

The Railway Museum as Science, Industry and History Museum —Past, Present, and Future—

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Introduction

This article presents a short history of railway museums in Japan, their current state, and perceptions on their future as industrial technology history museums.

Brief History of Railway Museums in Japan

The first systematic efforts to preserve railway-related materials (documents and artefacts) for posterity in Japan were made by the Railway Agency (1908–20). The project was started by Shimpei Goto (1857–1929), the first president of the Railway Agency, who established the Railway Museum Trust in 1911. The following year, the trust took custody of the first and second Imperial carriages, along with 121 other items (called reference items at the time) including an Imperial funeral carriage to be archived in a railway museum.

1921 marked the 50th anniversary of railways in Japan, so this project was transferred from the Railway Agency to the Ministry of Railways (1920–43). Reference items were first put on provisional public display in 1920 on elevated tracks at the Marunouchi side of Tokyo Central Station, the first time rolling stock had been exhibited in Japan on elevated tracks. The museum was closed in 1923 after the

Great Kanto Earthquake, but reopened in 1925 in the same location with more collections.

A new reinforced-concrete building was constructed on the site of the former Manseibashi Station on the Chuo Line in 1936 to be used as the new Railway Museum, and the collections were transferred there. The museum was renamed the Transportation Museum after World War II, and was administered and operated by the Transportation Culture Promotion Foundation. It became a general transportation museum handling materials related to ships, aircraft, and automobiles in addition to railways, and was visited by many people. The Transportation Museum closed in that location in 2006 for relocation to Saitama City in Saitama Prefecture. It reopened as The Railway Museum of East Japan Railway Culture Foundation (EJRFCF) in 2007. The same foundation also administers and operates Ome Railway Park in suburban Tokyo.

Other railway museums in Japan are administered and operated by local governments, railway operators, and preservation organizations. These include the SCMAGLEV and Railway Park opened in Nagoya by JR Central in 2011, the Modern Transportation Museum in Osaka and Umekoji Steam Locomotive Museum in Kyoto both owned by JR West, and the Kyushu Railway History Museum in Kitakyushu owned by JR Kyushu. Although Japan does not have a national railway museum like that in the UK, the National Museum of Nature and Science in Tokyo does have a small number of railway-related exhibits.

Railway Museums as Industrial Technology History Museums

In general, museums have three roles, namely the collection and preservation of materials, exhibition and education, and surveying and research. While railway museums cannot overlook such roles, they are characteristically different from general museums due to their specialist nature. The main differences are that they specialize in railways; their focus is on the history and industrial technology pertaining to transportation; and they also specialize in railway-related culture.



First Railway Museum opened in 1921

(The Railway Museum)



Class 120 No.123 (Kaya No.2) 2-4-0 Tank Engine at Kaya SL Square

(Author)

Railways are an important core industry in society and play a vital role in ground transport. It is no exaggeration to say that railway museums must be industrial technology history museums that reflect the policies, economy, and technologies of individual eras. As history and materials are important information bases for museums, industrial archaeology involving study of materials play just as important a role as industrial history and industrial technology history. Industrial technology history along with industrial archaeology started in Japan relatively recently with the 1984 foundation of the Japanese Society for the History of Industrial Technology. On the other hand, the Japan Industrial Archaeology Society (JIAS), which surveys and researches industrial heritage such as railway vehicles and structures, and railway-related materials was founded in 1977, and it maintains a subcommittee that focuses on railways.

The keywords of industry, technology, and history position railway museums as industrial technology history museums. The term 'industry' includes the social foundations of policy and economy; 'technology' includes skills, engineers, and labour; and 'history' includes people and culture in addition to history itself.

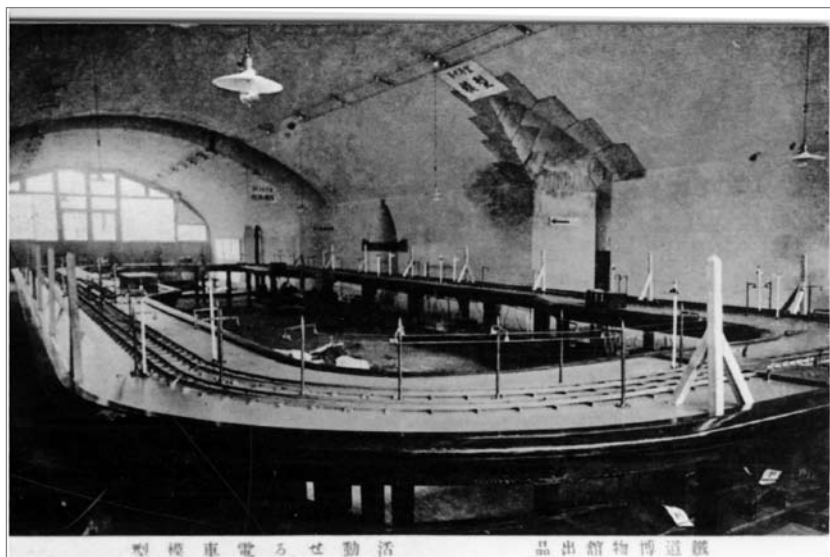
Railways are a part of the transportation industry that is closely connected to other industrial fields in order to fulfil its transportation duties. Technology supports transport functions, and those functions are manifested through the work of engineers who are both directly and indirectly related to railways. The lives of people using railways are entrusted to those technologies, and the integration of people's activities leads to the culture of the time. When these technologies are

integrated chronologically, they become the history behind the railway museums, and thus position railway museums as industrial technology history museums.

Inside and Outside of Railway Museums

Operators of railway museums in Japan are either public or private organizations, with the majority being private sector. Japan's main railway museums are administered and operated by companies in the JR group of operators and the major private railways of Tobu Railway (Tobu Museum of Transport and Culture), Tokyu Corporation (Train and Bus Museum), Tokyo Metro (Tokyo Subway Museum), and Nagoya Railroad (Meitetsu Memorial Museum). Public museums are located mainly in major cities with populations of more than 1 million, with railway-related museums established in cities such as Sapporo, Sendai, Yokohama, Nagoya, and Osaka. Japan's capital Tokyo has the Edo-Tokyo Museum, which is a general museum that simply exhibits railway-related materials in its modern-era section. A transport-related museum is scheduled to open to commemorate the launch of the Tokyo Metropolitan Government Bureau of Transportation.

Regional private railways and industrial (forestry) railways across Japan also have small-scale museums. Otaru and Mikasa cities and Engaru Town (Hokkaido), Aomori City (Aomori), Annaka City (Gunma), Agematsu Town (Nagano), Kaya Steam Locomotive Square (Kyoto), Ikasa Railway Memorial Museum (Okayama), Umaji Village (Kochi), and Nansatsu Railway Museum (Kagoshima) are relatively



Model railway panoramic diorama at first Railway Museum

(The Railway Museum)



Steam locomotive simulator at The Railway Museum

(The Railway Museum)

well-known examples.

Railway museums preserve and exhibit a variety of materials both indoors and outdoors. Rolling stock that has particular historical value (important cultural properties, prefecture-designated cultural properties, designated railway monuments), although relatively large, is often exhibited indoors alongside other railway-related materials, documents, models, and the like. While this is the preferred method of preserving and exhibiting materials, museums with a large number of carriages cannot avoid exhibiting them outdoors due to indoor space limits. Countermeasures against weather, such as temperature variations, rain, snow, and wind, must be considered with outdoor exhibits. Japan has a rainy season, heavy regional snowfalls, and seasonal winds, so gradual changes over time due to the expansion

and contraction of wood and rusting of iron gradually damage the roof and body or deteriorate the painted livery of outdoor exhibits. Such damage occurs naturally, but unfortunately man-made damage (vandalism) by unscrupulous people has also occurred in recent years.

Materials other than documents that are preserved and exhibited at railway museums include railway-related objects that are usually exhibited in display cases that house the actual object or a replica of it. Even large materials are often exhibited using the actual object. By observing the shape, size, composition, use, and other aspects of the objects, they can become ideal educational tools to help understand the technical ability and living environment of the age in which they were used. Model exhibits and image exhibits are also employed in addition to the actual objects. These give visitors a visual introduction to the broad-ranging geography of railways, and the social roles that railways played in transport. They are also very useful in presenting the roles railways played in certain industrial eras, and their links with other industries such as mining and river transport.

Methods of exhibiting models showing the social role and functions of railways were established early in Japan's railway museums; the Railway Museum opened in 1920 with model track. The Transportation Museum opened after WWII expanded its exhibitions to encompass other modes of transport such as ships, but the focus remained on railways. A large track (model railway panoramic diorama) using HO scale was built there and viewing models came to be a popular reason for visiting museums, with their excellent reputation becoming an established fact. Thus, expanded model tracks were adopted by the new Railway Museum.

Documentary photographs are a primary means used in visual exhibits, but many documentary movies were also made under the recommendation of the Railway Ministry. Consequently, there are many valuable historical records covering subjects such as railways in the transport industry, railway construction, track maintenance, and locomotive operation and maintenance. Recently, museums have incorporated train-driving simulators featuring Japan's superb mechatronics technologies—they are popular with visitors of all ages. Simulators originated as training

devices for aircraft pilots, but with their introduction for training drivers they were also introduced at the former Transportation Museum in 1987 and The Railway Museum to provide hands-on experience in train driving.

Many outside rolling-stock exhibits are static and cannot be driven, but some museums have introduced dynamic exhibits where railway vehicles run on short tracks in the museum grounds. Railways are an industry that functions by movement, and such dynamic exhibitions are part of the mobility culture introduced from the UK. Seeing rolling stock in motion has a great impact on museum visitors.

Management of Railway Museums

When managing railway museums, the utilization of archives, procurement of operating funds, acquisition and training of personnel, and partnership with external entities must all be considered.

To put these three important roles of museums into practice, archives must be used, which means medium- and long-term planning and proposal of permanent and special exhibits. These are important day-to-day jobs related to the social trust and functional maintenance of museums.

Procurement of funds is an essential part of museum operation, and many larger railway museums are financially supported by parent organizations that own and operate the museum, in addition to income generated by the museum itself (entrance fees, souvenir sales, restaurants, etc.). The same applies to public museums. Small private museums, in contrast, often receive no financial assistance and must maintain and administer their collections through their own efforts. Sometimes, this becomes increasingly more difficult as time passes.

Specialization is required for the administration and utilization of preserved materials exhibited by railway museums, so the presence of recognized museum curators is important. Curators are trained through university courses and practical training, and the Ministry of Education, Culture, Sports, Science and Technology endorses official certification. However, basic knowledge of industrial technologies is not required as part of curator training, so acquisition of specialist knowledge through self-study is required after becoming a curator. In addition to curators, staff that specialize in the maintenance of exhibit materials are also needed, and engineers with

high-level skills are required for special exhibitions such as moving rolling stock. The UK National Railway Museum in York (NRM) has a workshop for repairing rolling stock, and its facility at Shildon has a workshop where students enrolled in the rolling stock maintenance and repair course at the local college can gain practical experience. Human resources development is also being pursued to create employment opportunities for repair engineers at facilities such as Shildon after graduation. In Japan, companies in the JR group have workshops to maintain and repair rolling stock during normal operations. The same staff can also restore and maintain steam locomotives and related equipment, and organizations and facilities are available for such work. In the early stages of steam locomotive restoration, retirees were enlisted as teachers to train new engineers in work procedures and manual preparation, passing on their knowledge to the next generation.

Railway museums partnering with educational and research institutions could provide an excellent environment for implementing the aforementioned three roles of museums. In Japan, railway museums invite specialists in railway-related fields (researchers and other experts) to hold lectures. The former Transportation Museum held commemorative lectures on Railway Day every 14 October for years in conjunction with JIAS. These events were part of the role played in school and social education, but did not go as far as creating a system for supporting specialized research such as railway history and railway technology history. The University of York and NRM partnering to set up a graduate course is an example of a successful venture in the UK. The University of York has courses in railway research and transportation history, and the NRM



NRM's workshop for repairing rolling stock

(Author)

housing a vast archive of railway-related materials provides research support. This system in which the museum's excellent library staff (archivists and librarians) supports university researchers is particularly enviable. It is through such a research environment that a doctorate programme in Railway Studies was born.

There are almost no graduate courses in industrial technology history and industrial archaeology in Japan, and it is extremely difficult to continue research activities in those fields after completion of graduate studies. In other words, there is no environment in Japan to educate researchers. University–museum cooperation simply exists to provide practical museum work to students to earn credits for their curator certification courses.

Other, small-scale, heritage railways in Japan with static and dynamic exhibits operate mainly on weekends using volunteers. Heritage railways recreate the historical materials of industrial technology in a specific era, and they are also known as a 'living railway heritage' or 'cultural heritage'. Unlike fixed railway museums, heritage railways in various locations across Japan are decentralized outdoor museums. The Railway Preservation Society of Japan (RPSJ) is an organization that encompasses all of them. Unlike dynamic rolling stock exhibits run by the JR group of operators and major private railways, heritage railway members maintain track and rolling stock themselves through individual passion and skill gained through experience, with few are recognized experts. There is no system to provide financial support to these small-scale heritage railways, so we must learn from examples in the UK, which is the home of heritage railways.

Railway Museums in 21st Century

Railway museums in Japan face these aforementioned issues as we enter the 21st century. Museum operations are very affected by socioeconomic factors. With the shift of much industrial production overseas and the dramatic slump in international exchange rates, there is no guarantee that Japan can return to its previous level of economic prosperity.

In such economic conditions, museums must prepare for the future through integral activities while performing day-to-day duties, taking small steps towards further substantiating materials. That means analyzing socioeconomic, academic, and cultural significance of individual materials from the perspective of industrial technology history, and clarifying and integrating their relation to one another. By continuing with such steady survey and research activities, focus will gradually be placed on consolidating and networking documents and on the social value of heritage, reinforcing its academic significance. The continuous accumulation of experience and results leads to materials being designated as national and

cultural properties, heightening their cultural significance.

Introduction of railway museum education to early school education and use of museums in education would also be beneficial. When visiting railway museums in western countries, they always seem to be full of children even on weekdays, with students observing exhibits under the instruction of teachers or excitedly working on individual projects. Teachers accompanying children on field trips told me that they see museums as classrooms outside the school, a treasure trove of teaching materials that present aspects of industry and technology that simply cannot be learned at school. It should become an important mission for Japanese railway museums to also bear such a role, and I would like to see them carry out this role soon. Additionally, in the challenge to overcome the problem of global warming, promoting the excellent environmental conservation aspects of railways through the attraction of railway museums is the best way of forming an educational base for children who will soon become the next generation of decision-making adults. I have high hopes for all those involved in helping to create these conditions. ■



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Dr Tsutsumi earned his masters degree in precision mechanical engineering from the Faculty of Science and Engineering at Chuo University Graduate School. After working in the Department of Mechanical Engineering at Sophia University and the Japan Institute for Labour Policy and Training in the former Ministry of Labour, he became senior researcher at the Institute of Vocational Training, Polytechnic University in 2001. In 2010, he became senior advisor for the Career and Vocational Support Center of the Tokyo Institute of Polytechnic University. He is a fellow of The Japan Society of Mechanical Engineers (JSME) and advisor to the Railway Preservation Society of Japan (RPSJ).