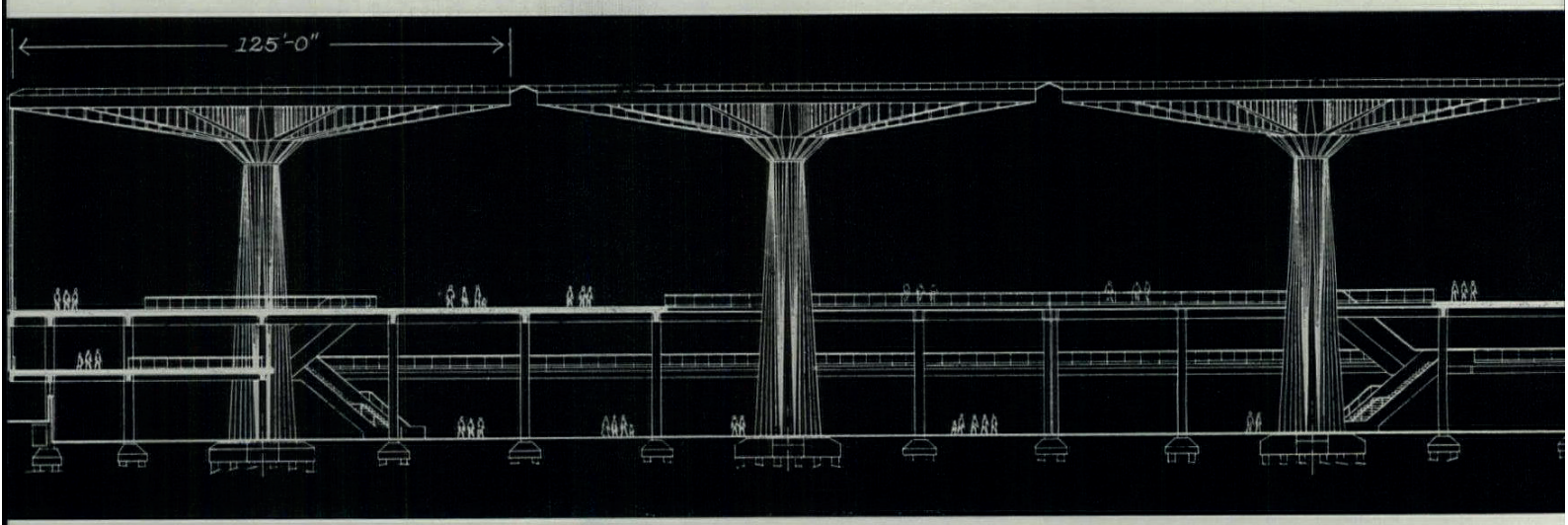
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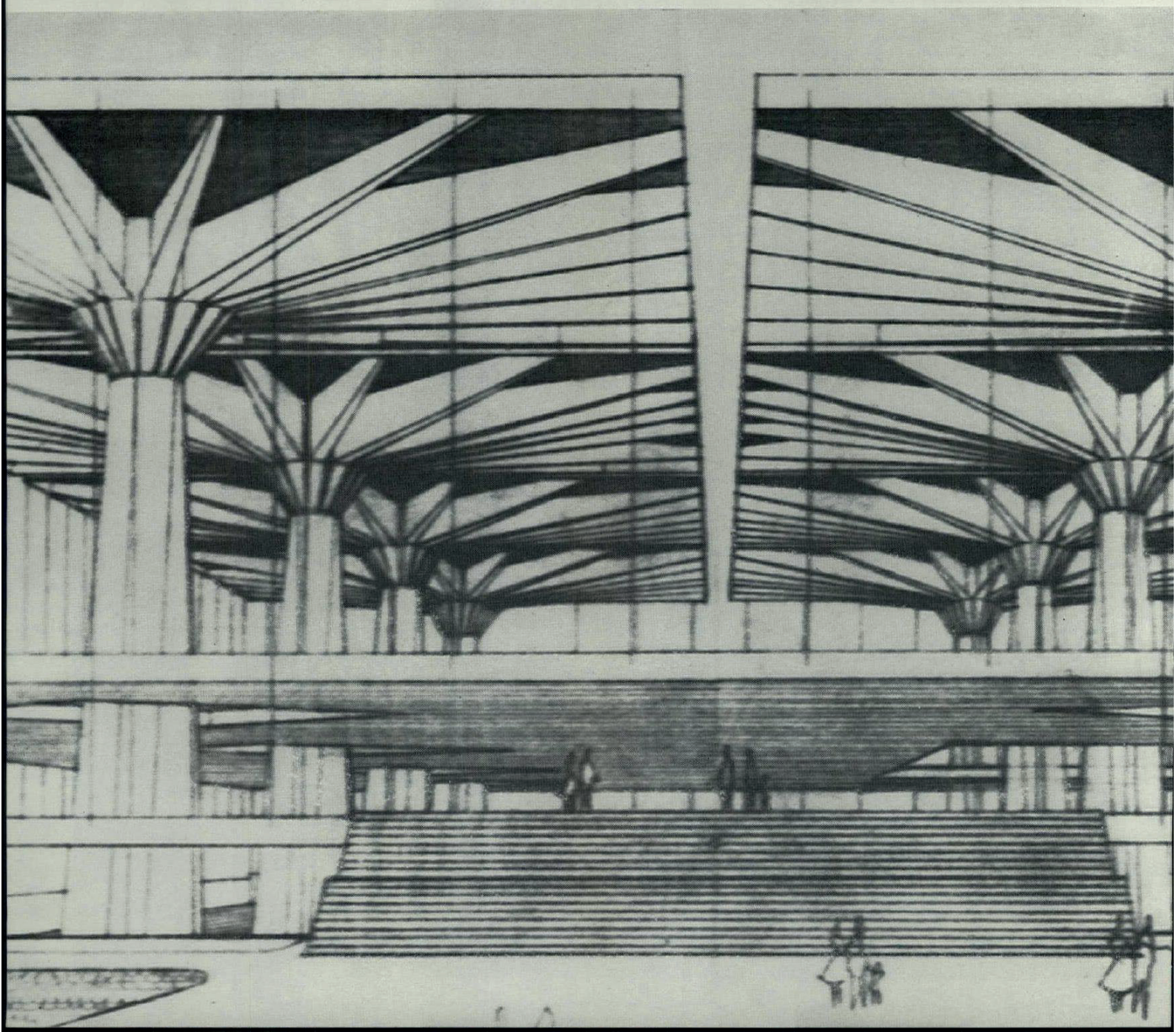
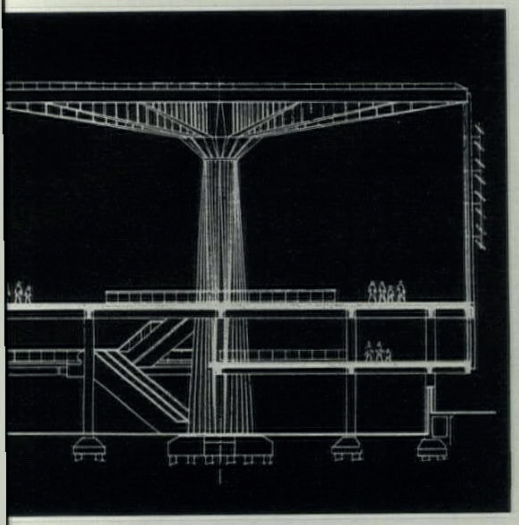
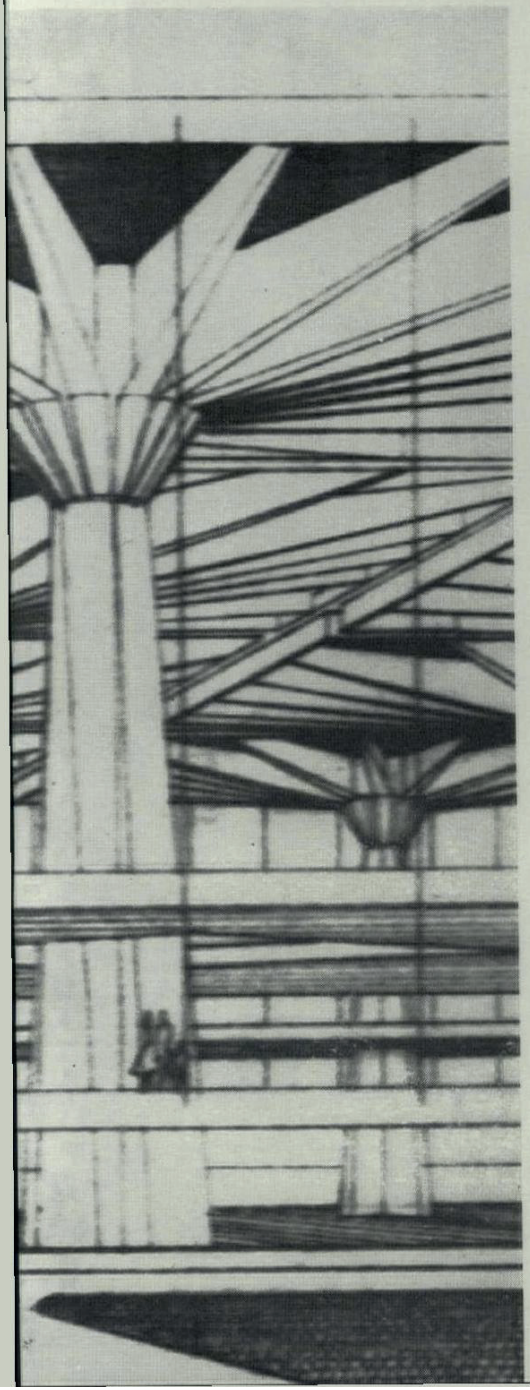
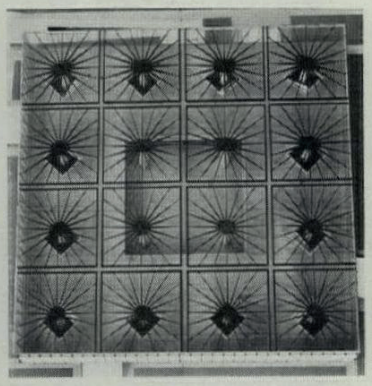


Concrete Parthenon

BY PETER BLAKE







OSCAR SAVIO

"Air view" of model shows a transparent roof, used here only to reveal the pattern of the structure. The actual roof will consist of 16 independent concrete slabs, separated by 6.5-foot-wide slots of glass.

Nervi's prize-winning design for the Palace of Labor at Turin is a surprisingly classical hall; a runner-up, a giant catamaran of concrete.

This is turning out to be a notable year for Pier Luigi Nervi, Italy's brilliant innovator in reinforced concrete engineering. He is about to receive the annual Gold Medal of the Royal Institute of British Architects. His three newest and greatest stadia near Rome (FORUM, March '58) will be focal points of the Olympic Games this summer. He is working on his first structure in the U.S., a bus terminal for Manhattan—see page 61. And he and his son, Antonio, have just won first prize in a competition for the design of the great, new *Palazzo del Lavoro*—Palace of Labor—to be erected in Turin this year.

The new palazzo is an important milestone in Nervi's long and remarkable career. It will be the largest enclosed structure he has ever built, covering some 580,000 square feet of floor space, and in form it will mark a new and unexpected departure for one of the great sculptors in concrete. What Nervi has done in this palazzo is to produce an extremely simple, classical building such as Mies van der Rohe might have done, and one far removed from the plastic type of structure for which Nervi is best known.

Before discussing the reasons for Nervi's "return to classicism," one must try to describe this fantastic palazzo. It is a square building measuring about 520 by 520 feet, and 75 feet high. Its flat roof is supported on 16 gigantic, cross-shaped columns, each of which carries a steel-ribbed umbrella structure topped by a concrete slab about 125 feet square. These umbrellas are entirely independent of one another, a fact which is dramatized by 6.5-feet-wide glass slots that separate each roof slab from the next. The building is enclosed with glass.

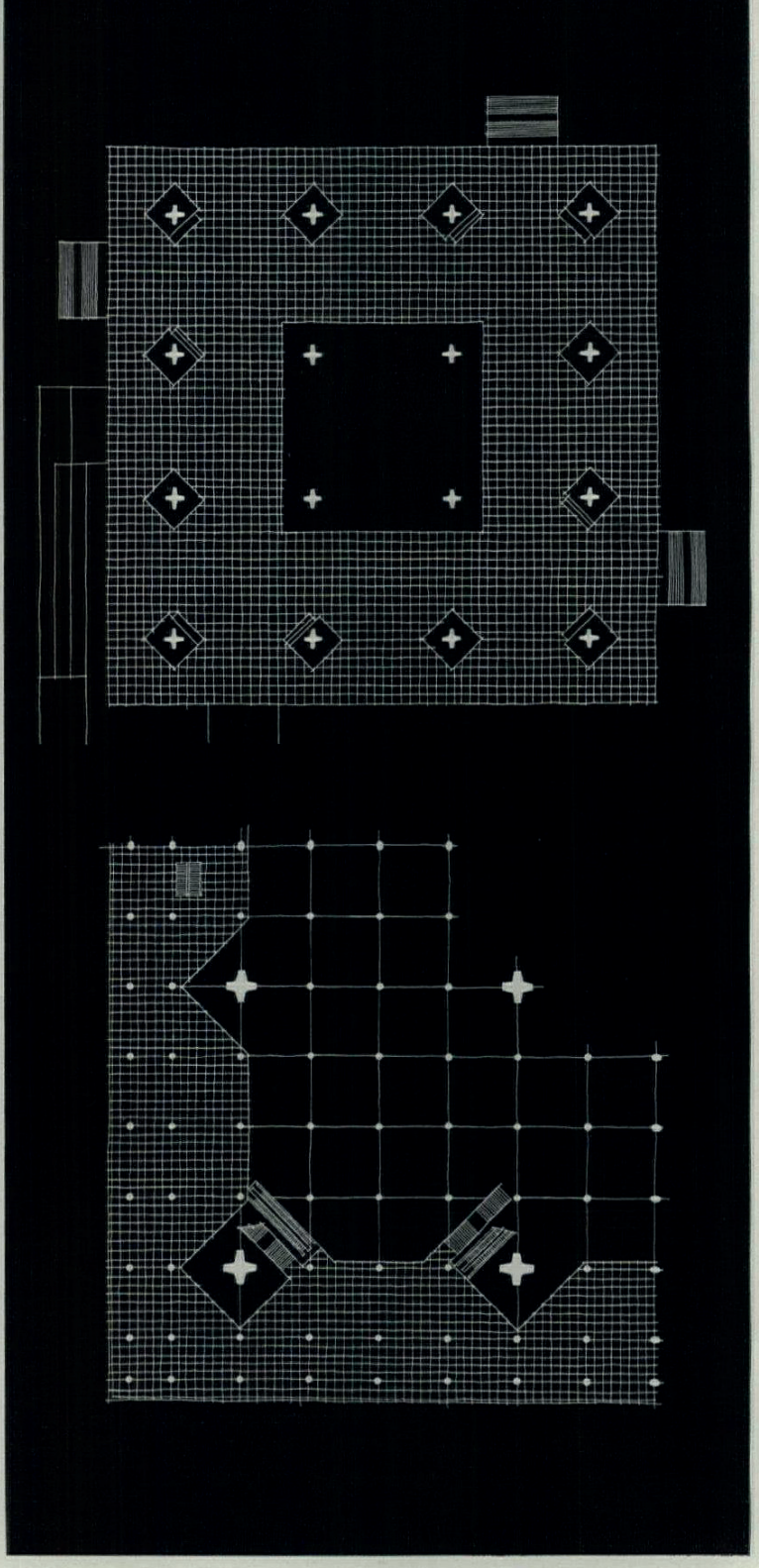
The palazzo has three levels: a main floor just below grade, and two mezza-

nines forming a gallery around a great, square well in the center. The mezzanine floors are independently supported on a more traditional column system. To make this fact quite clear, Nervi left all 16 of the huge, cross-shaped pillars entirely freestanding, 12 of them rising through 45-foot-square openings in the mezzanine floor slabs, the remaining four standing in the central well. These openings in the mezzanines are large enough to accommodate all vertical circulation, stairs as well as escalators. The pillars are tapered from a width of 18 feet at the base to 8 feet at the top to further dramatize their height.

Nervi had several reasons for making his palazzo so classically simple. To begin with, the building will house exhibitions, which require large, anonymous, open spaces. Second, a future use of the palazzo, envisioned in the competition, was as an industrial school, and for this a simple, rectangular structure seemed most easily adaptable. Finally, the building had to be completed in only 17 months, which made standardization of parts absolutely essential.

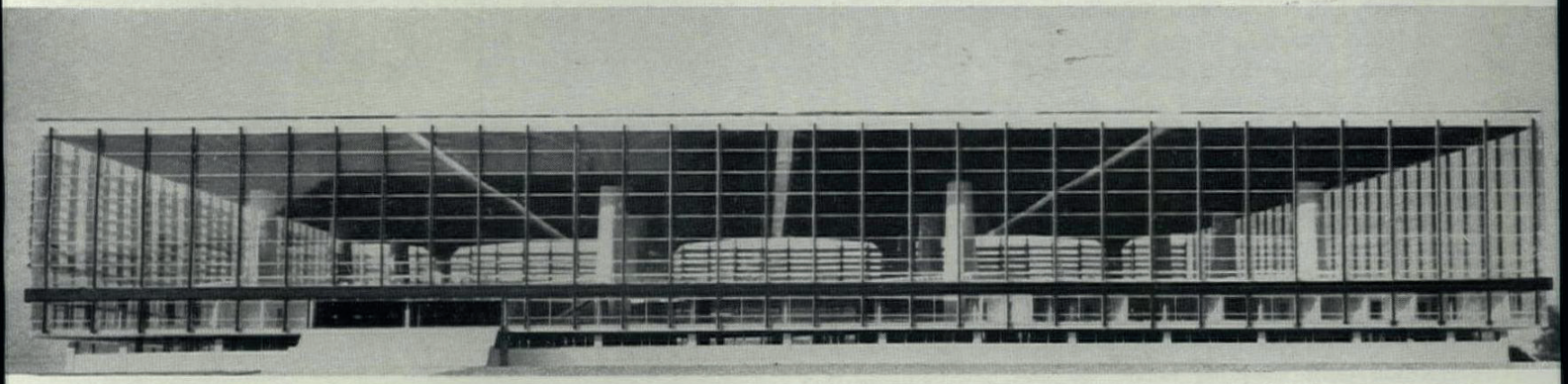
Thus Nervi seems to have arrived at the same sort of "universal space" concept long advocated by Mies van der Rohe—but he arrived at it by way of his own practical reasons. And in attaining the classical ideal of universality, Nervi produced a structure classical in proportions and scale as well.

There may have been another reason for Nervi's return to "classicism." For some time now, he has been one of the most articulate critics of certain "false and artificial structures . . . in modern architecture." He has called such buildings "eloquent examples of the most open antifunctionalism in statics and construction," and condemned the "arbitrary nature of their forms, which clearly run against the laws of construction." But, most importantly, he has reaffirmed an ethical basis of all architecture: "I have come to the conclusion," Nervi wrote last year, "that for all great structures, without exception, the indispensable premise for architectonic beauty is correct technique." Be that as it may, Nervi's palazzo has both the beauty and the correct technique.

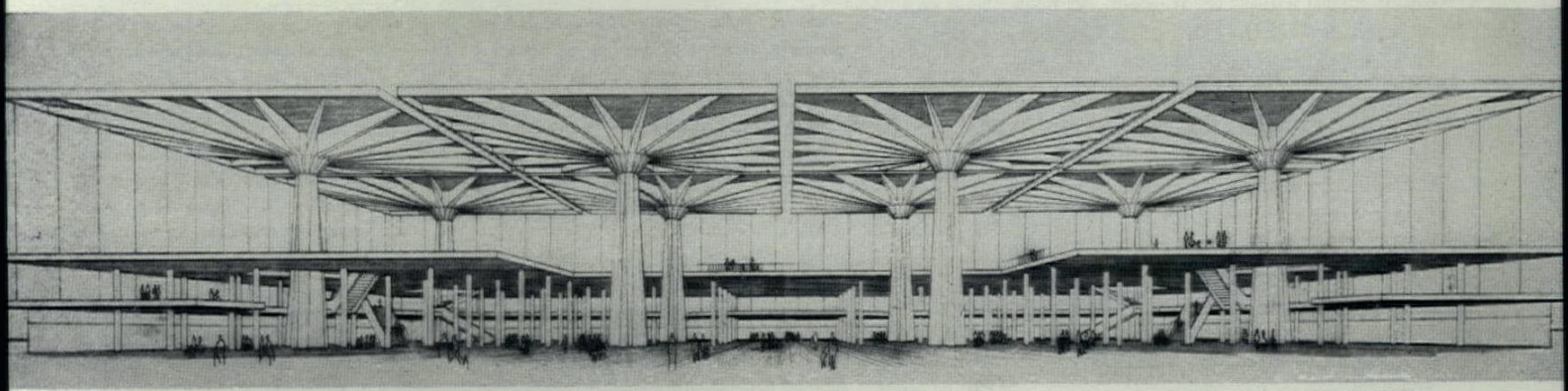


Plan of upper mezzanine (top) shows how Nervi left his great, cruciform pillars entirely freestanding: the four central pillars stand in the well of the building, while the remaining 12 pillars rise through 45-foot-square openings in the mezzanine. Detail of lower mezzanine (bottom) shows that openings are large enough to contain the stairs as well as 16 escalators, each with a capacity of 5,000 persons per hour. The mezzanines will be supported on a simple column-grid. Plan and elevation of one of the great pillars (opposite) show its tapering silhouette, from 18 feet across at the base, to 8 feet at the top. The umbrella ribs are of steel, with steel stiffeners required to resist buckling.

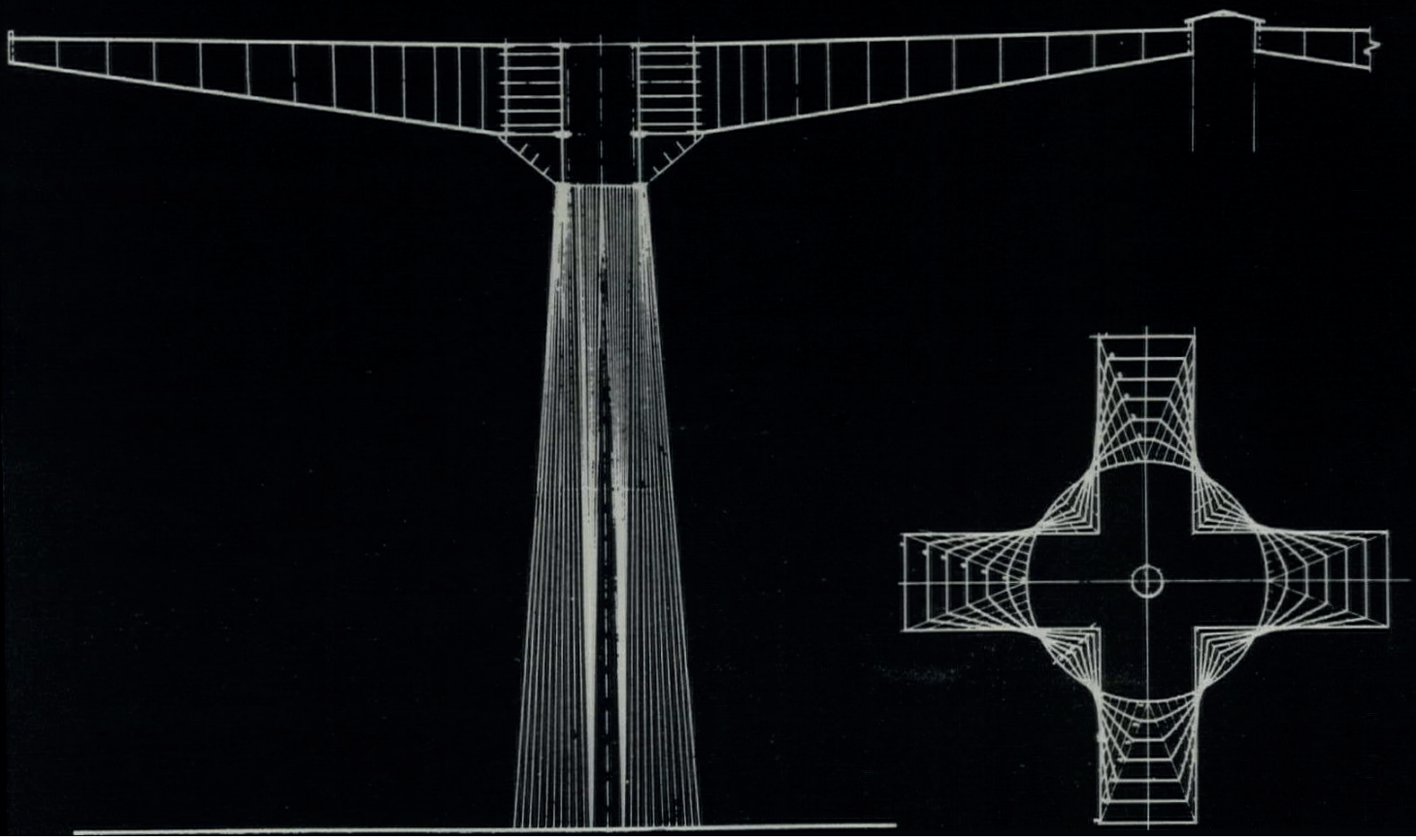
G. GHERARDI-A. FIORELLI



TEDESCHINI



Photograph at top shows exterior treatment of palazzo. Perspective is a cutaway view taken through the central well.



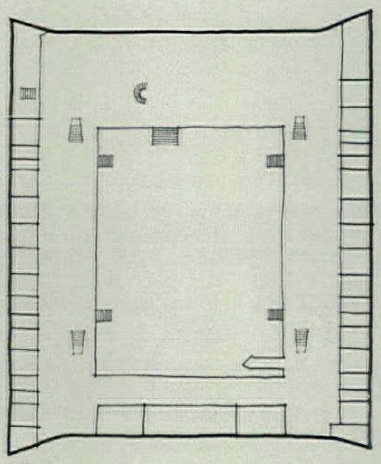
. . . second prize: a concrete catamaran.

A second prize in the Turin Palace of Labor competition went to plans submitted by the Architects Mollino and Bordogna, and the Engineer Musmeci. In over-all plan, the M-B-M project is fairly similar to Nervi's scheme but in structural concept, the two schemes are miles apart.

In fact, the M-B-M project was presented with three optional structural variations to allow selection of the one that could be put up most rapidly. All three structural systems involve a single vault spanning about 350 feet, using either concrete or steel, or both. At each end of the 350-foot span there is a flared and cantilevered extension of the structure to accommodate several galleries, running the full length of the building, which also are designed to contain classrooms if and when the palazzo is converted into an industrial school. The central span with its two cantilevered extensions looks like a giant catamaran, resting on its hulls.

The three structural variations are shown in the diagrams at right. Scheme A is entirely of concrete, with crossed arches forming a basket-weave ceiling. The thrust of the structure is discharged to the foundations through a series of concrete buttresses. Scheme B is a mixed structure: the side galleries are all concrete, but the central span is a space frame made largely of steel, suspended between the concrete galleries. Finally, Scheme C is another concrete structure; but in this scheme the great span is bridged by a kind of truss whose compression members are of concrete and whose chords are steel.

To some Italian critics, the M-B-M project represented a more accurate solution of the competition program than that submitted by Nervi. To outsiders, the differences in form between the two projects are of great interest: the classical approach of Nervi, versus the free-swinging, baroque approach of M-B-M. Both may be equally valid in terms of engineering, and there is probably a place for both directions. Here, Nervi, who can swing as freely as any poetic engineer, chose rectangular geometry and the jury agreed that his choice made better sense for an urban site and for the purpose at hand.



Plan at gallery level (above) shows possible division of peripheral spaces into classroom areas. Diagrammatic sections (below) reflect the three different structural systems proposed by Mollino and his collaborators: the top section shows an all-concrete structure with crossed arches. This is seen also in the model photo (opposite), which has a transparent roof for purposes only of explaining the structure—the actual roof has concrete planks alternating with slots of glass. The middle section (below) shows the central span bridged by a space frame, and the bottom section shows a concrete-and-steel "truss" system. The drawings on the opposite page give an impression of the architectural effect of these two alternatives.

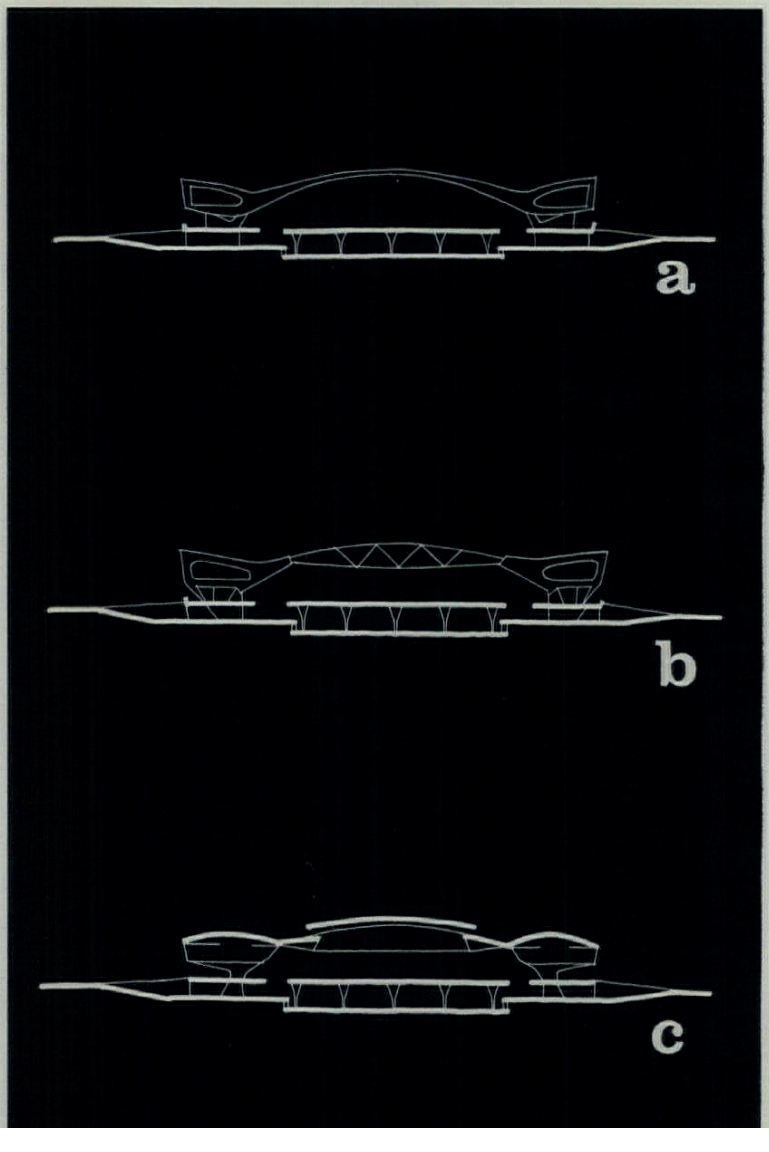
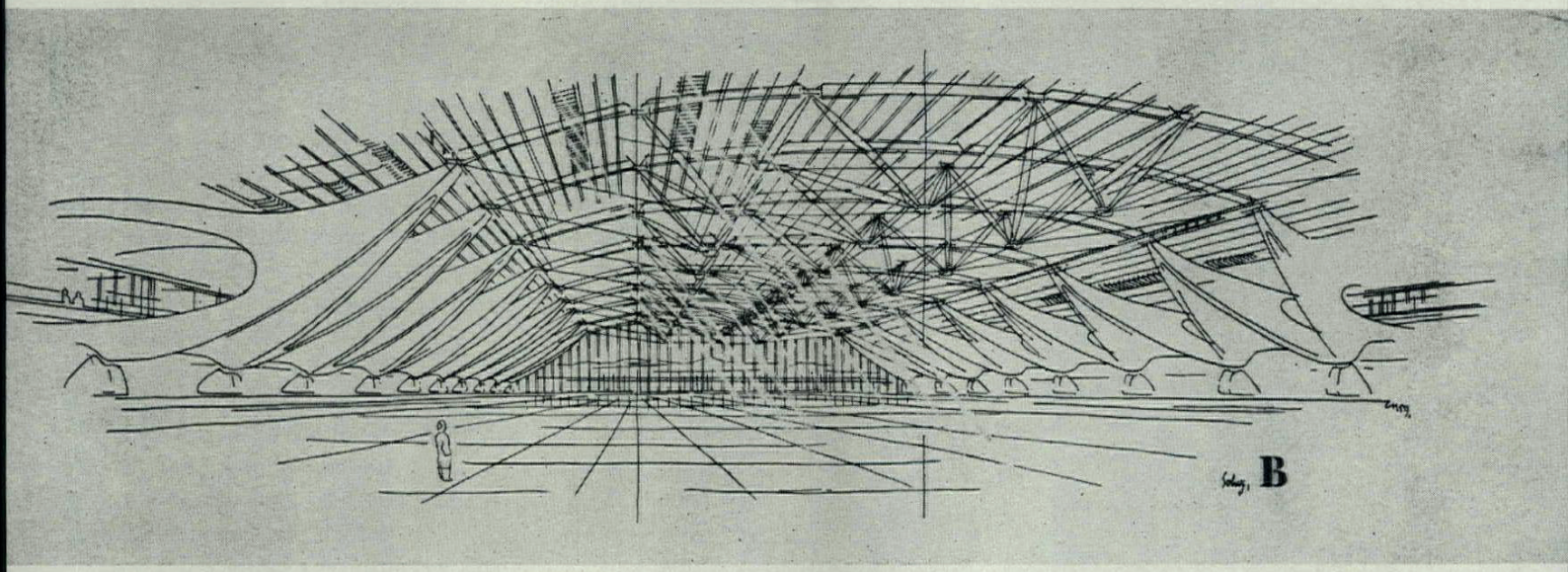


FOTO MOISIO



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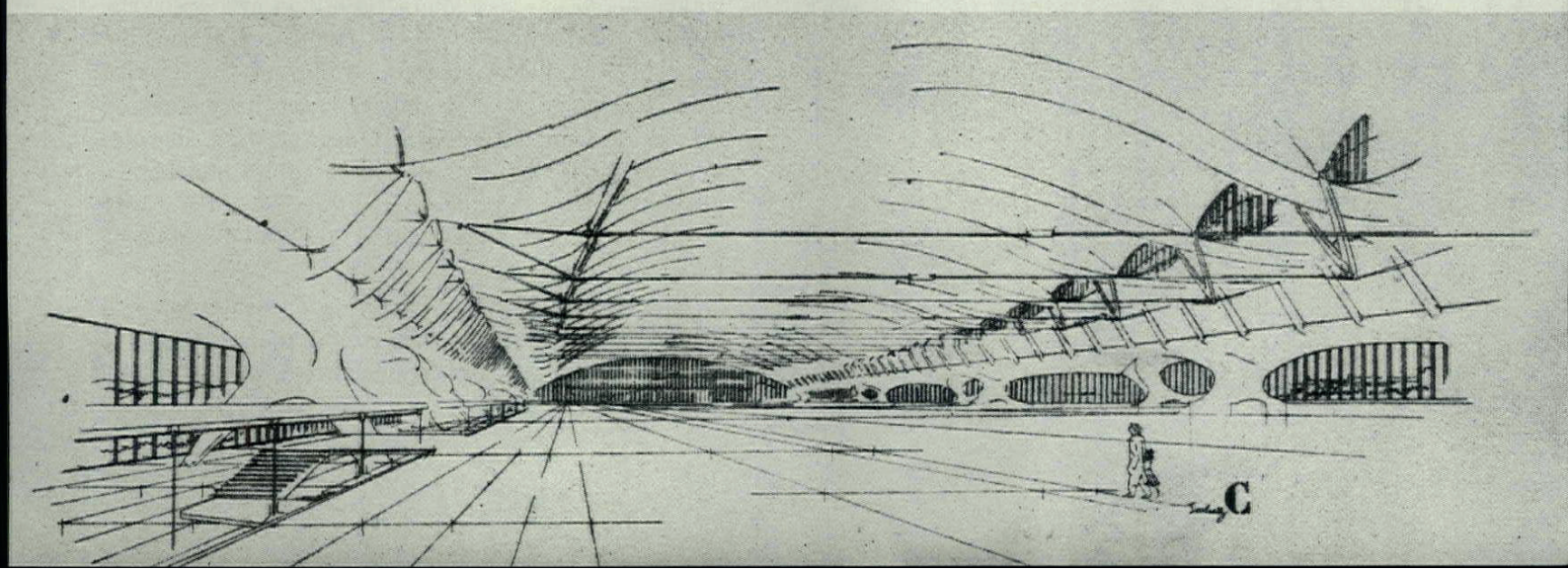

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