A | Form

Modern, organic, monumental and expressive are all formal descriptions that come to the forefront in the attempt to qualify the form of the Einstein Tower. Interestingly, many of these descriptors seem to be incongruous with respect to one another. The words modern and organic connote polarizing impressions making them difficult to reconcile in a single gesture. In the climate of an uprising social order, Eric Mendelsohn’s Einstein Tower merged such opposing concepts based on a formal strategy of relating mass and motion to embody a functional program inside an organic monument to science.

From a social science perspective, the German nation in 1921 was widely recovering from its World War One defeat and ascending into the age of ‘The Weimar Republic’ and hyperinflation. Albert Einstein, who had proposed his now famous Theory of Relativity in 1919, was becoming a celebrity to a German citizenry searching for a sense of nationalistic pride (James, 1994). Although resources were scarce, a celebration of this German achievement was warranted. In 1921, “The call, couched in nationalistic terms, pleaded for the money for just one site where German research could be given a chance to hold its own against the numerous experiments being conducted at the time in England, France, and America...” (James, 1994, p. 400).
The call was for an observatory tower to prove and to celebrate Einstein’s Theory (Weston, 2004). The function of the Einstein Tower was scientific, however, the spirit of the times dictated another need: for a monument to ignite the pride of the German nation. With its monolithic central volume and modern vigor, Mendelsohn’s design met this need. “Nothing could be further from echoing a lingering past, from stylistic tag-ends and souvenirs. Rather, here young Germany, the after-war generation, spoke out clear and strong, and with the assurance of power.’ (Whittick, 1956, p. 54).

The Tower was also monumental in the new architecture it espoused with its dynamic stability. Designed as an homage to relativity, the formal strategy of the Einstein Tower was scientifically reducible to Einstein’s theory in which energy is equal to mass multiplied by the speed of light squared (E=MC^2). The equation was the foundation for the buildings formal conception; Mendelsohn sought a relationship between mass and movement in the form of the Einstein Tower (James, 1999).

Mendelsohn realized mass and movement simultaneously through an amalgamation of heavy, monumental volumes with curvilinear elements carved from a thick exterior. In his evocation of magnitude, Mendelsohn asserted that the, “line must die, [it] must become the contour of the mass...Architecture is domination of the mass.” (James, 1994, p. 402). To this end Mendelsohn attributed increased thickness to the diameter of the tower. The use of concrete, a building material which was relatively new at the time, enhanced the sense of heaviness. The materiality used to sculpt the form suggests an architecture of weight; openings seem too peer out, carved from the helm of a thick volume. Mendelsohn created a structure of such mass that it appeared to emerge geologically, like a rock formation organically rising from the earth (Weston, 2004).

Sections through the Einstein Tower show the form fragmented into two categories,
This sense of organic formation simultaneously awakens within the building a progressive energy that makes the building seem as if it could leap forth from its static position. The scale and materiality that attribute the iconoclastic quality to the tower are balanced by the rhythmic composition of volumes that surround it. The arrangement of the curvilinear masses serves to excite a sense of movement within the heavy formations. The lower volumes act as a base for the central domed tower balancing the building’s quantities. The smooth and seamless quality of the exterior skin was achieved through the exploration of concrete and stucco on brick (Weston, 2004). The materiality adds a plasticity that softens the monumental qualities of the building.

While the exterior skin was left up to Mendelsohn’s expressionist discretion, the building’s interior was derived as a product of function. The Einstein Tower was conceived of in order to prove the Theory of Relativity by means of measuring the shifting spectrum of the sun through a large and powerful telescope (Fara, 2005). The interior of the building was determined by a program of rigid scientific requirements which dictated the volumes that would be required. In direct contrast to Mendelsohn’s concept of movement for the exterior, the inner tower, which was to encase the instrumentation, had to be void of movement in order to provide accurate measurements (James, 1999). A 150 foot tower was needed to house the scientific equipment for the building. Such a prescribed and highly engineered interior program served as a ‘functional check’ on Mendelsohn’s form (James, 1999). Mendelsohn was commissioned to provide a ‘shell’ for the functional workings of the interior (Fara, 2005).

The scale of functions which take place in the Einstein Tower encompasses a large range in height.

The interior and exterior of the Einstein Tower exhibit various states of rigidity and plasticity.
The arrangement and manner in which form would enclose the interior occupations became a representation of and monument to the sciences of mass and motion. The monumental tower was functionally required, but its dynamic expression also served to celebrate the newly discovered technology and efficiency. By making the outer ‘shell’ of the building resemble a machinelike organism, Mendelsohn explored a dynamic functionalism.

The dome atop the telescopic projection provides the only suggestion as to the buildings function. The dome is the most notable conformity to the conventional observatory typology; the Einstein Tower counters its typology in all other ways. The mechanization of its scientific function is replaced by an organic nature. Although its sleek volumes and lack of décor are modern, the mechanization and efficiency of the interior are masked by fluidity. The telltale dome is diminished in the face of other curvilinear forms which accompany it within the overall naturalized form.

The organic nature of the Einstein tower serves to set it apart from other contemporary observatories. The combination of the natural with the modern, motion with mass, and function with expression unite in order to create this monument to science and the spirit of the times.

The Einstein Tower makes use of two artistic movements characteristic of the time.
Works Consulted


