



1. MISRA YANTRA

Misra Yantra, the 'Mixed Instrument', does not find mention in the papers of Jai Singh II, and was probably built by his son, Madho Singh. The Misra Yantra combines five instruments. The Samrat Yantra, formed by the two corresponding quadrants on the west and east sides, is a sundial. The Niyat Chakra Yantra—which consists of a central wall and two semi-circles on either side—was used to tell the time at Greenwich, Zurich, Serichew (in Pic Islands in the Pacific Ocean), and Notkey (Japan), at noon in Delhi, and viceversa. The working of the Agra Yantra ('Amplitude Instrument'), the larger quadrant on the west side of the building, has not till date been deciphered. The Karka Rasivalaya Yantra ('Circle of the Sign of Cancer') that was used to tell the sign of the zodiac in the sky, besides marking the summer solstice, is a graduated semi circle on the back of the northern wall of the Misra Yantra. The Dakshinottara Bhitti ('Meridian Wall') Yantra is a graduated semi-circle on the eastern wall of the building and was used to observe the altitude of a heavenly body when it passed the meridian.

2. SAMRAT YANTRA

The Samrat Yantra, the 'Supreme Instrument', is located at the centre of the observatory complex, is basically a sundial. The central triangle lies parallel to the north-south meridian and the hypotenuse of this triangle is at almost the angle as that of Delhi's latitude. The shadow of the triangle's wall on the quadrants marks the local time, while the scales marked on both edges of the central staircase mark the position of the sun in the sky.

On the east side of the Samrat Yantra is the Shashtamsa Yantra, a sextant. It lies within a chamber that has remained closed since its construction.

3. JAI PRAKASH YANTRA

Invented by Jai Singh himself, this instrument consists of two complimentary circular buildings. The hollow bowls of the two buildings taken together represent the sky. The surface of these two bowls was marked by scales to enable readings. Wires were stretched across the bowls with a ring affixed at the centre. The shadows of the wires and ring on the inside of the bowls gave the position of the sun. Stairs and platforms were constructed to allow observers to read the scales.

4. RAM YANTRA

The two circular bodies located at the southern end of the complex together make up the Ram Yantra. They are both circular walls with a circular pillar located at the centre. The spaces left in between the walls allowed one to take the readings on the walls and the floor. Thus, like in the Jai Prakash Yantra, the two buildings together form a complete instrument.









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INTACH Delhi Chapter

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a walk around JANTAR MANTAR







The Jantar Mantar is an open-air observatory, a collection of astronomical instruments built by Sawai Jai Singh II in the early eighteenth century. He constructed it through a royal sanction of the Mughal ruler at the time, Muhammed Shah 'Rangeela'.

Called the Yantra Mantra ('Instruments and Formuale') originally, the observatory was sited on flat ground free of trees to ensure that no shadows obstructed the use of the instruments. The structures are unrelated to each other and their arrangement is such that none of the instruments interfere with the readings of another. Jai Singh II was a student of astronomical works of India and Europe and discovered that astronomical tables and instruments in use at the time were inaccurate. The Jantar Mantar rectified the inaccuracy through its scale and its permanence, the instruments being fixed on the ground. To reaffirm the readings in Delhi, he constructed four more observatories, one each at Mathura, Ujjain, Benaras, and Jaipur. The initial construction here was of the Samrat Yantra, Jai Prakash Yantra, Ram Yantra, and the Shashthamsa Yantra. While the Samrat Yantra was reproduced in the other observatories, the last three are specific to Delhi and Jaipur. In the eighteenth century, the Jantar Mantar fell prey to various kings and raiders who attacked Delhi for its riches. Repairs to the instruments has been carried out a number of times since their construction, twice by the royal family of Jaipur in 1852 and 1910. The instruments now painted in red were originally covered in limestone plaster, with white plaster being used to mark the scales.

The temple of Bal Bhairav that today lies just outside the eastern wall was once within the complex, perhaps close to the original entrance to the Jantar Mantar Complex.



Timings: Sunrise—Sunset

Entry: Indian Citizens—Rs 5, Foreign Nationals—Rs 100. A further fee of Rs 25 is levied for video photography; still photography is free. Try and visit on a sunny day, when the abundant sunlight can make it easier to understand how each instrument at Jantar Mantar works.