

CENTURY OLD STEAM LORRY

Restored to its
Pristine Elegance at
Nehru Science Centre
Mumbai

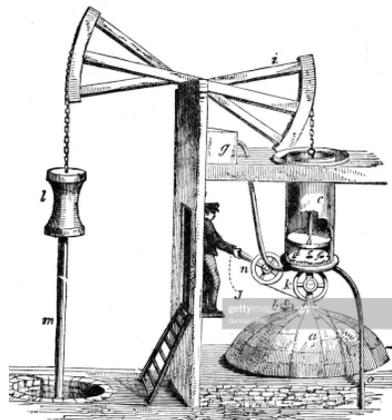
Shivaprasad M. Khened

While the lockdown due to the COVID-19 pandemic shut down museums throughout the world, the Nehru Science Centre Mumbai snatched the opportunity to restore a hundred-year-old steam engine and a major attraction with visitors, to its pristine glory.

ONE of the most attractive features of the Nehru Science Centre, Mumbai is its outdoor science park with science exhibits and rare artifacts, which besides demonstrating scientific principles through interactive playstation-like exhibits also welcome visitors to a beautiful green ambience with plenty of trees around.

Almost all the esteemed visitors, who have visited the Nehru Science Centre, Mumbai, will recollect seeing an old Steam Lorry (Wagon as christened by their manufacturer in England) – a precious artifact displayed in the science park of the centre. Unfortunately, this Steam Wagon artifact was not in good condition due to its ageing and wear and tear because of the sultry and humid climatic conditions in Mumbai.

The COVID-19 challenge, which has compelled all museums including



Newcomen's Steam Engine.
**Newcomen's steam engine
(Courtesy Wiki Commons)**

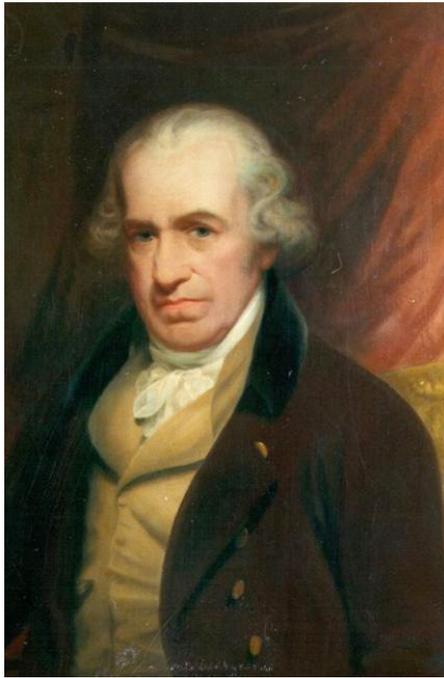
our science museum to be closed for visitors, gave us an opportunity to take up restoration of our precious locomotive collections during this lockdown period. Two of these artifacts have now been restored – Horse Drawn

Carriage and the Steam Lorry. We will also be taking up restoration of other locomotive artifacts on display.

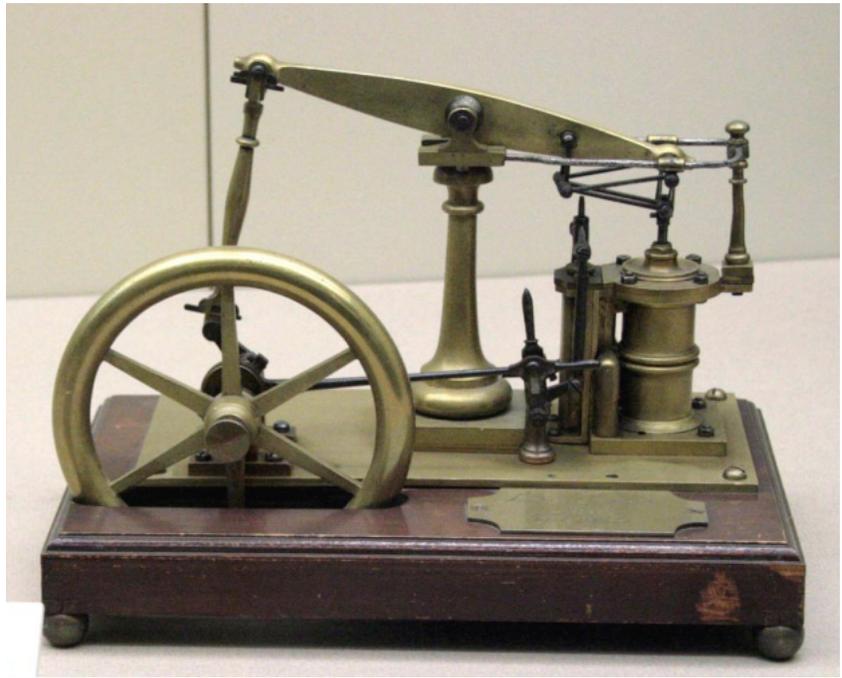
The Steam Lorry was manufactured in 1906 in England and gifted to our centre by Mazagaon Dock Ltd. – who had purchased this lorry for transportation in the dockyard. It was commissioned at the Nehru Science Centre Science Park on 10 January 1980. We are sure the century-old restored Steam Lorry would once again be a prized exhibit at the centre.

India's First Science Park

The open-air Science Park of the Nehru Science Centre, Mumbai, was a trendsetter for the science museum movement in India, which is now spearheaded by the National Council of Science Museums (NCSM). Nehru Science Centre Mumbai (NSCM) was the third science centre in the chain of science museums under NCSM and



Portrait of James Watt
(National Portrait Gallery London)



Model of James Watt's steam engine
(Courtesy Wiki Commons)

it was preceded by the Birla Science and Technology Museum in Kolkata (1959) and the Visvesvaraya Industrial Technology Museum in Bangalore (1965), both of which did not have an open-air Science Park.

The Science Park in Mumbai spread across more than seven acres of land, was inaugurated on 22 December 1979 by the then Prime Minister of India, Shri Rajiv Gandhi. The science park of NSCM is not only the first such science park in India but most likely it is also the world's first science park, which has inspired other science centres in the US and other countries. Incidentally, the UNESCO recognized this new concept as a unique way in which science can be taught in an informal and non-coercive out-of-school ambience.

The science park also has on display vintage locomotives (precious artifacts) of yesteryears – the Railway locomotive engines (steam and electric), Horse drawn Car carriage, Tramcar, HAL HF 24 Marut Fighter aircraft and the Steam Waggon. This Steam Waggon after serving for more than half a decade at the Shipping Yard was donated by MDL to NSCM

in 1980. Incidentally, the MDL also donated another Steam Waggon which has been transferred to our sister unit VITM, Bangalore where it is on display in the Engines Hall of the Museum.

Need for Restoration

It has been more than four decades since the Steam Waggon donated by MDL to NSCM was commissioned for public display in the open-air science park in NSCM, yet it continues to attract visitors, who routinely are seen posing for a photograph in front of this Steam Lorry. However, these outdoor artefacts, notwithstanding the best efforts taken by NSCM to avoid corrosion and damage due to unwelcome environmental conditions of humidity in Mumbai, have been damaged over the years quite severely.

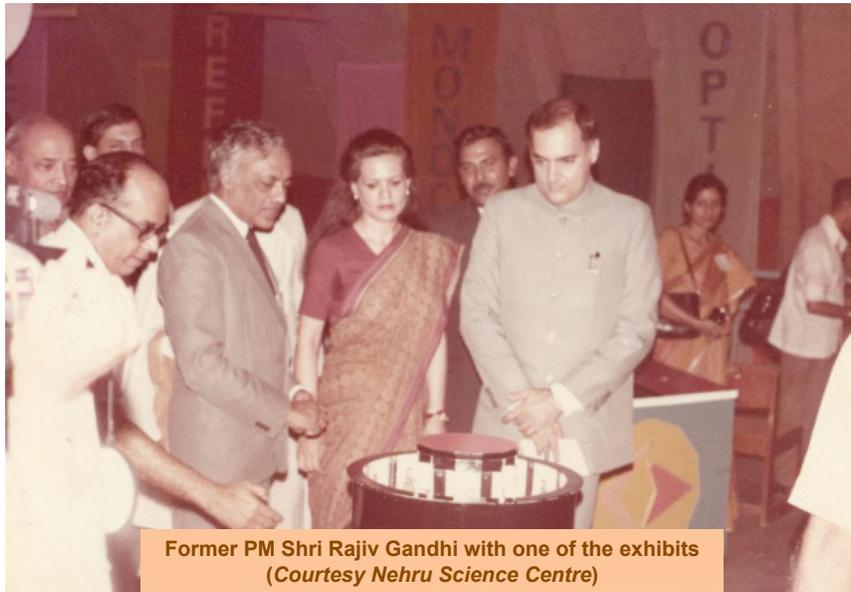
NSCM is among the very few museums in the country that remain open to the public all days of the year, except on two days – Holi and Deepavali. Despite our best efforts, visitors touch these precious artifacts. Unlike the art and archaeology museums, the science museums in India have been designed with an objective of engaging the visitors with hands-on

models and exhibits, which they can touch, feel, interact and play to learn science in an informal and non-coercive ambience. Therefore, NSCM has never been strict with enforcing the discipline of not touching the precious locomotive artifacts. Over a span of four-plus decades, the climatic conditions of Mumbai and visitors' handling of the artifacts have led to substantial damage and wear and tear.

In the four-plus decades history of NSCM, it is for the first time that the museum has remained closed to the public for more than four months due to the COVID-19 pandemic, which has badly hit museums across the world. Fortunately, even during this lockdown period, we have been able to establish an extraordinary online connect with our audience through a plethora of well-conceived and curated science programmes, activities and content. The COVID-19 challenge provided an opportunity for the centre to restore the Steam Waggon.

The Steam Engine

A look back in history reveals that the prime mover for the shaping of the Industrial Revolution (also dubbed



Former PM Shri Rajiv Gandhi with one of the exhibits
(Courtesy Nehru Science Centre)



Opening of the Science Park
(Courtesy Nehru Science Centre)



Images of the Steam Lorry displayed under an outdoor shed (left) and restored Steam Lorry with railings (right)

as technology revolution) was the invention of the Steam Engine. The invention of the steam engine helped in bringing about rapid social and technological changes that shaped the world by facilitating road, sea and rail transportation around the globe.

Steam locomotive transportation allowed large-scale movement of resources and people over long distances. Earlier the industry relied on man- and animal-powered wagons and carts for transportation. The advent of the steam engine changed this forever and brought the world a lot closer. The steam engines were also most commonly used in other jobs like mining and agriculture.

It was primarily the work of British (Scottish) engineer James Watt, who deserves major credit for the invention of his wonder machine – the Steam Engine. When James Watt (1736-1819) invented and created the first reliable steam engine in 1775, his invention relegated the older, less efficient models, like the Newcomen Engine to history. James Watson's innovation of adding a separate condenser significantly improved steam engine efficiency, especially latent heat losses, which were the major cause for reduced efficiency. Increased efficiency helped Watson's new engine to instantly become very popular replacing all old Newcomen Engines that were installed in mines and factories across the world.



One of the earliest images of the Steam Lorry



Driver cabin view with manufacturer's name plate

Watson ingeniously integrated a crankshaft and gears in his steam engine design, which became the prototype for all modern steam engines. The efficacy of the steam engine was so profound that it eventually led to incredible improvements in almost all industries, primarily the textile industry, across the world. Steam engines would also lead to the development of transport locomotives, which gained massive leap forward, particularly in ship propulsion.

Horsehay who were the manufacturers of steam-powered road vehicles, in 1903. They then began producing steam road vehicles in 1905 and in 1906 introduced a 5-ton vertical-boiler wagon. This Steam Waggon featured a 2-cylinder under type engine and a chain drive. The forerunner of Mazagon Dock Ltd. was among the first companies to purchase steam lorries from Alley and McLellan in the very first year of its production – 1906.

One of the first companies to start harvesting the power of Watson's steam engine in transportation was Alley & McLellan, which was founded in 1875 in Glasgow by Irishman, Stephen Alley and his Scottish partner John Alexander McLellan. Alley & McLellan acquired another company, Simpson and Bibby of

The Restoration

The Steam Lorry also called the Steam Waggon (note the spelling of Waggon, where an extra 'g' has been added by the manufacturer) was purchased by the predecessors of MDL from England in 1906 and was used until the late 1950s for transportation of materials in the dock, till it became obsolete. When the first phase of the Science Centre in Mumbai was opened in the form of a Science Park, on 22 December 1979, officials of NSCM managed to convince the authorities of MDL to donate two of their Steam Lorries to NSCM, one of which was to be sent to Visvesvaraya Museum Bangalore.

The Steam Lorry was transported from MDL to the Science Park on 10 January 1980. It was initially placed in an uncovered outdoor ambience and subsequently, a partially covered shed was prepared in which the Steam Waggon was displayed. In the initial period, the Waggon was open for the visitors to touch and feel and there are instances where adventurous visitors even climbed on to the vehicle and took to the driver's seat. Subsequently, a barricade was created to discourage visitors going beyond the barricade.

For the restoration of the Railway locomotives in the science park, we were constantly in touch with the National Rail Museum, Delhi, the Railway Board and also the Central and Western Railways. While doing this exercise we came across some companies that specialized in the restoration of old locomotives.

Equipped with all this information and with workers who were specialized in taking up restoration of old locomotives our curators and artists plunged into the restoration work. It took us roughly three months for the restoration of the Steam Waggon. The restored Steam Lorry now looks fairly new and pristine and we are sure that it will definitely attract a large number of visitors once we open our doors to the public.

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