," said McKee, "our rides promote about a dozen cases of matrimony every season. A steep roller coaster is the greatest matchmaker in the world."

In 1938, a boy and a girl who had met at Palisades Park, and whose love had first awakened during a dip on the coaster, were actually married on the scenic railway there. The management provided a justice of the peace, a ring, a license, and promised the couple a honeymoon in Bermuda and furniture for an apartment

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"It's about my salary; a gross inequity exists!"

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if they would go through with the stunt. As the newsreel cameras churned, the couple, the justice and the witnesses went around and around. For the sake of the cameras, it was necessary to rehearse the action quite a few times. By the time the ceremony had been completed, the cars had gone around a dozen times, and when it was all over, the face of the justice of the peace was thoroughly white and his eyes had a greenish glaze.

Hundreds of dollars in small amounts of silver are lost each day by the customers as they are whirled, twirled, swirled and gyrated. These are called "drop-outs," and are considered a perquisite of the attendants on the ride. Brassières, shoes, false teeth, toupees, eyeglasses, bracelets and rings are also wrenched away by the centrifugal and gravitational pulls. During a five-month season, Palisades collects more than 10,000 lost hats, which are given to the Salvation Army.

Gradually, the rides have tended to evolve in the direction of greater speed, more violent and perpendicular dips, and more bizarre movements and novel twists. During the 1890's, the most popular rides were the scenic railways and the "dark rides," such as The Old Mill, invented by E. C. Boyce. The scenic railway, in which patrons originally sat lengthwise, parallel with the tracks, was a slow ride at a pace of fifteen miles an hour, with gentle dips, and its main appeal was that it offered the riders a chance to see the park, the ocean or the countryside. Frequently, operators ran a scenic railway through a tunnel, and picturesque scenes were painted on the walls.

The Old Mill was a long ride through a dark tunnel. Outside, a large wheel churned up a foam and provided a current in the stream in which the boats scudded. It was considered dashing for the gay blade to reach out his hand and stop or slow up the boat. The dirt which the swain's fingers gathered was soon transferred to the girl's face, and when the boat finally emerged into the sunlight outside, the crowd would shout, "Look at 'er face!" and the embarrassed couple would frantically run down the midway, the girl hurriedly dabbing at her face with a handkerchief.

Henry Ford's contraption and the widespread popularity of the automotive petting party soon made the Old Mill obsolete, and today most amusement parks have ripped out their Old Mills and their scenic-railway rides. Meantime, however, the roller coaster was getting faster and dropping deeper. The ultimate in recklessness was the Loop-the-Loop, developed by Elmer Preston in 1901 at a cost of $400,000. In this version of the roller coaster, the car raced down an incline at a wild speed and was whirled into a complete vertical loop which stood everybody upside down. The ride was a masterpiece of the engineering art, and before it was opened to the public, sandbags were loaded on it for the preliminary test. All new rides are first tested with 140-pound sandbags—known to the industry as "dead men"—and they are then tried by the engineers and ride men. The Loop-the-Loop passed all tests, and it was even demonstrated that a glass of water could be carried on the trip without spilling a drop. The ride was tried at Coney Island and other parks, but it was unprofitable and failed. The capacity was too limited, only one car being able to make the loop at any one time. The investment in a coaster is so heavy—from $75,000 to $150,000 for an ordinary one—that it must do a large volume to make up its cost.

Today, the roller coaster gives you an average first dip of seventy to ninety feet, and it gives you speed. The lengthiest part of the ride is the "hoist"—the drag up to the first dip. From then on, the coaster really coasts. At the Skyrocket at Palisades, for instance, you travel its 2800 undulating feet in about thirty-two seconds.

New thrills, new variations of the old principles are always in demand. Jimmy Onorato, manager of Coney Island's Steeplechase Park, says that a large amusement park has to come up with at least one novelty every season. At Steeplechase, the newest feature is the Parachute Jump, in which you are seated under a large parachute and drawn up about 200 feet and then dropped with a sickening "voom" until the parachute balloons out. The War Department adopted the Parachute Jump to train paratroopers. Strangely enough, the first ride a paratrooper takes when he visits Steeplechase is the Parachute Jump.

Similarly, the first ride a professional jockey will take when he visits this famous old park is the Steeplechase Horse Ride. This is a gravity ride, in which four horses ride on four parallel tracks, each horse loading two customers. The ride is actually an unpredictable race—but the race is not to the swift, or to the lean, or to the jockeys, but to the fat. The fatter and heavier the rider, the stronger the gravitational pull, and the quicker the horse will go. Aware of this fact, the quick-thinking racket boy will entice a sucker to bet fifty or a hundred dollars that he and his girl friend will beat the sucker and the sucker's girl on any horse, and he will give the sucker his choice of the horse. The wise boy has made sure that his girl friend is a hefty type, a 175-pounder, if possible. The sucker thinks the wise boy is out of his mind, especially with a handicap like Miss Elephant. But no matter which of the four horses he rides, the wise boy will always win.

Based on the same gravity principle, Henry Elmer Riehl, a construction engineer, invented a ride involving a circular car whirling down a twisted incline. He named it after his daughter, Virginia, and it is now one of the most popular rides—the Virginia Reel.

The round-and-around principle which makes the carrousel eternally popular was adapted and varied in the Whip, which Mangels developed in 1914. The principle of centrifugal force has been used in such rides as the Chair-O-Plane or the Airplane Swing, in which the seats, instead of being set on a platform, hang from the roof of the ride and, as the roof is rotated, the chairs or the airplanes swing out in a circle.

Centrifugal force is also a handy factor in the Loop-O-Plane, perhaps the biggest attraction in the traveling carnivals today. Developed only within the last ten years, this is simply a car shaped like the body of an airplane and suspended from a steel tentacle, which is moved to and fro, swinging the passengers in ever-increasing arcs until they are making a complete revolution and are hanging straight down, being glued to their seats only by centrifugal force.

The invention of the Whip in 1914 gave the "flat ride" a new lease on life. In 1918, Stoerer, an amusement-park operator in Salisbury Beach, Massachusetts, invented a small self-propelled car which he called the Dodg'em. About twenty of these small cars, which can be steered and guided in any direction, are caged up; when the attendant turns on the juice, the riders can bump and collide with one another and have an uninhibited time. The Lusse Brothers in Philadelphia developed a ride along similar principles called the Skooter. Skooter and Dodg'em are second to the roller coaster in popularity in most permanent parks. The trend is to rides that the rider can control. There is now a boat ride called Water Skooter, with small boats driven by the passenger, and an Airplane Swing ride, Spitfire, in which the rider can manipulate a stick and do a belly roll whenever the mood is upon him.

Many rides, says McKee, are dreamed up by amateurs. Flying Turns was invented by a garageman in Chicago. The Bobsled ride—a violent version of the coaster theme—was conjured up by the owner of a large tennis court in Queens, New York, during a long lull in business. A textile manufacturer from Pennsylvania named Ramm got the idea for the Cuddle-Up ride while watching a weaving machine in operation. Most of the ideas turned out by the amateurs, though, are highly fantastic. A chap in Puerto Rico got a patent on a Ferris wheel which featured several inner circles of cars, in concentric fashion, but he forgot to work out a method of getting the passengers into the inner cars. A certain Simpson, in 1888, patented a circle swing in which each car was equipped with sails and got its locomotion from the winds. Norman Bel Geddes, the eminent designer, once dreamed up a whiz of a gravity coaster, which was a car suspended from a monorail. It was tried out at an Eastern amusement park, at a cost of $150,000, and it failed. A Chicago World's Fair ride of which you don't hear much any more was one in which the passengers traveled in a balloon car between two towers. The same oblivion befell a circle-swing type of ride in which passengers, seated in cars shaped like pursuit planes, shot at bombers with toy machine guns. It was probably ahead of its time.

Sometimes the fantasy can be developed into a practical device. When Herbert W. Sellner was a small boy, he liked to build his own miniature trains and he fooled around with steam engines. Later, he got interested in rides, and conceived the idea of a nautical merry-go-round—a group of boats arranged in a circle and attached to a central platform by sweeps. The boats would actually be placed in the ocean, and be powered by outboard motors. Tried out at a beach, the device proved impractical—the high waves wrecking the boats. Sellner kept on experimenting. He transferred the idea to land, an undulating circular track now supplying the wavy motion. A diabolic touch here and there, and the Tilt-A-Whirl finally was achieved. It made its debut at Wildwood Park, St. Paul, in 1926, and it was an instantaneous sensation. Costing only $7500, the Tilt-A-Whirl grossed $30,000 for a carnival the first season. Since then, the Sellner Manufacturing Company has produced more than $1,000,000 worth of these sadistic machines in its pleasant, lawn-bordered shop in Faribault, Minnesota.

W. E. Sullivan, who founded the Eli Bridge Company in Jacksonville, Illinois, fifty years ago, had no intention of ever dabbling in applied torture. He just wanted to make nice wholesome bridges. Nobody cared to buy Mr. Sullivan's bridges. Then a friend who owned a carnival told him about the need for sturdy, but portable, Ferris wheels, and Mr. Sullivan, with a sigh, turned to Ferris wheels. Today, the Eli Bridge Company is the leading Ferris-wheel manufacturer in the world, and has sold close to $5,000,000 worth of wheels, many of which were exported to amusement parks in Europe. One type of Eli wheel car is so spacious that the operator of an amusement park in Los Angeles recently discovered he could convert it into a small dwelling, and he has rented out his Ferris-wheel cars as cottages—the most novel solution of the housing shortage to date.

The industry is a little troubled about the postwar picture. Many operators feel that not a few servicemen, after having experienced so many real dangers in battle, will be bored and jaded by the same old rides when they return. The most annoying remark they can hear is when a patron says, "That ride was too tame; just a trolley ride." So the manufacturers are brooding about all sorts of new tortures.

William P. Mangels, however, is skeptical of change. In his large one-story brick factory in Coney Island, Mangels has been building carrousels and Whips for nearly sixty years. He is an old, wrinkled, serene man. He puffs broodingly on a cigar and says he has seen very little fundamental change in rides since 1900. "The new generations are always growing up," he says, "and they are always discovering for themselves the same old rides, the same old thrills. No, you can't ever change that. These rides are as old as gravity."