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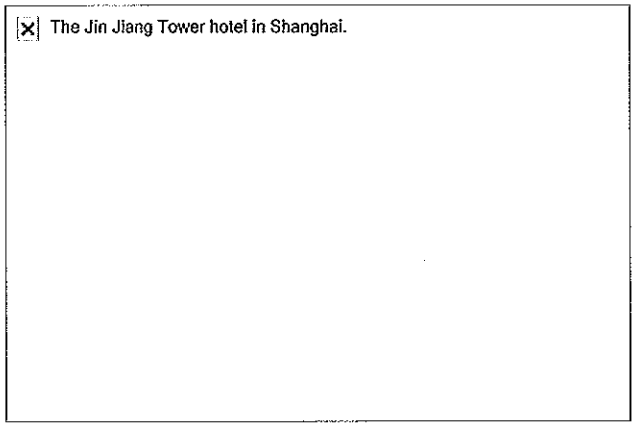
Revolutionary Restaurants

How they perfected going in circles while you eat

By Charles W. Ebeling



The Jin Jiang Tower hotel in Shanghai.

The Jin Jiang Tower hotel in Shanghai.
(Bojan Brecelj/Corbis)

Around 1960 John Graham, Jr., a Seattle architect best known for large shopping centers, proposed a tower with a restaurant on the top for the new Ala Moana shopping center in Honolulu. The tower soon changed to a 23-story office building, and a restaurant high up in an office building was nothing new, but this one would be different. Graham later recalled that his partner, Jim Jackson, suggested that the restaurant be made to rotate, so that diners could enjoy the entire panoramic view, from the mountains to Waikiki.

It was an intriguing idea, but not a simple one. How could it be managed? At first glance the way to do it seemed to be to install the restaurant in a separate round casing on top of the main building and rotate the entire structure. But that introduced serious engineering problems. The load to be carried would be excessive, as would the forces created by wind. The alternative was to rotate only the dining area, keeping the peripheral walls, the ceiling, and the central service areas stationary. This approach would have its own challenges, including figuring out the speed of rotation people could handle while dining and stepping on and off rotating areas.

Graham's engineers proceeded to design a 16-foot-wide cog-driven turntable, ring-shaped like a doughnut. Unlike smaller turntables and merry-go-rounds, it couldn't be powered from a central shaft, for the center of the ring wouldn't be rotating. Rather the doughnut would be mounted on flanged wheels riding on a circular track under its flooring. Food would be prepared in a kitchen on the floor below and elevated to the immobile central service area by a dumbwaiter. La Ronde opened in 1961, and in 1964 Graham obtained the first U.S. patent for a revolving restaurant.

The Ala Moana project was the world's first, but Graham's second revolving restaurant was what really popularized the concept. During the planning for the Century 21 Exposition, Seattle's 1962 World's Fair, the fair's chairman, Edward E. Carlson, suggested erecting a tower with a restaurant on top. His inspiration came one night during a visit to Stuttgart, Germany, when he and some friends were dining in a restaurant atop the 712-foot-high Stuttgart Tower. The chimneylike structure was built of reinforced concrete with elevators inside that provided access to a multilevel barrel-shaped restaurant. It didn't revolve, but Carlson was tremendously impressed with its spectacular view of the old city. He brought back postcards of the tower to show his colleagues working on the fair plans. Eventually they decided that such a tower could not only become a symbol for the Seattle fair but also remain long after the exposition

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ended. John Graham was retained as the architect. When shown a rough sketch of the proposed tower, without hesitation he said, "Let's make the restaurant revolve."

He designed a disk-shaped restaurant similar to the one at Ala Moana, but this one would ride at the top of a tall, slender tower, rather than a bulky building. Up there a five-story structure would contain the restaurant, mezzanine, observation deck, and elevator machines. To shade the windows, he designed a large "halo" disk to overhang the restaurant deck. Above the five-story structure a needlelike spire rose to increase the tower's overall height to 605 feet, making it the tallest building west of the Mississippi. It inspired the name Space Needle, and the revolving restaurant was called Top of the Needle, and then Eye of the Needle. The structural design had to be more complicated than that of the Stuttgart Tower, since the 94.5-foot-wide revolving restaurant extended far out from the slender central column.

Stacks of design sketches piled up as the unique shape gradually took form. The restaurant was located 500 feet up, and it was several times the size of the Honolulu one. Two glass-windowed elevators, riding on the outside of the column, carried as many as 32 people each at up to 800 feet per minute, averaging just 43 seconds to reach the restaurant level. The turntable was a 14-foot-wide ring that traveled on a 125-ton wheel-and-track system. Built by the Western Gear Corporation of Everett, Washington, it was fully assembled and tested at the plant, then disassembled and shipped to Seattle. It was so finely balanced that it required only a one-horsepower motor. It made one complete 360-degree revolution an hour. The speed was barely noticed by waiters and guests as they stepped between the stationary and rotating areas.

The last place you'd expect to find one is in Pyongyang. It has three-and seven more left unfinished.

On opening day everything worked well except that the continuous rotation confused waiters and guests. Harry Mullikin, who was in charge of setting up the restaurant, commented, "When the waitress went into the kitchen she would come back out with no idea where her table had gone. Guests had the same problem. They would get up to go to the restroom but when they came back they couldn't find their tables." The dining area was eventually divided into four zones, with a color code for each. That still didn't help guests who discovered that the purses and bags they had left on the stationary windowsills by their tables were no longer there. A change to slanted sills was recommended for future rotating restaurants. Overlooking such small annoyances, diners were captivated by the constantly changing panorama of the Cascade Mountains, Puget Sound, and downtown Seattle. During the fair the 240-seat Top of the Needle served 3,000 meals a day. The original restaurant was later redesigned and reopened as SkyCity in 2000.

With success in Seattle, new towers with revolving restaurants began to spring up across the United States and around the world. By the turn of the century there were more than 100 major installations in 40 countries, three-quarters of them built by the Macton Corporation, of Oxford, Connecticut. The company's progeny include a restaurant 1,150 feet up in the CN Tower in Toronto, Canada, the tallest tower in the world, and the Top of the World restaurant at 832 feet on the Stratosphere Tower in Las Vegas. Each of the turntables must operate to very high standards. According to Macton, "It is called upon to function flawlessly for many years with minimum routine maintenance. And it must rotate so smoothly, so quietly, and so imperceptibly that the patrons are virtually unaware of the motion, except, of course, for the slowly changing scene."

The floors of Macton's doughnut-shaped turntables ride on underlying steel frameworks of circular and radial beams carried on casters that are specially designed to eliminate frictional vibration. They are propelled by a unique friction drive that consists of an annular metal strip attached to the framework and two stationary rubber drive wheels pressing against either side of the strip. Macton has built restaurant systems that measure from 20 to 140 feet across. Most of them revolve once an hour, but some have variable speed drives. It has been reported that a few of the restaurants increase the speed at lunch-time to encourage faster turnover of guests. They apparently grow restless when they arrive at a view they've already seen.

One of the first rotating restaurants abroad was the Revolving Bintang Restaurant, on the eighteenth floor of the Federal Hotel in Kuala Lumpur, Malaysia. It opened in 1963 and is still going today. A second one in Honolulu, the Top of Waikiki, opened in 1965, and it too remains in service. Many of the restaurants are, like the Space Needle, at the top of towers overlooking unusual scenery. Among them are the 520-foot Skylon, at Niagara Falls, San Antonio's 750-foot-tall Tower of the Americas, the 626-foot Calgary Tower in Canada, and the 826-foot Danube Tower in Vienna. When the 620-foot Post Office Tower in London (now the Telecom Tower) opened to the public in May 1966, the revolving restaurant on its thirty-fourth floor, the Top of the Tower, instantly became one of London's most popular tourist attractions. On October 31, 1971, a bomb exploded three stories below. No one was injured and no one was found responsible, but authorities eventually decided to close the tower to the public. The restaurant closed in 1980.

Rotating restaurants got a boost in 1967 when the Hyatt Regency Atlanta Hotel and its architect, John Portman, introduced a hotel atrium concept with one at the top. Passengers riding in glass-enclosed elevators passed through the atrium roof into the blue-domed restaurant. It was a smash hit, and atriums with revolving restaurants and cocktail lounges began to be included in new Hyatt Regency hotels around the world.

In 1994 a 672-foot-tall tower topped with an observation deck and revolving restaurant was erected in Baghdad, replacing a communications tower destroyed in the Gulf War. It was named the International Saddam Tower; the name was dropped the moment American soldiers occupied it in 2003. In Kuwait the 1,220-foot-tall Liberation Tower,

completed in 1996, following the country's liberation from Iraq, also has a revolving restaurant. It is Kuwait's second. The first one opened in 1979 on top of a huge water tank within the 613-foot-tall main tower of the nation's water-storage system.

Probably the last place you would expect to find a revolving restaurant is in Pyongyang, North Korea. The city has three of them atop hotels, and the still-unfinished Ryugyong Hotel, 105 floors high, is supposed to have seven revolving restaurants, but major structural problems and lack of funds caused it to be abandoned in 1992. Today the massive building sits empty, its many restaurants immobile.

The novelty of revolving restaurants may have worn off in the United States. No major restaurant has been built since the Top of the World in the Stratosphere Tower in Las Vegas, which opened in 1996. But the concept continues to flourish in Asia, Africa, and the Middle East, where it remains a powerful symbol of technological and economic progress. By the end of the century the original La Ronde restaurant in Honolulu had closed to be replaced by an office, leaving the SkyCity restaurant in the Space Needle as the oldest one still in operation. After 45 years it is still a big tourist attraction, drawing some 300,000 visitors annually. In April 1999 the Seattle Landmarks Preservation Board recognized just how much of an institution the Space Needle with its SkyCity restaurant had become. It designated it a official historic landmark.

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