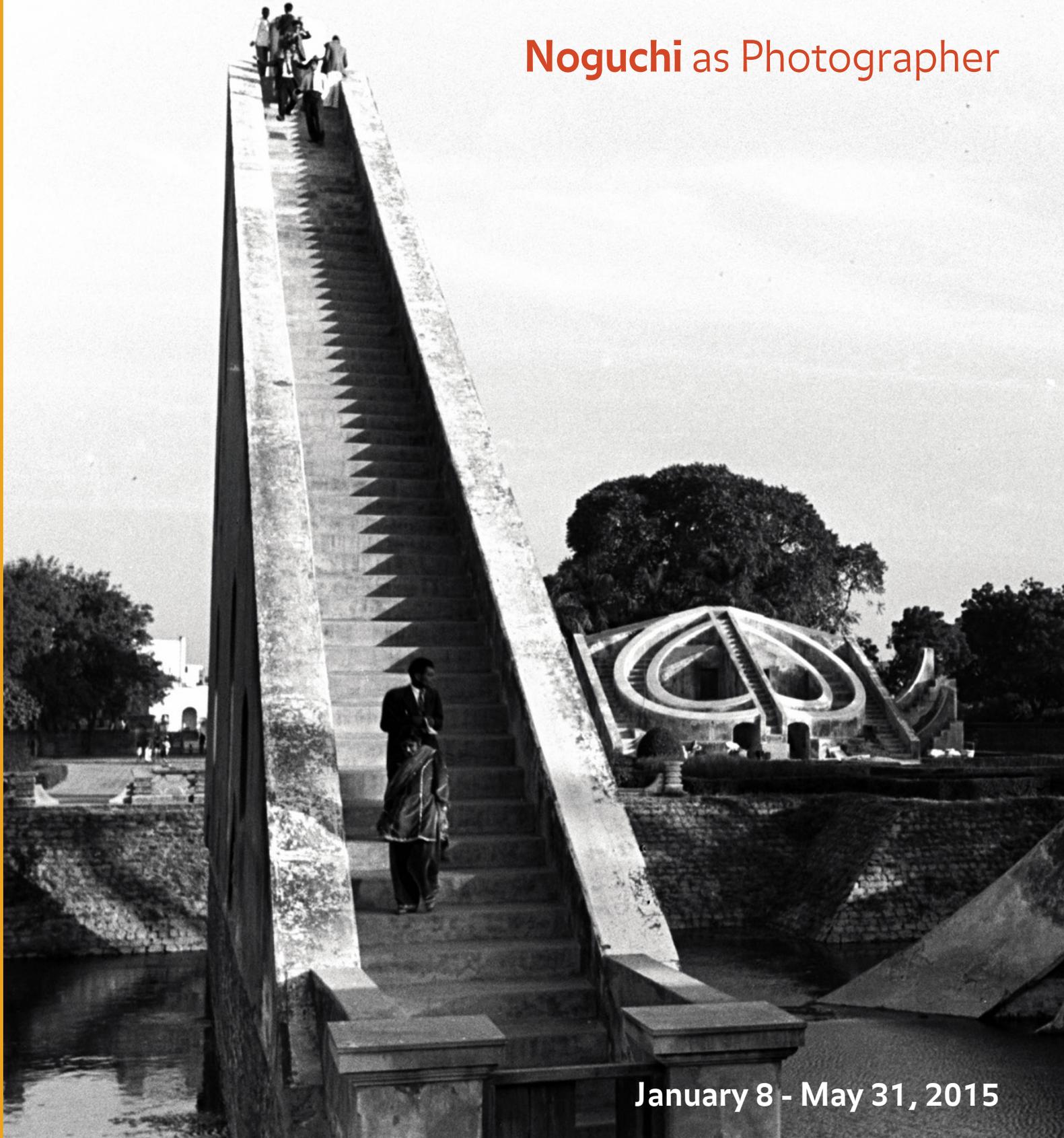


The Jantar Mantars of Northern India

Noguchi as Photographer



January 8 - May 31, 2015

the **noguchi** museum

“My educational process has always been sort of backward. It’s the opposite of the way that people generally learn. You know, for instance, people learn language by studying grammar and so forth but I never did. I speak French fairly fluently and so do I speak Japanese but I couldn’t write a sentence in either language. I just know the idea, so to speak. And I think that’s how I look at things too. I mean, I know it by looking rather than through any knowledge.”¹

This exhibition marks the first installment of *Noguchi as Photographer*, a planned series that will plumb the depths of The Noguchi Museum’s extensive archive of the artist’s photographs. For the first two decades of Isamu Noguchi’s career, his work was documented by well-known photographers. His transition from figurative to abstract sculpture in the late 1920s and early 1930s, the lean years when Noguchi balanced the portrait commissions that were his bread and butter with

his ambitions to design playgrounds and proto-earthworks, was captured by Berenice Abbott and F.S. Lincoln. As he developed from an emerging artist into an artist’s artist and then became one of the preeminent American sculptors of his generation in the 1940s, his work and studio life were chronicled by Rudolph Burckhardt, André Kertész, Ezra Stoller, Arnold Newman, and Eliot Elisofon. Noguchi often acted as his own agent and promoter, and he used the photographs taken by these superb artists extensively for publicity and marketing. While he was sometimes photographed for national publications, Noguchi often paid photographers to record his studio work and, later, his public commissions. In 1950, Noguchi was reunited with his younger half-brother, Michio Noguchi, a skilled photographer who effectively became the official documenter of his career and personal life for nearly four decades. By the 1980s, Noguchi’s stature as a living master precipitated a friendly working relationship with other well-known photographers, such as Shigeo Anzai and a young Robert Mapplethorpe.

In 1949, Noguchi embarked on a period of travel for a proposed book on public spaces throughout the world, and he purchased a Leica to record what he encountered. While the book was never completed,

Cover: Samrat Yantra (foreground) and Misra Yantra (background), Delhi observatory, 1949

Fig. 1: Inside one of the Jai Prakash Yantras (armillary spheres) Jaipur observatory, 1960

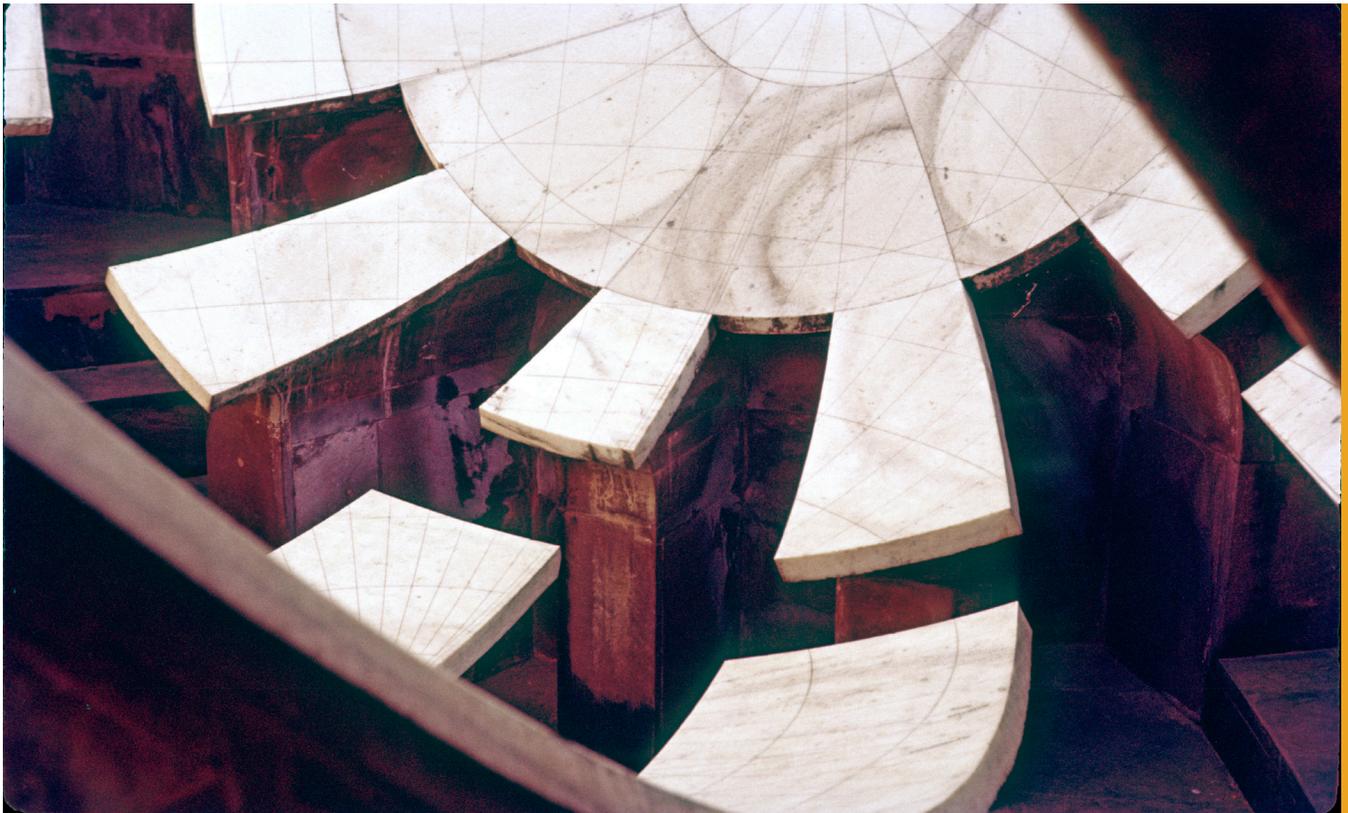




Fig. 2: Great Samrat Yantra at Jaipur observatory, 1960

Noguchi made the occasional print or slide from his trove of negatives, and he occasionally loaned them out. He photographed mostly for his own use, with no real intention of exhibiting his photographs publicly.

The photographs were a visual well that he could return to. Many of the sites he visited—documented as air travel opened the world and collapsed boundaries—became important fodder in his wide-ranging practice. This stockpile is a unique window into the career of one of the most well-traveled artists of his time, a one-man UNESCO who considered himself a citizen of the world.

Noguchi as Photographer: The Jantar Mantars of Northern India documents Noguchi's visits to two 18th-century sites in Delhi and Jaipur. These sites, the largest of the five campuses constructed under the aegis of a Rajastani governor named between 1710 and 1728, are part of a long lineage of venues built throughout Europe, the Mediterranean, and the Middle East for collecting astronomical data and measuring time.² By Noguchi's era, the Jantar Mantars were thriving tourist curiosities. His photographs from visits in 1949 and 1960 are evidence of the obvious attraction they held for him, a source for many of the ideas on sculpted space that he would elaborate on, particularly in his public projects in the second half of his career.

A Visit to India

Noguchi's visits to Delhi and Jaipur in the autumn of 1949 were brief stops on a tour throughout India, as part of an even grander tour of Europe and Asia. In a bid to uproot himself from what he saw as a limited trajectory as a studio artist in New York, Noguchi obtained a grant from the Bollingen Foundation in 1948. He had been itching to secure public projects but had found little success, remarking, "in the creation and existence of a sculpture, individual possession seems less significant than public enjoyment."³ He outlined an itinerary that would allow him a one-year period of intense travel, the result of which was to be a book on what he termed the "environment of leisure": how the built environment in public spaces (such as plazas, ceremonial sites, and temples) shaped communities and fostered culture and how sculpture and architecture reflected man's concept of himself in relation to religion and nature. In that first year, he visited France, Italy, Greece, Egypt, India, the Far East, and finally, Japan. Travelling light, a sculptor without a studio, he took up sketching and photography to capture what he saw, and these sources made up the bulk of his notes for the intended book.

His visit to India had been long anticipated. In his 1927 application to the John Simon Guggenheim Foundation, Noguchi had already demonstrated



Fig. 3: View of Ram Yantra, Altitude/ Azimuth instrument, Delhi, observatory, 1949

glimpses of a philosophy that extended beyond the making and exhibition of stand-alone sculpture. He requested support for three years of travel, intending to study stone and wood carving in Paris for a year before spending the next two exploring Asia, specifically, India. He was granted a one-year stipend, and his plans were further altered by his apprenticeship with Constantin Brancusi in Paris in 1928. Before the stipend expired (his application for a renewal was declined), Noguchi nevertheless made good on his desire to learn more about Asia, spending a few weeks combing the British Museum's holdings on Asian art during a visit to London.

Noguchi arrived in India in September 1949, just over two years after the country's independence. In the mid-1940s, he had been involved with the India League of America in New York, a pro-independence group through which he met a number of Indians, including the Pandit sisters (relatives of Pandit Jawaharlal Nehru, the eventual first Prime Minister of independent India) and his friend Gautam Sarabhai's family, whose Ahmadabad-based Calico Mills modernized India's textile industry. While travelling in India, Noguchi took advantage of a network of hosts through the Sarabhai family, as well as the classical Indian choreographer Uday Shankar in Madras. In letters to his accountant, Bernie Bergstein, Noguchi revealed his hope of finding commissions while in

India, but ultimately he managed to secure only one, for a portrait bust of Nehru. Noguchi's visit preceded the first waves of international interest in India, which exploded in the '50s as the Cold War powers vied for an alliance with the burgeoning economic force. By 1958, Nehru's government, as well as a few wealthy Indian families, sought out Western modernists as sympathetic advisers—and in some cases, collaborators—in its attempts at decolonization. The French architect Le Corbusier, American architect Louis Kahn, and designers Charles and Ray Eames, among others, undertook projects in India within a few years of Noguchi's visit.⁴

Evidence of Noguchi's initial stay in India consists primarily of his photographs and, to a lesser extent, a sheaf of notes from his travels and a few letters to Bergstein that survive in The Noguchi Museum Archive. While he complained about its squalor, Noguchi found India to be an ideal model for the study of his concept of leisure. In notes recounting a stay at the ashram of Sri Aurobindo in Pondicherry, he wrote, "The spirit of India is against change—the new is not a quality but a defect. Tradition defines the precepts of all life, it sets the cannons [*sic*] of beauty, the rhythm and meaning of every gesture within it is peace—here tradition is alive."⁵

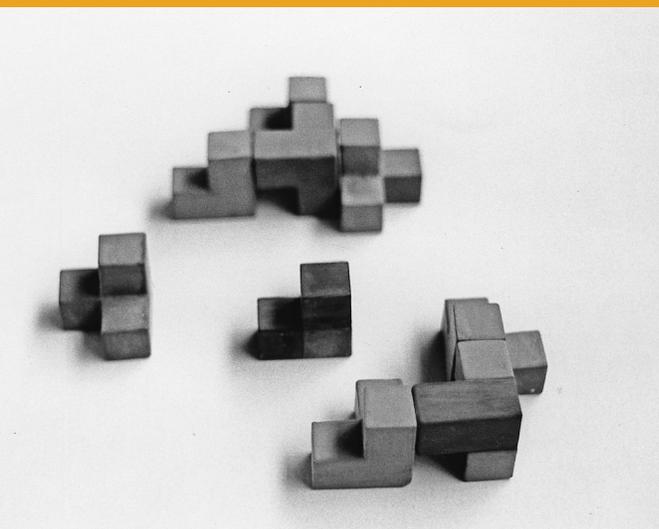


Fig. 4: View of Ram Yantra from the steps of the Samrat Yantra, Jantar Mantar observatory, Delhi, 1949

Fig. 5: Plaster studies for Play Equipment, mid-1960s.

The Jantar Mantars of Northern India

Having already traveled throughout southern India, Ceylon, and Sri Lanka, and to such ancient sites as Ajanta, Ellora, and Kailasa, Noguchi made his way north in December 1949. He used Delhi as a base and explored at least two of the five campuses constructed by the Raja Sawai Jai Singh II of Amber, those in Delhi and Jaipur.⁶ As a governor in Agra and Malwa, Jai Singh, a Hindu, had successfully navigated a seemingly continuous succession of Islamic Mogul and then Persian rulers in the region, somehow holding on to his governorship and establishing Jaipur as his capital in 1728.⁷ Jai Singh was deeply immersed in the study of astronomy, and his library purportedly included rare books from European and Middle Eastern astronomers, including two who had already built measuring equipment on an architectural scale: the 15th-century Persian sultan Ulugh Beg and his Gurkhani Zij, in modern-day Uzbekistan; and the 16th-century European nobleman Tycho Brahe and his castle observatory, Uraniburg, in Denmark. Like Beg, who endeavored to correct inaccuracies in previous studies by Ptolemy, Jai Singh aimed to collect astronomical data in order to produce long-range calendars for his kingdom. Many of his region's religions placed significance on solstices and equinoxes, relying on *pancangs* (Hindu calendars that listed processions and festivals). Having experimented with smaller instruments in wood and brass, which he found to be impractical, fragile, and too small to afford adequate calibration, Jai Singh envisioned permanent structures made of limestone, brick, plaster, and mortar on a massive scale. After constructing his first Jantar Mantar (variously



translated as “instruments and formulae” and “magic sign”) observatory at Delhi from 1718 to 1724, Jai Singh built a grander version at his newly established capital at Jaipur in 1728.⁸

The campus at Jaipur was designed and built by the Raja Guru Jagganath and Guru Vidyadhar, the latter of whom was also the designer of the greater city plan of Jaipur. Jaipur remains one of the few rectilinear city plans in India—another of Jai Singh's interests was architecture—and the observatory was plotted in an expansive courtyard adjacent to Jai Singh's palace at the city center. Jaipur's Jantar Mantar's layout followed sacred precepts of the ancient Hindi architectural manuals that stressed the need for the first stones of its foundations to be laid east to west; this arrangement was supposed to ensure that its architecture was completed in harmony with the cosmos. Certain instruments of Jai Singh's observatory have been demonstrated to follow the same principles.⁹

Within a few decades of the construction of the observatories, however, it became clear that some of the instruments were flawed and could not produce accurate readings. While the Delhi campus was built in arid terrain outside the then city limits, by the 19th century, it shared a central flaw with the Jaipur observatory: many of its instruments relied on seeing the visible horizon, which by then had been obstructed. Second, the architectural scale of the instruments, believed by the Jai Singh to improve accuracy, was in fact a liability, since the foundations of the structures tended to shift over time. The Delhi observatory in particular had structural problems, with a drainage issue leading to a collection of water

at the base of its Samrat Yantra (resulting in a few British Romantic-era prints of the site that cast it in terms of a European folly). Evidently, Jai Singh sent envoys to Europe in the 1720s to learn what advances in astronomical equipment had been made there—telescopic lenses were already standard—and yet he persisted with his own plans. The architectural scale of Singh’s observatories, as well as the functional redundancy between instruments on the same campus, came to be understood by visiting astronomers as a demonstration of the governor’s power more than a function of observational accuracy.

“mystic sculptures that define space. . . . You might call them useless architecture or useful sculpture. They imply a use—much sculpture does that. Whether or not they were intended so, Jai Singh’s works have turned out to be an expression of wanting to be one with the universe. They contain an appreciation of measured time and the shortness of life and the vastness of the universe.”¹¹

The structures that Jai Singh and his architects conceived were a distillation of careful study, although only a visitor with specialized knowledge would have understood the incremental advance of time revealed in the instruments. These tools, built with the human form

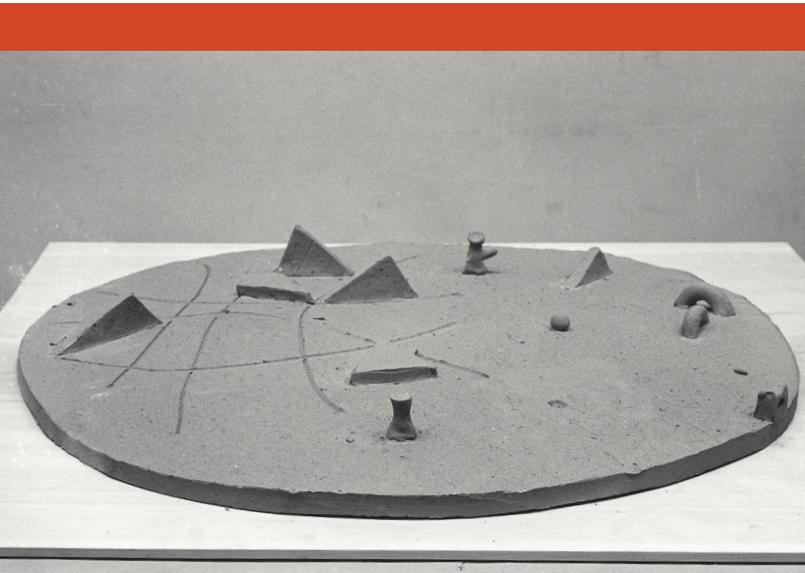


Fig. 6: Isamu Noguchi, *A World I Did Not Make*, 1952, terra cotta

Fig. 7: Jaipur observatory, India, 1949



While Singh’s intention for the Jantar Mantars was for the objective observation of visual phenomena and the daily tabulation of incremental data, later travelers certainly looked upon the sites through the prism of the Western folly. A British tour book describes the campus at Jaipur as filled with “curious and fantastic instruments” and notes that it had fallen into disrepair a century earlier and had only recently been restored.¹⁰ By the 20th century, Le Corbusier was familiar with the Delhi Jantar Mantar and its forms were said to influence his designs at Chandigarh and the Sarabhai family compound he built in Ahmedabad in 1952 (which featured a concrete slide). Noguchi encountered Jaipur and Delhi as curiosities as well, but his appreciation had an additional layer, colored by his Bollingen mission. He later described the Jantar Mantars as:

as their basic measure, related the motions of planets and cosmic bodies to human and terrestrial scale. That India’s architectural tradition was based on principles of spatial proportion between architecture and nature was seemingly not lost on Noguchi.¹² Through his friendship with the “comprehensive anticipatory design strategist” R. Buckminster Fuller, Noguchi was aware of concepts of the fundamental structures underlying nature. Early on, Noguchi assisted in visualizing organic forms for Fuller, who continually interpreted and transposed them into his design principles, such as the tetrahedron, which in turn were adapted into architectural forms.¹³ Noguchi could appreciate the engineering of the astronomical instruments at Jaipur and Delhi as a complementary impulse: Rather than taking cues from microscopic building blocks observed in nature, the instruments were a visualization tool of the far-

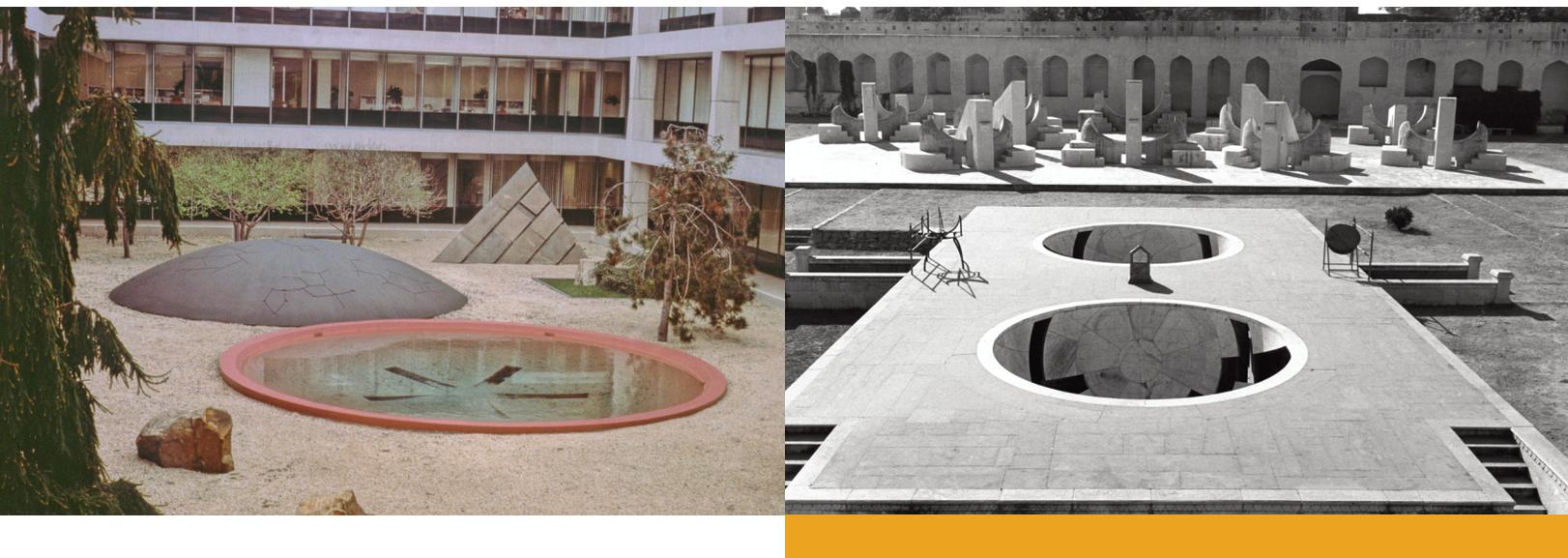
reaching cyclical patterns of movement observed in the sun, moon, and planets. For Noguchi, the varying geometric and hemispheric forms betrayed some essence of their function.

More than any other sites that he documented, the observatories at Jaipur and Delhi seem to have provided Noguchi with a surrogate experience for the sculpted spaces that he had envisioned since the 1930s. Looking at the Jantar Mantars through a camera lens allowed him to frame a number of viewpoints within each locale and to observe the visual counterpoint between the rectilinear structures, their setting in an open court, and the surrounding urban environment. Noguchi experienced the Jantar Mantars from two vantage points: surface level and above. From the ground, he captured the Samrat Yantra at Delhi as an imposing ramp leading to uninterrupted sky; from the porch at the top of its stairs, he photographed figures milling among the structures in a way that lends a truer sense of scale. Given his self-imposed mission on the Bollingen grant, it was important for Noguchi to capture people actually inhabiting these spaces, in order to assess their continued cultural resonance. In comparison, a shot from the top of the Great Samrat Yantra at Jaipur, one devoid of any figures, shows the campus inadvertently robbed of the scale that Jai Singh intended, and the photograph seems to be concerned only with how the architecture was arrayed like sculpture (Fig 2). This picture conveys what Noguchi thought of installed sculpture in an axonometric sense. He was already in the habit of making small models of his theater set elements to gauge their relationship to the whole. He would later photograph some of his own sculptures and maquettes in similar microcosmic views (Fig. 5).

The 1949 photos are evidence of Noguchi's first tentative steps as a photographer: While some are artfully composed, others are either out of focus or catch the odd finger overlapping his lens. Over time, his photos grew more accomplished as his understanding of the technical constraints of his gear and lighting conditions improved. Regardless of what Noguchi felt about the quality of his photographs of the observatories, others saw something of value in them, partly because Noguchi was doing fieldwork for those he knew back in New York. His first published photographs appeared in a high-quality journal, *Portfolio: Annual of the Graphic Arts* in 1951. Put together by the influential art director for *Harper's Bazaar*, Alexey Brodavitch, *Portfolio* juxtaposed Noguchi's photographs of Delhi and Jaipur with features on Alexander Calder and the pictograms of American hobos. Noguchi's contribution seems to have been included in part to satisfy the exotic travelogue quotient that was a staple of postwar media. He was also approached by the editors at Yale University's architectural journal, *Perspecta*, in 1958 about reprinting the photos that had appeared in *Portfolio*. However, the feature on the Jantar Mantars wouldn't see publication until 1960. In it, Noguchi's shots illustrated a more informed reading of the instruments' accuracy. It was in *Perspecta's* contributor profiles that 'photographer' was added to Noguchi's professional résumé. Kahn, a professor at Yale and eventual collaborator with Noguchi on an ambitious plan for Riverside Park in New York (1961–1965), would probably have seen Noguchi's photographs in *Perspecta*.

Fig. 8: Isamu Noguchi, Garden of the Future, IBM headquarters, Armonk, NY

Fig. 9: Jai Prakash (foreground), Rashivalaya (background) at the Jaipur observatory, India, 1949



Influence on Noguchi

It is no overstatement to say that Noguchi's experiences at the observatories at Jaipur and Delhi made a strong impression on him. In them, he found a catalog of forms that, while connected to the ancient monuments he'd seen throughout India, were still alien, with little evidence of any inherited style or shared iconography. Over the next two decades, as he fulfilled his ambition to create sculpted public spaces, Noguchi routinely synthesized multiple formal sources into his spaces in an allusive way (though he just as routinely downplayed the extent

proximity as a way of defining areas of incised patterning (another recurring hallmark of his 1960s spaces), offering a glimpse of the range and repetition of forms that would populate his work in the future.

The Jantar Mantars also became a recurring formal source in his collaborations with Gordon Bunshaft, a principal at the architectural firm Skidmore, Owings & Merrill (SOM). Known to liberally cherry-pick from different sources when conceiving his building designs, even borrowing complete aesthetic schemes

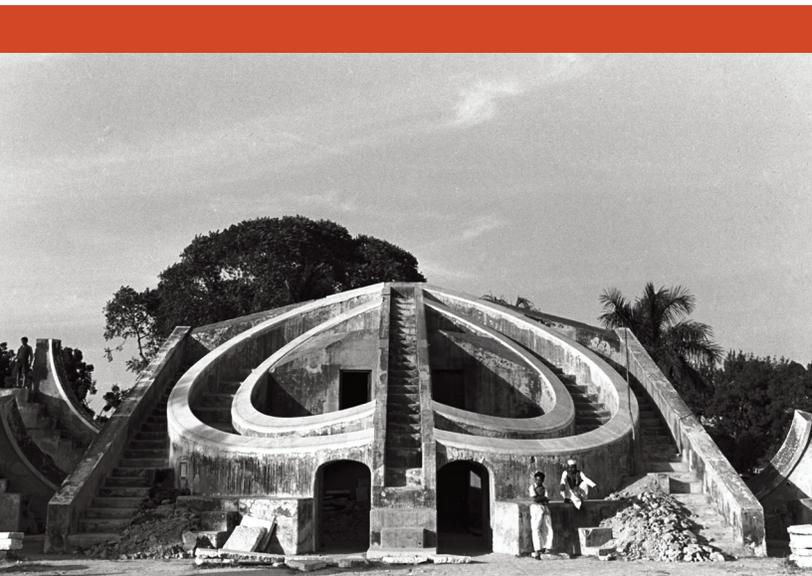
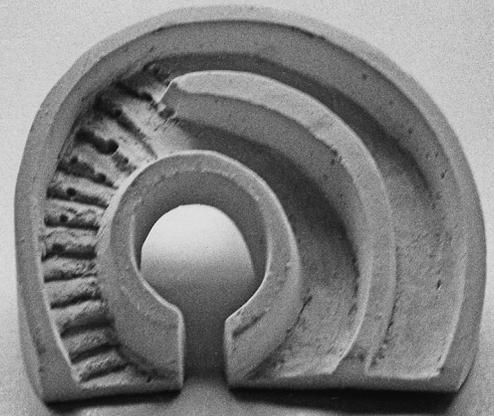


Fig 10: Mishra Yantra instrument, at the Jantar Mantar observatory, Delhi, India, 1949

Fig 11: Isamu Noguchi Slide Mantra plaster study, early 1960s

of their importance on his final product). Recurring and repeated forms became his tool for creating a shorthand for monuments and architecture and for organizing them within compressed areas. The Jantar Mantars are a direct model for this approach. In *A World I Did Not Make* (1952) (Fig. 6), for example, references to the sloped forms at the observatories, the Samrat Yantra or perhaps the Valaya Yantra (zodiac) instruments, dot the microcosmic landscape. Noguchi created the circular ceramic slab during his stay in Japan in the early 1950s, when he reacquainted himself with the Japanese stroll garden, absorbing its central notion of a gradually unfolding space revealed through ambulation. Whereas the 12 Valaya Yantras at Jaipur were arrayed according to the orientation of their respective constellations, in *A World I Did Not Make* Noguchi used their close



and materials, Bunshaft was well-travelled, having made a tour similar to Noguchi's throughout Europe as a MIT student in the mid-1930s. Bunshaft and Noguchi had already worked together by the time the architect and his wife, Nina, travelled to India in November 1960, where Noguchi joined them as their tour guide in Jaipur. A handful of photographs document their visit, with the Bunshafts posing in one of the bowls of Jai Prakash Yantra and, presumably, trading places to photograph Noguchi.

Construction had already begun on Bunshaft's design for the Beinecke Rare Book & Manuscript Library at Yale University in New Haven earlier in 1960, and Noguchi was then tapped to create a recessed sculptural space viewable from the plaza in front of the building on street level. The *Sunken Garden*

is surrounded on all sides by a reading room and library offices but remains physically inaccessible to the viewer, aligning it most readily with Japanese Zen gardens as meant for contemplation but not interaction. Its conceptual underpinnings match Bunshaft's windowless building, a virtually self-contained shell of white Danby marble that allows light to filter within. Responding to their shared impressions of the observatory in Jaipur, Noguchi designed an abstract, gridded surface (later shared with his Chase Manhattan garden) punctuated by three raised elements—a truncated pyramid, a white sun, and what he termed “the cube of chance”—suggesting manmade structures and their relation to the cosmos. These elements are activated at various times of day by a cast shadow. The form of the cube, the most fundamental form of proportion in architecture, stretched across every surface of Bunshaft's design, and its presence arguably references the implied order of the cosmos shared between Euclidean geometry and the Hindu building tradition.

A few years on, Noguchi again collaborated with SOM and Bunshaft on a pair of courtyards at the headquarters of IBM in Armonk, New York. In the two courtyard spaces he was allotted, Noguchi balanced a mock ancient garden composed of submerged rock and water elements in the South Court with a *Garden of the Future* in the North, illustrating man's application of technology (Fig. 8). Alongside a bronze double-helix statue, a black granite pyramid, and a white, wedged sundial form, Noguchi paired a red concave pool beside a black convex mound, proportioned to subtly resemble the Jai Prakash Yantra that he and the Bunshafts visited at Jaipur (Fig. 9). On the convex dome, Noguchi incised a number of mathematical formulas and references to atomic science, scattered around what appears to be Ursa Minor (the constellation that includes the north celestial pole) in the central position. In his research for the commission, Noguchi consulted the Thomas J. Watson Research Center in Yorktown Heights, New York, and its archivists suggested symbols that pointed to current (more accurate) developments in astronomy incorporating advanced physics. Einstein's theory of relativity—part of Noguchi's first public commission, the frieze *History: Mexico* at the Mercado Abelardo Rodriguez in Mexico City in 1936, by way of a succinct explanation via a telegram from Fuller—is enshrined on the nearby sundial form as one

of the various formulas Noguchi used to symbolize man's continuing interpretation of the laws of nature. The center's archivists pointed out that Newtonian physics could not be used to calculate Mercury's perihelion (its closest approach to the sun), which had been made possible only through Einstein's theory.¹⁴ This nod to the limits of purely observational astronomy, in close proximity to forms resembling the Jai Prakash at Jaipur, seems to reaffirm Noguchi's central conceit: the steady progress of science and technology.

Concurrent with the SOM commissions, Noguchi pursued playground concepts throughout the 1960s. Climbing was perhaps the most common element shared between Noguchi's various play environments—from the stepped pyramid of *Play Mountain* (1933) to its descendent, the step pads in his Riverside Playground designs (1960–1965), to the more conventional playground equipment at *Playscapes* at Piedmont Park in Atlanta (1975–1976). “I like to think of playgrounds as a primer of shapes and functions; simple, mysterious and evocative: thus educational. The child's world would be a beginning world, fresh and clear.”¹⁵

Noguchi likely viewed his visit to Jai Singh's observatories, with their repetitions of staircases and arcing quadrants, through the lens of several failed attempts at creating playgrounds in New York in the 1930s and '40s. Likewise, according to the critic Dore Ashton, Noguchi's travels to pyramids in Mexico in the 1930s had already made evident to him the symbolic and experiential aspects of ascendance, further reinforced later in the Bollingen trip at sites like Borabadur in Java and in Egypt in 1949.¹⁶ The link between man-made structures and the sacred mountains that dot world mythologies, from Mount Fuji in Japan (which he had known from his childhood) to Mount Kailash, seat of Vishnu in Nepal, would likely have been extended to the repetition of staircases throughout the observatories in Delhi and Jaipur.

In the mid-1960s, Noguchi produced miniature plaster models for a play concept he called *Slide Mantra*. Each is a solid form, a miniaturized mountain, and marks his attempt to recast conventional playground equipment in his own visual vocabulary. The name he chose is a sly nod to the common appellation “yantra” (meaning instrument or diagram) for each of the instruments at the observatories. In place of yantra's use as a

visualization of a higher concept, he substituted “mantra” (meaning thought), alluding to its aid to meditation, often practiced as a rhythmic and circular utterance of energy. The first iteration of *Slide Mantra*, an asymmetrical parabolic incline that combines an arcing staircase with a bifurcated set of slides, clearly references the sculpted circular railings enclosing the winding stairs of the Misra Yantra at Delhi (Fig. 10 and Fig. 11). In another incarnation of *Slide Mantra*, the railing defines the single elegant transition of a spiral from its (revealed) curving slide to the (concealed) stairs

in Osaka, which seems to merge the optimism of his playground projects with the spirit of the space age. In notes he kept leading up to his initial proposal, Noguchi outlined the conceit of the project as “The World and Its Dream—a treatise on the Moon as a symbol of our changing aspirations, and on Nature as a new awareness of science. . . .” The grounds of Noguchi’s pavilion are a reimagining of the desolate surface of the moon as an artificial wonderland of brightly colored objects (including a handful of stand-alone play sculptures, like *Octetra*, from his temporary installation of play

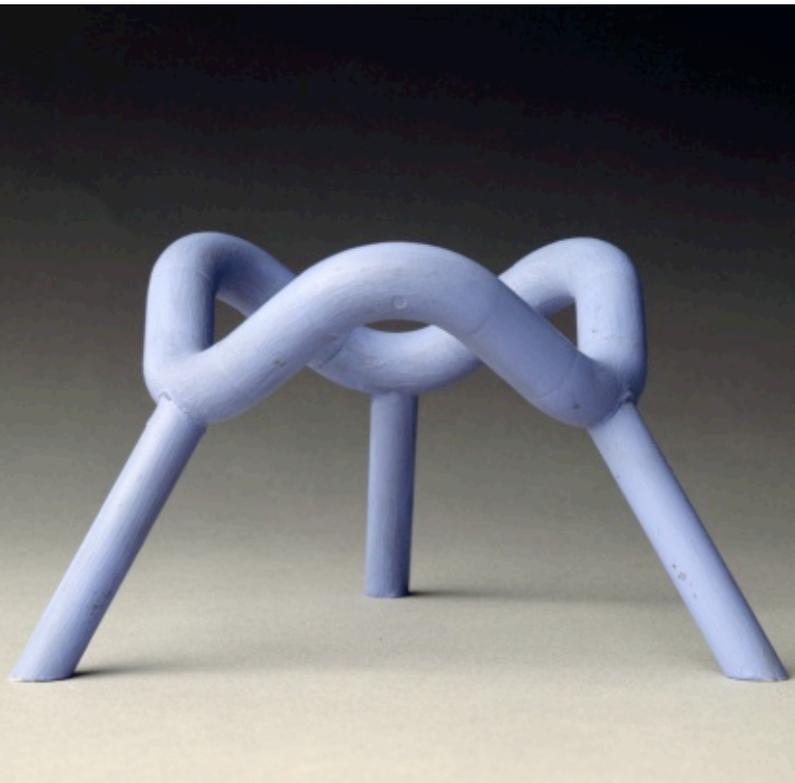


Fig 12: Isamu Noguchi with his plaster model for *Skyviewing Sculpture*, 1969. (Photo: Michio Noguchi)

Fig 13: Model for *Sky Gate*, 1976-1977. Plastic tubing, paint. (Photo: Kevin Noble)

accessed through a portal in the back of the mound. Nearly two decades later, Noguchi had a 10½-foot-high version of this *Slide Mantra* fabricated in white marble, like the Jantar Mantars, for his exhibition at the 1986 Venice Biennale. It is an instrument of measurement and motion scaled to the proportions (and worldview) of a child astronomer.

The “primer of shapes and functions” that informed Noguchi’s vocabulary for play found a parallel in his 1968 model for a proposed U.S. pavilion for Expo ’70



equipment at Kodomo no Kuni, in Tottori Prefecture, Japan (ca. 1965–1966)). He paired these with the elemental architecture of early civilizations: a massive pyramid and a sunken circular amphitheater. Structural elements on the field include an “echo satellite model” and a “dish antenna,” with the empirical observational exercise of looking upward at the Jantar Mantar recast as a more active informational exchange. The campus sits under the watchful gaze of a giant gas-filled floating orb, a metaphorical nod that brings the subjects of astronomical observation closer still. Later, in his first

Instruments

A handful of instruments appear at both the Jaipur and Delhi observatories, and those that are specific only to Jaipur or Delhi are noted in the descriptions below:

Samrat Yantra: A legend on the instrument reads “for finding time, declination and hour angle of heavenly bodies.”²⁰ It can be used for making readings in the equatorial and horizontal coordinate systems. Essentially a sundial, its center staircase acts as a gnomon, the hypotenuse that is situated on the local meridian line (north-south). The gnomon casts its shadow on the semicircular quadrants on either side of it, which are positioned as the equator. The edge of the shadow lines up with graduated increments incised in the marble describing hours, minutes, and fractions of 20 seconds. Inclined at an angle of 27 degrees, the gnomon can also be used to measure the declination of the sun during the day or the stars at night. There are two versions of Samrat Yantra at Jaipur: The larger (Great or Brhat Samrat Yantra) is 10 times the size of the smaller (Laghu Samrat Yantra), and because its graduations are subdivided even further, it is 10 times more accurate.

Jai Prakash: Armillary sphere instruments, a pair of concave hemispherical bowls sunken into a rectangular platform. The recessed bowls represent the celestial sphere above, with the rim acting as the horizon. Readings are made from the cast shadow of a metal ring (acting as the zenith) suspended by two cables stretched across the instrument’s rim and aligned north, south, east, and west. The bowls are complementary, with one representing even hours and the other standing for odd hours. The hemisphere of each bowl is made up of curving marble slabs—alternating with gaps of the same measure—each representing one hour of measurement, crisscrossed with a geometric web of incised lines denoting the meridian, the equator, the tropics of Cancer and Capricorn, as well as circles marking azimuths, altitudes, and 12 zodiac circles. At night, an observer standing in the recessed cavity below the marble bowl peers out through a small ring in its center, sighting the desired star or constellation. The Jai Prakash measures local time, altitude, azimuth, and zenith distances among other functions.

Rama Yantra: This pair of broken drum forms, with a fixed central pillar that functions like a sundial, is used to measure the azimuth and the zenith of stars and the sun along the broken ring of 12 verticals radiating from the center. Again, the drums are complementary, each accounting for 45 degrees of visibility. To observe azimuth and altitudes at night, an observer stands in the recessed space beneath the alternating surface of the flat segmented slabs radiating from the central pillar and trains his eye across a marking incised on the flat surface to catch sight of a specific star or constellation in alignment with the central column.

Narivalaya Yantra: A pair of sundials, straightforward in function, each aligned to the plane of the equator. One corresponds to the southern hemisphere and is tilted downward to face the southern celestial pole, while the other corresponds to the northern hemisphere and tilts upward to face the north celestial pole.

Misra Yantra (Delhi only): Four instruments in one, although they duplicate functions of other instruments at the observatory. The four semicircles attached to the central staircase relate the sun’s position at noon in Zurich, Switzerland; Greenwich, England; and two unidentified sites in East Asia.

Rasi Valaya Yantra (Jaipur only): A field of 12 instruments, similar to the small Samrat Yantra in appearance, each fixed in its orientation to a specific constellation in the zodiac. Based on the elliptical coordinate system, they track a constellation’s latitude and longitude.

realized playground in the United States, *Playscapes* (1975–1976) in Piedmont Park in Atlanta, he included numerous play elements that echo aspects of the Jantar Mantars. The ladders of the triple slide and the arced stairs leading to the *Slide Column*, the repetition of the wedge shape similar to the Samrat Yantra, and the paired bowls of the Jai Prakash are inverted from concave to convex to become a single play mound.

The project that resonates most closely with his remark about the “useless architecture or useful sculpture” of the Jantar Mantars is his *Sky Viewing Sculpture* at Western Washington University (1969) (Fig. 12). Commissioned to create a work for its outdoor sculpture collection, Noguchi fabricated a 17-foot-tall sheared cube, with three faces pierced by circular apertures, that is tilted on three giant piers in the central campus square. Not quite a canopy, the open structure directs viewers to the sky. Noguchi later claimed that he wanted to “tie the sculpture to an awareness of outer space as an extension of its significance, much as one finds in ancient observatories.”¹⁷ Perhaps in looking upward through these portals, Noguchi also referenced mythologies that viewed the same hole in the tent roof, which allows smoke to escape, as an extension of the sky and a representation of a star itself.

While he was no doubt interested in astronomy, Noguchi never went so far as to attempt engineering the functional aim of the Jantar Mantars into the sculptural elements in his sites by, say, aligning them to the specific coordinates of equinoxes or solstices. For instance, his sculptured railings for the bridge at the Hiroshima Peace Park (1951–1952) are limited to references to the sun and moon as symbolic passages through cycles of destruction and rebirth. In an unrealized proposal for the Hiroshima Peace Park, the *Monument to the Dead* (1952), which Noguchi

envisioned as a two-level memorial, one end of an abstract, gridded plaza featured a 20-foot-high granite cenotaph structure (“a concentration of energy”), with its hulking legs plunging into an underground crypt, which centered on a cantilevered granite box containing the names of those killed in the bombing of Hiroshima. A single entrance portal linking the two levels allowed sunlight to illuminate the crypt and, at a specific time,

direct a shaft of light on the box. The conceptual totality of the proposal, which balanced the massive cenotaph in the infinite space of plaza against the immateriality of light within the introspective experience in the crypt below, goes well beyond the simple designation of “monument,” implying instead a measurement of mankind’s existence.

His *Sky Gate* in Honolulu, Hawaii, (1976) probably marks Noguchi’s closest approach to the functional aspect of the observatory instruments (Fig. 13). Twice a year, in the span of about six weeks during the summer, *Sky Gate* enacts the phenomena called solar noon, which the locals call Lahaina Noon, when the sun passes directly overhead.¹⁸ While objects standing absolutely straight (like buildings) appear to have no shadow, the shadow cast by *Sky Gate*’s swooping circular oculus aligns perfectly with the sun overhead and encloses a corresponding circular disc on the ground below. The occurrence is common throughout this tropic latitude and, while possibly acknowledged by Noguchi in his design, is probably more circumstantial than explicitly functional. *Sky Gate* is more consciously intended to frame and define a section of the sky when experienced from below.

Around the time of *Sky Gate*’s unveiling, Noguchi made a curious remark that seems to link it to the Bollingen trip that brought him to such sites as the Jantar Mantars: “In arts of the earliest time, they were consumed with religion–space, life and death, relationship to astronomy and the place human beings have in this world and the afterlife. The Stonehenge is an example. Gradually people’s horizons became restricted, although we have gone to the moon, for practical reasons.”¹⁹

In the decades following his Bollingen trip, Noguchi became an increasingly sought after and canny collaborator to architects and a designer of sculpted spaces, using each of these opportunities to mine symbolic motifs and forms from cultures in the distant past and to interpret them for the contemporary. Many of the conceptual programs for his spaces, what he called a “dramatic abstract,” seem to collapse time, addressing modern technology and materials while drawing parallels to familiar manmade forms of the past, implying an overlay of meaning in the structures of human existence. In the photographs from his encounters with the astronomical instruments in Jaipur and Delhi–visualization tools that were reversed-engineered from celestial movement and put in the

service of human ritual–Noguchi interpreted them as objects that seem to split the difference between past and future, the religious and the secular, sculpture and architecture.

Endnotes

- 1 Isamu Noguchi, oral history interview by Paul Cummings, November 7, 1974–December 26, 1973, <http://www.aaa.si.edu/collections/interviews/oral-history-interview-isamu-noguchi-11906>
- 2 The Raja Sawai Jai Singh II’s other, smaller Jantar Mantars were located in Benares, Ujjain, and Mathura (the last was destroyed and is known only through descriptions). While Noguchi travelled through Benares in 1949, there is no record that he found the Jantar Mantar there.
- 3 “Towards a Reintegration of the Arts,” in *Isamu Noguchi: Essays and Conversations*, ed. Diane Apostolos-Cappadona and Bruce Altshuler (New York: Harry N. Abrams, Inc., 1994), 26. Also in “A Proposed Study of The Environment of Leisure,” manuscript, 1949.
- 4 The Sarahbai family in particular hosted the likes of Alexander Calder, John Cage, and the composer David Tudor among others.
- 5 Travel notes by Isamu Noguchi, India folder 2/3, The Noguchi Museum Archive, New York.
- 6 It is difficult to say with certainty which of the Jantar Mantars he visited first, Delhi or Jaipur.
- 7 For a more detailed account, see Andreas Volwahren, *Cosmic Architecture in India* (Munich: Prestel Verlag, 2001) 31.
- 8 Dates vary among scholars over time. There are some older accounts claiming that the Jantar Mantar site in Delhi was begun in 1710.
- 9 Volwahren, *Cosmic Architecture in India*, 104–109.
- 10 John Murray, *A Handbook for Travelers in India, Burma and Ceylon*, 8th ed. (Calcutta: Thacker, Spink & Co., 1911), 140.
- 11 *Portfolio: The Annual of the Graphic Arts* 3, (1951).
- 12 Among the expenses Noguchi tallied for Bergstein from his India trip was a two-volume Hindu design manual, *Manasara Shilpa Shastra*, which outlines proportions for carpentry. May 1950 letter to Bernie Bergstein, The Noguchi Museum Archive.
- 13 The tetrahedron is based on a 60-degree angle, allowing for modular forms.
- 14 H.H. Goldstein to Isamu Noguchi, 26 August 1964, Thomas J. Watson Research Center.
- 15 Isamu Noguchi, *Isamu Noguchi: A Sculptor’s World* (New York: Harper & Row Publishers, 1968), 161.
- 16 Dore Ashton, *Noguchi East and West* (Berkeley: University of California Press, 1992), 87.
- 17 Isamu Noguchi, *The Isamu Noguchi Garden Museum* (New York: Harry N. Abrams, Inc., 1987), 194.
- 18 This has been mentioned to me by visiting Hawaiian residents on two occasions.
- 19 Tomi Knaefler, “Sculptor for City Says ‘Sky Gate’ Will Relate to ‘Totality,’” *Honolulu Star-Bulletin*, March 10, 1977.
- 20 S. Snead, “Observatories Reveal the Imagination of India and the Mind of a Maharajah,” *Industrial Design* 8 (June 1960).

All photographs by Isamu Noguchi except as noted.

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Saturdays & Sundays: 11:00am–6:00pm

Mondays & Tuesdays: CLOSED

Admission:

Adults: \$10

Students and Seniors: \$5

Children under 12 and New York City Public School

Students: FREE

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The Noguchi Museum will be replacing the garden wall as part of a multi-year restoration project. Please be patient as we work to ensure the Museum remains an oasis.



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Programs:

Center of Attention:

Great Samrat Yantra at the Jaipur Observatory

Saturday, February 21

4:00pm

Visitors are invited to engage with the Museum's collection through these hour-long conversations around a single work of art.

Noguchi Talks: Noguchi as Photographer with Associate Curator Matthew Kirsch

Saturday, March 21

1:00pm

Matthew Kirsch, Associate Curator and organizer of Noguchi as Photographer: The Jantar Mantars of Northern India, narrates a slide show of photographs from Noguchi's travels to sites he visited throughout Europe and Asia in 1949-50.

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