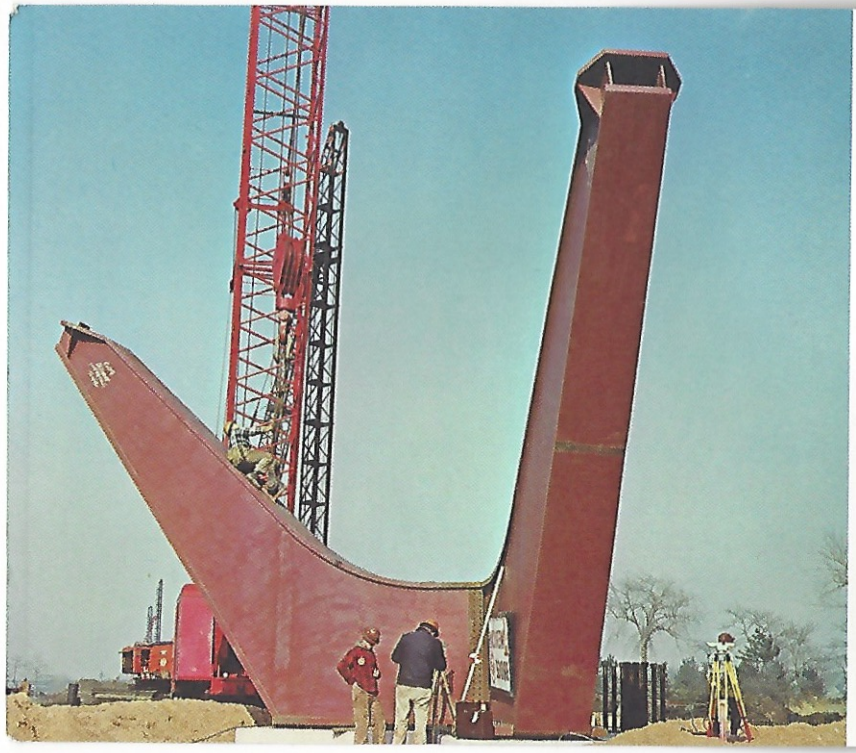
UNISPHERE®

...greatest world on earth

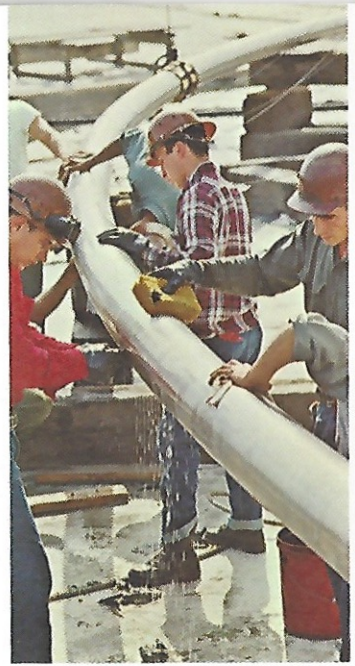


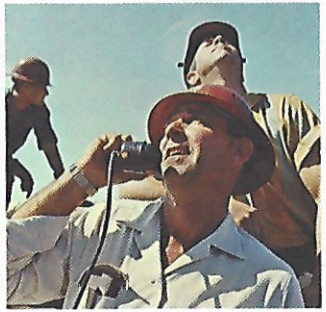
Unisphere, which towers 140 feet over a circular reflecting pool, was built and presented by U. S. Steel to the 1964-1965 New York World's Fair as the symbol of the Fair and as a permanent monument for Flushing Meadows Park. The largest replica of the earth ever constructed, Unisphere involved unprecedented design, engineering, and construction problems.

A mile and a half of meridians, parallels, and orbit rings frame this stainless steel planet and support its continents. All told, more than 500 major structural pieces were assembled to form a 120-foot diameter armillary sphere on a 20-foot base, at a total weight of nearly 900,000 pounds.

All this stands as an open sculpture with virtually every part exposed: exposed to view and exposed to weather.

For permanent, weatherproof beauty, the designers chose stainless steel for the land masses, parallels and meridians of Unisphere. The three-point base that supports the sphere is USS COR-TEN low-alloy high-strength steel which has unusually good atmospheric resistance. Each corner of the base is anchored to the foundation with bolts of USS "T-1" Steel. This remarkable constructional alloy steel has a minimum yield strength of 100,000 pounds per square inch — almost three times that of regular carbon steel — that can result in up to 50 per cent savings in weight. Three stainless





steel orbit rings that circle Unisphere are anchored by thin stainless steel aircraft cable, barely visible from the ground.

Structural support presented unusual problems. The spherical shape would impose enormous loads on curving structural members. Yet these members could not be thick and could not be cross-braced without detracting from Unisphere's beauty. Even the pedestal that would support the entire sphere had to be gracefully slender.

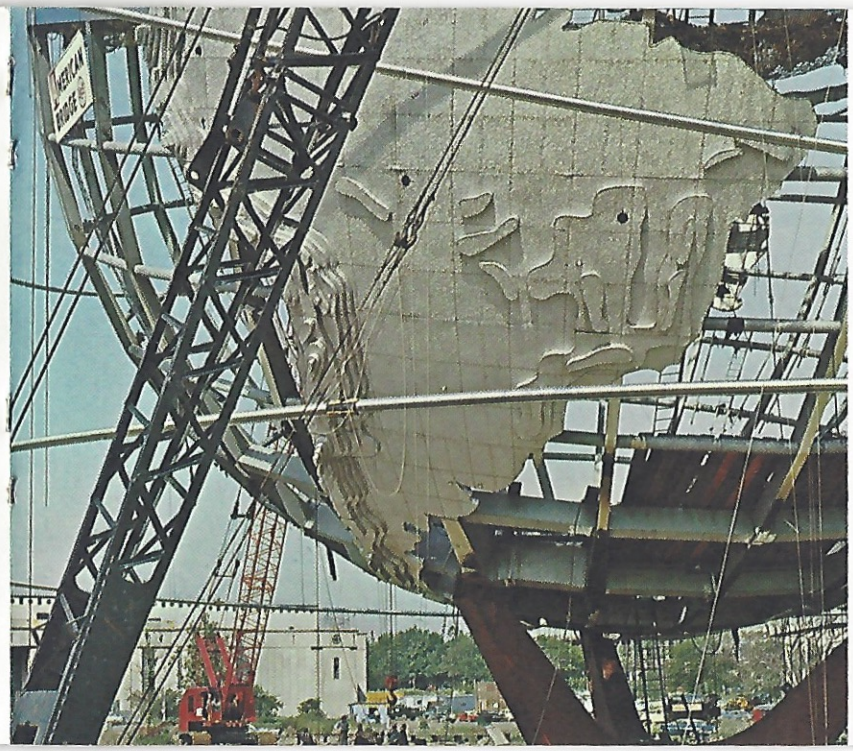
But the most formidable problem was wind load. U. S. Steel knew that the land masses would act like huge sails in the wind. So wind and weight factors had to be carefully calculated to determine what structural strength each sec-

tion would require: a computation so complex that 670 simultaneous equations had to be solved for just one of three sets of calculations.

In its final design, Unisphere has ample strength and stability to stand up in a hurricane.

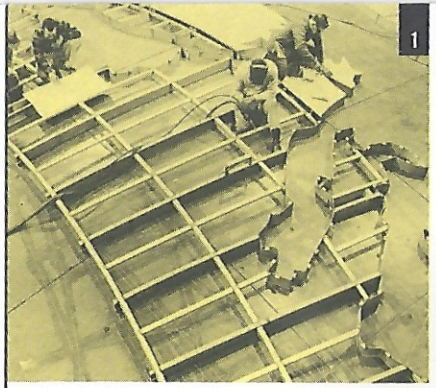
From beginning to end, Unisphere demanded entirely new techniques to solve entirely new problems, even after the unprecedented design and engineering questions had been settled.

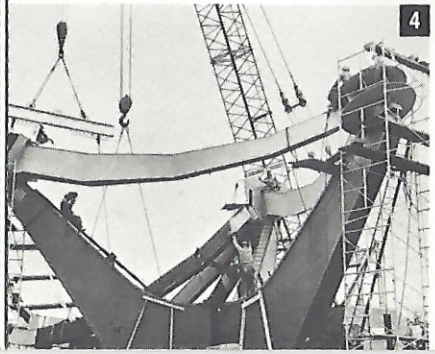
At no point could U. S. Steel engineers go to the book for their answers. There wasn't any book. But when the time came to put the pieces together, they fit perfectly. They fit



each other, they fit the theme of the New York World's Fair, and they fit the modern notion that no structural design problem is too tough to solve, given the right technical know-how, the right facilities, and the right steels.

To quote Mr. Robert Moses, president, 1964-1965 New York World's Fair: "What stronger, more durable, and more appropriate metal could be thought of than stainless steel? And what builder more imaginative and competent than United States Steel?"





1 Pre-fabricating stainless steel land area sections of Unisphere at United States Steel's Harrisburg, Pennsylvania, plant.

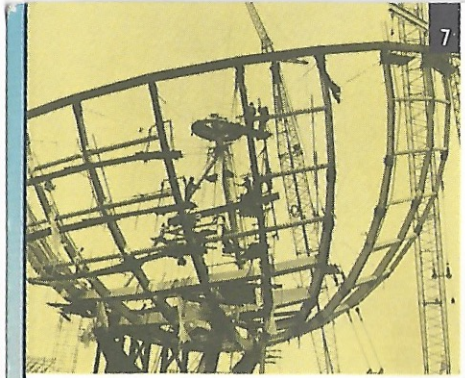
2 The first piece of steel for Unisphere, one of the "legs" of the tripod base, is hoisted into position.

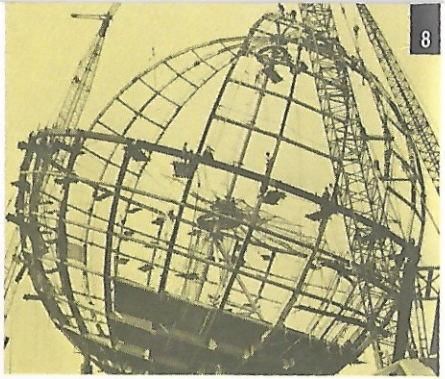
3 Tripod base of USS COR-TEN High Strength Steel is now in position as preliminary work starts on Unisphere.

4 First stainless steel pre-assembled unit is brought into place between the "support meridians."

5 Starting at the low side, pre-assembled units are moved into position as construction of the stainless steel globe progresses.

6 Temporary strut at right has been erected on polar axis to aid in supporting pre-assembled sections as they are positioned.





7 Equator ring takes shape as construction of Unisphere nears the half-way mark.

8 Background of the world is made of stainless steel as Northern Hemisphere sections of Unisphere are joined at North Pole.

9 Structural frame of Unisphere nears completion.

10 U. S. Steel workmen attach American flag to final structural steel assembly before erection.

11 Pre-fabricated land masses, shipped from U. S. Steel's Harrisburg, Pennsylvania, plant are placed in position.

12 Small holes (eventually covered) permit passage of stainless steel wires to hold three orbital rings. Unisphere is largest man-made planet representation.

United States Steel