

Methodology for the Evaluation and Protection of Industrial Heritage through Museology

Specialist Methodology of the National Heritage Institute – Methodological Centre for Industrial Heritage, Ostrava
and the Technical Museum in Brno



**Methodology for the Evaluation
and Protection of Industrial Heritage
through Museology**

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Methodology (Certificate no. 186 on the recognition of an applied methodology, issued by the Ministry of Culture of the Czech Republic, Research and Development Department, ref. no. MK 717/2019 OVV, file ref. MK-S 16654/2015 OVV).

This Methodology for the Evaluation and Protection of Industrial Heritage from the Perspective of Heritage Management was elaborated as part of the project “Industrial Heritage from the Perspective of Heritage Management” (“Průmyslové dědictví z pohledu památkové péče”) in the NAKI II programme (project code DG16P02H029).

The main aim of the publication Methodology for the Evaluation and Protection of Industrial Heritage through Museology is to delineate a museological approach to evaluating the importance and benefits of surviving examples of industrial heritage during the selection of items and their thesauration (i.e. their systematic integration to create a museum collection). The publication aims to provide users with methodological guidance that can be applied when devising activities for the conservation of industrial heritage through museum-type collections; the museum concept is a well-established and sustainable form of protecting industrial heritage. This methodology is intended to serve as a tool that can be used to elaborate a coordinated approach to be applied by museum institutions when engaging in heritage conservation activities under the conditions defined by Czech legislation. As such, the publication aims to provide clear and explicit guidance on defining industrial heritage values, determining priorities vis-à-vis institutional collections, and exploiting the possibilities for incorporating examples of industrial heritage into museum collections in order to rescue and preserve them.

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Photographs © Mgr. Ondřej Merta; PhDr. Jiří Merta; Eva Řezáčová; PhDr. Petra Mertová, Ph.D.; Ing. Martin Barák;
Mgr. Michaela Ryšková; Hornické muzeum Příbram, p. o.; 2019

ISBN 978-80-88240-15-0 (National Heritage Institute)

ISBN 978-80-87896-80-8 (Technical Museum in Brno)

Front cover: Příbram, Mining Museum in Příbram (Hornické muzeum Příbram), Anna mine.

Photograph Mining Museum in Příbram, 2015.

Rear cover: Těšany, Technical Museum in Brno (Technické muzeum v Brně), Těšany forge. Photograph Eva Řezáčová, 2019.

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01. Foreword

Introduction by the project coordinator

This publication follows on from a previous text in the same series presenting a methodological basis for the evaluation and protection of industrial heritage from the perspective of heritage management; it is our opinion that only coordinated efforts by heritage experts, museum institutions and archeologists can ensure that industrial heritage is recorded, documented, evaluated and protected to a high professional standard. After these first two publications, we expect further additions to the series in the form of a third general methodology (for archeological surveys of proto-industrial and industrial heritage), followed by a number of field-specific methodologies focusing on individual industries; it has become apparent that basic evaluations of technical and architectural developments first need to be carried out on a field-specific basis.

Nevertheless, there is a problem: although heritage experts are gradually amassing a growing body of knowledge concerning important buildings and technical equipment, they lack the tools enabling them to store technical equipment and smaller items in depositories, to create exhibitions and to conduct educational activities as part of these exhibitions; it is only museum institutions that have these tools at their disposal. For this reason, it would be of great benefit to coordinate the activities of heritage professionals and museums. Essentially, this cooperation would involve a clear allocation of roles and responsibilities in heritage conservation work. In our opinion, the role of heritage professionals should be to document and conserve immovable monuments, and the role of museum professionals should be to carry out museum documentation, to create and manage collections (including large machinery and equipment), and to present items – including explanations of the principles, functions and values related to these items. Both approaches should be integrated and mutually complementary; for example, a museum can be established at a location where an industrial site has been preserved (along with its technical equipment), or historically interesting technical equipment can be transported to a depository and an exhibition can be created there, supplementing and above all explaining and contextualizing cultural monuments that still exist in situ.

Unfortunately, it is rare for both approaches to be coordinated, and for heritage professionals and museums to work together on joint conservation projects. At least as far as we are aware, there is no integrated concept which would approach the issue of industrial heritage as a holistic entity with respect to key industries and industrial agglomerations. There may also be a general lack of specialist museum institutions with specific responsibility for industrial heritage (this is certainly the case in the Ostrava industrial agglomeration). And there is a shortage of sufficiently large depository premises – whose existence is one of the key preconditions for the conservation of industrial heritage.

In our opinion, the necessary overarching concept (priorities, allocation of roles and responsibilities, and a basic idea of funding sources) should be based on a knowledge of collections (i.e. an awareness of whether at least the most important industries are represented) and clear principles for managing collections (coordinated acquisition plans to ensure that institutions do not attempt to collect everything and that the most important items do not escape their attention because they lack funds to dismantle them or they lack space in their depositories).

Sources of inspiration here can be found in the United Kingdom and Germany, where large-scale examples of technical equipment are initially deposited at “controlled scrapyards” in order to prevent them being destroyed entirely, and are then evaluated to decide what should be done with them in the future.

A somewhat contrasting approach is represented by efforts to maintain industrial heritage sites in an operational state, and to “musealize” these operations by retaining a small number of employees who produce small volumes with



Ostrava, Landek Park Mining Museum. Example of a new use for an industrial site. View of the former Eduard Urx coal mine with its winding tower – the starting point for the tour route. Photograph Ondřej Merta, 2018.

the help of state subsidies, enabling visitors to see the production process in real time and ensuring that knowledge and skills do not die out; this approach has been implemented successfully in Norway and Sweden.

Of course, these ideas are presented here on a very general level – but it is essential for them to be heard, because the current situation in museum practice and heritage management has clearly demonstrated that the current non-integrated institutional approach is (and will remain) insufficient to ensure the effective protection of industrial heritage.

Prof. PhDr. Ing. arch. Miloš Matěj, Ph.D. et Ph.D.

02. Starting points

02.01. Research aims

This methodology has been created in order to provide support for the selection of appropriate examples of cultural heritage (from the category of industrial heritage) for museum collections and for their subsequent musealization. The publication has resulted from a joint project involving the Ostrava branch of the National Heritage Institute (Národní památkový ústav, NPÚ)¹⁾ and the Technical Museum in Brno (project code NAKI II DG16P02H029: Industrial Heritage from the Perspective of Heritage Management). It follows on from the previous publication in the same series, entitled *Methodology for the Evaluation and Protection of Industrial Heritage from the Perspective of Heritage Management*.²⁾

02.02. Aims of this publication

The main aim of the publication *Methodology for the Evaluation and Protection of Industrial Heritage through Museology* is to delineate a museological approach to evaluating the importance and benefits of surviving examples of industrial heritage during the selection of items and their thesauration (i.e. their systematic integration to create a museum collection).

The publication aims to provide users with methodological guidance that can be applied when devising activities for the conservation of industrial heritage through museum-type collections; the museum concept is a well-established and sustainable form of protecting industrial heritage.

This methodology is intended to serve as a tool that can be used to elaborate a coordinated approach to be applied by museum institutions when engaging in heritage conservation activities under the conditions defined by Czech legislation. As such, the publication aims to provide clear and explicit guidance on defining industrial heritage values, determining priorities vis-à-vis institutional collections, and exploiting the possibilities for incorporating examples of industrial heritage into museum collections in order to rescue and preserve them.

The primary aim of the methodology presented in this volume is to answer a number of fundamental questions: what industrial heritage is, why it is worth protecting, how to apply our knowledge and evaluation of industrial heritage in the process of selection, and when to protect industrial heritage by creating museum collections through the process of thesauration.³⁾ The options presented in this publication are illustrated by a range of examples from both the Czech Republic and abroad.

The proposed approaches and methods are motivated by the awareness that the preservation of our industrial heritage requires a coordinated approach involving not only state-organized museum institutions, archives and heritage professionals, but also (and no less importantly) local and regional government bodies, investors, developers, civic initiatives, and individual enthusiasts.⁴⁾

1) The unit of the National Heritage Institute responsible for researching technical and industrial heritage is the Methodological Centre for Industrial Heritage, based at the Institute's Ostrava branch.

2) A publication by the Methodological Centre for Industrial Heritage, part of the Ostrava branch of the National Heritage Institute (2018).

3) For an overview and discussion of key museum terminology such as selection, musealization and others, see the website ICOM International Council of Museums. Museum definition [online]. ICOM International Council of Museums [retrieved 7. 1. 2020]. Available at <https://icom.museum/en/>.

4) Various approaches to industrial heritage applied by official institutions in the Czech Republic and Norway are described in the book *Technical Monuments in Norway and the Czech Republic, Technické památky v Norsku a České republice*. In the preface, the author emphasizes the importance



Svitávka, ruins of a former textile factory. No new use has been found for the factory, and it is gradually disintegrating. Photograph Ondřej Merta, 2015.

02.03. Concept of the methodology

The content of this methodological publication has been conceived in order to provide guidance to museum institutions when devising effective approaches to the protection of industrial heritage. The publication is designed to be applied when museums are planning activities related to the conservation of industrial heritage, i.e. when applying the provisions of Act no. 122/2000 Sb. on the protection of museum-type collections; this involves the incorporation of industrial heritage into museum collections (in the case of movable items) or the in situ implementation of museum activities at preserved industrial heritage sites (in the case of immovable industrial heritage).

The opening chapters of this publication outline and characterize the core subject of interest, setting out a definition of the term “industrial heritage”. The publication then summarizes official bodies’ stance regarding the importance of industrial heritage for society (involving issues such as sustainable development, creativity, education, national and cultural identity); this stance is codified in international treaties and charters. There then follows an analysis of the importance and benefits of museum institutions and their activities for the protection of industrial heritage.

The core part of this publication presents a range of appropriate, tried-and-tested approaches used in official museological practice (by collecting institutions including technical museums and science and technology centres) during the process of selection (choosing suitable exhibits for collections); in this process, examples of industrial heritage are evaluated in terms of their cultural-historical value, aesthetic value and potential for musealization – which may also take into account non-expert perceptions (i.e. the views of the general public) regarding the importance of a particular acquisition.⁵⁾ The term musealization denotes the process of researching and documenting information associated with an item in relation to the process of creating a collection as a whole (a process known as thesaurization).

In addition, the publication assesses the possibilities for museums’ involvement in heritage protection, taking into account the physical nature and technical specifications of examples of industrial heritage as well as the steps that are necessary in order to protect them – including issues such as the necessity for preventive conservation, interventions by

of interdisciplinary cooperation. See MATĚJ, Miloš. Ochrana průmyslového dědictví v České republice. In *Technical Monuments in Norway and the Czech Republic, Technické památky v Norsku a České republice*. Ostrava 2016, p. 13.

5) In addition to these traditional values, New Museology also encompasses novel criteria such as historical memory, local specifics, and cultural plurality.



Łódź (Poland), Muzeum fabryki. An example of the new use of an industrial site where production has been discontinued. A museum installation in the former Büttner textile factory, respecting the original function of the site. Photograph Ondřej Merta, 2013.



Těšany, Těšany forge, Technical Museum in Brno (Technické muzeum v Brně). Public demonstrations of metalworking techniques (blacksmithing). Members of the public can try out the basics of blacksmithing provided that they comply with safety rules. Photograph Ondřej Merta, 2017.



Těšany, Těšany forge, Technical Museum in Brno (Technické muzeum v Brně). Public demonstrations of metal lathing, in which visitors of all ages can participate. Photograph Ondřej Merta, 2017.

conservation experts, the demands arising from long-term storage in depositories, etc. Surviving examples of industrial heritage are evaluated both in situ and also at museum premises in order to arrive at a decision on whether to incorporate them into museum-type collections for purposes of heritage protection. A similar process is applied to an entire collection (an entire set of items held by a museum) whenever it is necessary to carry out a re-evaluation of a museum's acquisitions policy (acquisition plans) or of the collection itself – e.g. if a curator leaves the institution, at regular set intervals, or as part of institutional reviews. This evaluation takes place in several phases, based on the assumption that the social and cultural-historical values of examples of industrial heritage cannot be evaluated just once, after which these values will remain intact indefinitely; instead, it is necessary to apply a process of constant verification and comparison with other surviving representatives of historical phenomena and contexts.⁶⁾

This methodology has been conceived for general use by museums involved in the conservation of industrial heritage; the examples have been chosen in order to illustrate the widest possible range of museum practices, regardless of which industry the specific examples are taken from. The National Heritage Institute and the Technical Museum in Brno plan to

publish a set of field-specific methodologies which will focus on specific issues related to individual industrial heritage collections that are pertinent to particular industries.

This methodology has been deliberately designed to meet the practical needs of museums when determining the value and importance of industrial heritage from the perspective of the selection and thesaurisation of collections as a form of industrial heritage protection; the primary focus of museums' activities is the management of movable heritage in the form of items which belong to museum-type collections and represent an aspect of reality that is interpreted and presented to the public using museum techniques.

Besides this primary focus, the methodology presented in this publication also takes into account the second main role of museums within the process of industrial heritage protection, i.e. when museums apply their working methods in situ, at immovable heritage sites (buildings or landscape features) – in this case, at technical or industrial heritage sites, whose values are assessed and evaluated either by heritage professionals or by heritage professionals in conjunction with museum experts; here the heritage preservation activities applied at the site are conducted in accordance with Act no. 20/1987 Sb. on state heritage management and subsequent amendments and related regulations.

Issues related to the analysis of movable heritage values and forms of industrial heritage protection are covered by the first publication in this series, entitled *Methodology for the Evaluation and Protection of Industrial Heritage from the Perspective of Heritage Management*, which defines the theoretical basis of the approach taken by heritage management professionals to the evaluation, selection and protection of industrial heritage, as well as presenting numerous practical examples to illustrate the options for applying various heritage tools in industrial heritage protection. The present publication follows on from its predecessor, focusing on situations in which museums conduct a process of selection and thesaurisation for purposes of heritage protection by implementing museum activities at immovable heritage sites (both interiors and exteriors); in such cases, the site itself inspires the museum's research, presentational or educational activities, e.g. the creation of educational programmes, visitor trails (industrial heritage routes), etc.

This methodological publication is not only targeted at professionals in the field (heritage experts, museum staff, state officials, architects, technical experts); it is also designed to offer inspiration and guidance to other users (owners, site users or managers, private entities) when devising museum activities as a way of protecting cultural heritage classified in the category of industrial heritage.

Target users of this publication include persons responsible for defining the acquisitions policy and plans of a museum or for a collection including industrial heritage, those planning conservation work to preserve movable industrial heritage items (including the selection of appropriate techniques and tools), and those involved in presenting the importance and values of industrial heritage to the general public.

The publication focuses on industrial heritage preservation from the perspective of museum activities; it therefore highlights the different roles played by heritage experts and museums. The role of heritage experts is to research a broad range of industrial heritage (to record it, document it and evaluate it); to identify which items of technical equipment, buildings, sites, linear structures and/or territorial entities are suitable for heritage protection; and then to implement this protection. The role of museum staff is to apply a process of musealization to industrial heritage; to preserve selected examples of industrial heritage for the future; and to exploit the possibilities of industrial heritage for educational purposes. Heritage management and museum practice are closely interwoven strands in the protection of industrial (cultural) heritage, and they naturally need to cooperate, whether in the case of sites (buildings, complexes) or equipment (machinery).

In the Czech Republic, as in other countries, it is mainly heritage professionals who are responsible for providing protection to industrial heritage; their methods are derived from international charters and recommendations (see below). A recent and comprehensive overview of the system and tools of heritage protection in the Czech Republic is given in the publication *Methodology for the Evaluation and Protection of Industrial Heritage from the Perspective of Heritage Management*.⁷⁾

6) FOLTÝN, Dušan – HAVLŮJOVÁ, Hana. *Kulturní dědictví a udržitelný rozvoj místních komunit. Cultural Heritage and Sustainable Development of Local Communities*. Praha 2012, p. 20.

7) See note no. 2. The cited publication is the first publication from the project NAKI DG16P02H029.



Miskolc-Felsöhámar (Hungary), Hungarian Museum of Science, Technology and Transport (Magyar műssaki és közlekedési múzeum). An exhibition of ironmaking opened to the public in 1970. The museum is located in the former directorate of the local ironworks. Photograph Ondřej Merta, 2016.

From the theoretical perspective, the methodology presented in this volume views a museum as an institution that is not focused primarily on generating profit, but rather on acquiring, curating and communicating knowledge related to the tangible and intangible heritage represented by the items in its collections.⁸⁾ These efforts represent an official manifestation and application of museum value (also known as museality); they reflect a specific relationship between humans and the world around them, and they are conducted in the public interest, with a clear purpose and an unbounded responsibility for protecting the values that have been entrusted to the museum and communicating these values to the public.⁹⁾ Industrial heritage is thus evaluated according to its ability to be a bearer of museality (museum

8) The Czech Republic's Ministry of Culture has issued a methodological instruction (ref. no. 5762/2005) on the implementation of Act no. 122/2000 Sb. as per Act no. 483/2004 Sb. and on the effects of Act no. 1/2005 Sb. (which amends Act no. 243/2000 Sb. on the budgetary allocation of tax revenue) on changes in the Central Register of Collections; this methodological instruction defines the term "museum" (in Czech "muzeum") in relation to Section 2, Act no. 122/2000 Sb., adding supplementary information to Subsection 3, which defines the term. The definition indicates that:

- a museum is an institution – i.e. it is not a particular type of formal entity (it may be a legal entity, a natural person, or an entity without its own legal subjectivity); instead it is a set of instituted and/or structured specialist activities and practices; the term "museum" thus denotes a broader concept than concepts such as "organization", "institution" or "facility",
- a museum acquires and accumulates natural and human artefacts for purposes of scholarship and study, and it studies the environments from which these natural and human artefacts were acquired,
- a museum creates collections consisting of selected natural and human artefacts; it is a permanent repository for these collections, it keeps records of these collections and it subjects them to expert analytical processing,
- a museum provides selected public services enabling access to and use of its collections by all persons equally, the purpose of a museum's provision of public services is generally not to generate profit,
- a gallery is a museum specializing in collections of art,
- the definition of a museum takes account of the sequential interrelation of a museum's fundamental activities; natural and human artefacts are first acquired and accumulated for purposes of scholarship and study, and at the same time the museum conducts research and surveys of the environments from which these artefacts were acquired; only then does the museum create collections (not all the acquired natural and human artefacts are automatically incorporated into the collections, but only selected artefacts become part of the collections); this only superficially appears not to be the case for museums of art (galleries), which generally acquire new items with the clear intention of incorporating them into their collections; in fact a gallery may acquire extensive sets of items (e.g. from posthumous estates, via probate proceedings etc.), of which only some are selected to become part of a collection,
- the definition of a museum further states that a museum's activities are not restricted solely to acquisitions and the creation of collections, but also include the provision of selected public services. Available online at www.mkcr.cz.

9) FIALOVÁ, Dagmar. *Profesní a etické standardy a výkonnostní ukazatele muzejní práce. Národní systém muzeí jako nástroj udržení společné odborné a etické základny muzeí v ČR*. Praha 2003, p. 5.

Trieste (Italy), Trieste Sea Museum (Museo del mare). Exhibition with a classic display case installation. The display case contains exhibitions showing the development of different types of fishing vessels. Models are used as representatives of authentic vessels. Photograph Ondřej Merta, 2017.



value) by existing as a specific sensory aspect of reality,¹⁰⁾ a tangible and intangible bearer of witness to humans and their environment, and a source to be studied and presented.

This methodology views a museum as a space in which museum-type collections are created, studied and presented to the public for the purpose of passing on the acquired knowledge to society as a whole and participating in the education and cultivation of society.¹¹⁾ This is done with a clear awareness of the museum's responsibility for preserving cultural memory via material artefacts not only for today's society, but also for future generations, who at some point in the future will assess whether the concepts guiding the selection and thesaurization of the items were appropriate and whether these processes succeeded in preserving important examples of cultural heritage as representatives of the past and the present day. The decisive factor influencing whether an institution is or is not a museum as per Section 2, Subsection 3 of Act no. 122/2000 Sb. is not the institution's title (i.e. whether or not its title includes the word "museum"), but rather its primary sphere of activities.

A museum-type collection (in Czech "sbírka muzejní povahy") is a term defined by Act no. 122/2000 Sb. as "a set of collection items". A collection is officially classified as a museum-type collection when it is recorded in the Czech Republic's Central Register of Museum-Type Collections ("Centrální evidence sbírek muzejní povahy", CES); this applies to all collections owned by the state and by local government authorities. According to Act no. 122/2000 Sb., a museum-type collection is an indivisible set of property; this means that under the Act, a museum collection cannot be subdivided into "sub-collections". In practice, museums frequently apply their own internal subdivisions as part of expert assessments of the content and value of collections. Museums are legally required to keep records and conduct inventories of their collections.¹²⁾

10) STRÁNSKÝ, Zbyněk Z. *Úvod do studia muzeologie*. Brno 1979, p. 39.

11) A secondary goal may include entertainment or leisure activities involving emotive experiences.

12) See Act no. 122/2000 Sb.



Žamberk, Museum of Historical Machinery (Muzeum starých strojů), exhibition of machine tools. The premises were originally equipped for television filming. Located in the former Vonwiller (later Mosilana) factory. Photograph Ondřej Merta, 2017.

03. Conditions for museum practice in the Czech Republic in relation to the protection of industrial heritage

In principle, all Czech museums constituted by the state, regions or municipalities whose collections are listed in the online database of the Central Register of Museum-Type Collections (“Centrální evidence sbírek muzejní povahy”, CES)¹³⁾ are members of the Czech Association of Museums and Galleries (“Asociace muzeí a galerií”, AMG)¹⁴⁾ and the International Council of Museums (ICOM).¹⁵⁾ Besides these museums, there are also collecting institutions in the Czech Republic which resemble museums (either privately owned or constituted by other owners) but which are not required to list their collections in the CES and are not required to be members of the AMG or ICOM.

The activities of Czech museums and galleries are subject to legal regulations (Act no. 122/2000 Sb. on the protection of museum-type collections and amendments to other acts, implementing decrees and methodological instructions of the Czech Republic Ministry of Culture), and they are also guided by strategic documents of the Czech Republic (in the state’s capacity as the constituting body of some museums). The work of museums and galleries may also be guided by documents issued by other constituting bodies – e.g. a region, municipality, company, private individual, etc. Collecting institutions are tasked by their owners with curating cultural heritage for purposes of cultivating and educating the public and enhancing awareness of regional and national cultural identity.

The strategic documents of museums are usually accessible to the public via websites; these documents list the museum’s priorities vis-à-vis its collections and set out the methods applied when addressing these priorities. The documents also define critical issues and present proposals for solutions. Such documents represent important resources for museums when planning their activities. In the case of organizations constituted by the Czech Ministry of Culture, the relevant documents are as follows: the State Cultural Policy for 2015–2020 (including an outlook up to 2025) on the basis of Government Resolution no. 266 issued on 15 April 2015 and the Implementation Plan for the State Cultural Policy for 2015-2020 on the basis of Government Resolution no. 81 issued on 3 February 2016; the Development Concept for the Museum Sector in the Czech Republic for 2015–2020 on the basis of Government Resolution no. 655 issued on 20 August 2015; the Concept for More Effective Management of Traditional Folk Culture in the Czech Republic for 2016–2020 on the basis of Government Resolution no. 10 issued on 13 January 2016; and the Strategy for the Digitalization of Cultural Content for 2013–2020 approved in Government Resolution no. 70 issued on 30 January 2013. The protection of cultural heritage by museums in the Czech Republic is not the subject of a coordinated concept implemented via specific legislative standards or recommendations. It thus remains a sphere of activity carried out on an individual institutional basis, guided by international recommendations and normative documents.

On the international scene, the key body for technical museums is the International Committee for Museums and Collections of Science and Technology (CIMUSET),¹⁶⁾ which forms a part of ICOM. The purpose of CIMUSET is to manage

13) CES online. Centrální evidence sbírek muzejní povahy [online]. Ministerstvo kultury [retrieved 1. 9. 2018]. Available at <http://www.cesonline.cz/arl-ces/cs/ces-uvod>.

14) The Czech Association of Museums and Galleries (Asociace muzeí a galerií České republiky) is the professional body of Czech museums and galleries.

15) ICOM (International Council of Museums) is an international NGO forming part of UNESCO which maintains informal contacts among museums and museum staff in 137 countries and territories. It guarantees the quality of museum practice, including ethical issues, via its codes of ethics. It also includes committees coordinating various aspects of museum practice. On an international level it works to combat the trade in cultural goods, and it provides assistance in cases of natural disaster or armed conflict. ICOM was founded in 1946.

16) CIMUSET was established in 1972 at a session held at Prague’s National Technical Museum.



Brno, Technical Museum in Brno (Technické muzeum v Brně). The exhibition of metal casting presents cast metal products designed for various uses. The Technical Museum in Brno is located in former factory of the Tesla company, which has been adapted for the purpose. Photograph Eva Řezáčová, 2014.

cultural heritage in the sphere of science and technology and to disseminate knowledge in this field. It provides a forum for communication, cooperation and information-sharing among museums, professionals in the field and other persons involved in cultural heritage protection within the sphere of science and technology, as well as for the dissemination of knowledge. CIMUSET works to implement ICOM's stated goals with respect to the preservation of cultural heritage in the sphere of science and technology and the dissemination of knowledge concerning the history of this heritage and its importance for society.¹⁷⁾

Viewing the field from an international perspective and applying an interdisciplinary approach, important sources of information and new methods for activities related to the protection of industrial heritage include DOCOMOMO (the International Working Party for Documentation and Conservation of Buildings, Sites and Neighbourhoods of the Modern Movement), English Heritage and TICCIH (The International Committee for the Conservation of the Industrial Heritage).¹⁸⁾ Among the key TICCIH documents guiding the activities of heritage experts are the Nizhny Tagil Charter (also known as the Moscow Charter) and the Venice Charter.

When evaluating the benefit of museum practice for the protection of industrial heritage, it is necessary to define the key characteristic of a museum institution, i.e. the existence of a museum collection (a set of properly recorded items held in depositories or displayed as part of exhibitions). The management and care of a collection, as well as its utilization for purposes of scholarship or education, are the most important missions of museums entrusted with the protection of industrial heritage. A museum's collections are evaluated by scholars, and the museum actively expands its holdings to include new collections of items (exhibits). Museums may add a new sub-collection to an existing collection on the basis of their acquisition plan – a document which describes the museum's future plans for its collections with a focus on new acquisitions. Under Act no. 122/2000 Sb., a museum must devote professional care and attention to its collections, which must be conserved, stored in a depository, or exhibited in appropriate conditions.¹⁹⁾ Museums may also exploit their collections for other purposes than exhibitions; the primary examples are research or educational activities.

Members of the general public are generally not able to distinguish between a museum that creates and manages its own collections (a collecting institution) and an institution which presents itself as a museum (or a similar institution)

17) CIMUSET. International Committee for Museums and Collections of Science and Technology [online]. [retrieved 1. 9. 2018]. Available at <http://network.icom.museum/cimuset>.

18) TICCIH (The International Committee for the Conservation of the Industrial Heritage) was established in 1971 as part of UNESCO in order to coordinate and organize international cooperation when conserving industrial heritage. General Assemblies of TICCIH members are held at three-year intervals as part of an international conference. TICCIH also publishes a journal and a newsletter.

19) Items from a collection may also be loaned out, inventoried or deaccessioned (permanently removed from the collection).

Chemnitz (Germany), Sächsisches Industriemuseum – Industriemuseum Chemnitz, replica of a historic original yarn-spinning jenny. This museum installation includes a commentary interpreting and presenting the situation in the Saxon textile production industry at the beginning of the 19th century. Permanent exhibition of the Sächsisches Industriemuseum – Industriemuseum Chemnitz. The exhibition is located in a former industrial building (the Herman und Alfred Escher AG foundry) which has been adapted for museum use. Photograph Ondřej Merta, 2015.



but which does not create collections and which functions essentially as an exhibition hall, an educational institution or an entertainment venue. Many of the above-listed activities of collecting institutions are not immediately visible to members of the public (e.g. preventive conservation, management of depositories, research), and in some cases members of the public are not the primary recipients of these activities (e.g. they do not take part in conferences, read articles in scholarly journals, etc.). A list of Czech collecting institutions (along with basic information pertaining to the issue) can be found in the Central Register of Museum-Type Collections (“Centrální evidence sbírek muzejní povahy”, CES) maintained by the Czech Ministry of Culture, which enables users to search for institutions managing collections under the provisions of Act no. 122/2000 Sb.²⁰⁾

In general terms, museums' main focus is on tangible (material) evidence of human and natural history. Traditional objects of interest included movable items that could be placed in a depository or displayed in an exhibition. However, since the 1960s, increased public interest in industrial heritage has led museums to devote increased attention to the preservation of this heritage – which may exist either in movable or immovable form. In the case of immovable heritage, current and new museums have taken over various buildings and sites, which (either inside or outside the buildings) have become the venue for museum activities. Industrial heritage is the focus of specialist museums which also frequently document the history of technology in a particular field – e.g. mining or quarrying museums (such as the Solvay Quarry open-air museum near Beroun, which traces the history of limestone quarrying and related transport systems), glassmaking museums (such as the Museum of Glass and Jewellery in Jablonec nad Nisou), transport museums (such as the Horse-Drawn Railway Museum in Bujanov), or textile museums (such as the Textile Museum in Česká Skalice). Museum practice is currently shifting its focus away from detailed documentation to a more field-specific approach synthesizing the development of particular industries and attempting to forecast future developments.

20) CES online. Centrální evidence sbírek muzejní povahy [online]. Ministerstvo kultury [retrieved 1. 9. 2018]. Available at <http://www.cesonline.cz/arl-ces/cs/ces-uvod>.



Crimmitschau (Germany), Sächsisches Industriemuseum – Tuchfabrik Gerbr. Pfau. The authentic interior of a weaving mill including complete original equipment left in situ according to the “last working day” principle. Photograph Ondřej Merta, 2012.

04. The importance of museum practice for the protection of industrial heritage

Since the 1960s, industrial heritage has moved to the forefront of interest for scholars in many different fields,²¹ as well as becoming an increasingly prominent topic of public debate. In the Czech Republic, the importance, values and forms of industrial heritage management are the subject of both theoretical and practical museology,²² a field in which experts have over a century of experience of documenting, selecting, protecting and presenting science and technology. From the perspective of both primary research and applied research findings, museums have become a core site for the application of new working methods defined in connection with the documentation and management of industrial heritage. On the Czech scene, a pioneer in this activity has been the Technical Museum in Brno (Technické muzeum v Brně, TMB), whose scholarly activities have helped to develop museum documentation methods²³ and museum technologies. Thanks to its archeologist Dr. Jiří Merta, the museum has embraced new working methods in the form of industrial archeology. Its approach to research and documentation (working in close conjunction with heritage professionals, local government bodies such as municipal services corporations, and various commercial companies such as agricultural cooperatives) have enabled it to open a number of technical heritage sites to the general public;²⁴ these sites now function as integral branches of the museum. Activities such as these make the Technical Museum in Brno a unique institution in the Czech Republic, with long-standing experience of documenting, curating and presenting technical and industrial heritage in collaboration with the heritage management community, as well as engaging in scholarly research. As a result, the museum’s current practice and its approach to the protection of industrial heritage can form a solid basis for future work in this field.

Another institution with a long-standing involvement in similar activities is the National Technical Museum in Prague (Národní technické muzeum, NTM), which has documented both movable and immovable technical monuments. Following the demolition of the Prague-Těšnov railway station in 1985, the NTM created a new internal department, the Section for Industrial Heritage Protection. The museum has also helped to create exhibitions at numerous industrial heritage sites opened to the public, which have subsequently been granted legal heritage protection.²⁵ These sites are

- 21) Industrial heritage is an area of interest for architects, economists, heritage and museum experts, artists, as well as numerous other fields.
- 22) In the Czech Republic, a general awareness of the value and importance of industrial heritage (and potential new uses of industrial heritage sites) was slow to form. A debate among experts was sparked by the demolition of several important sites such as the Žofinská huť (Sophienhütte) ironworks in Ostrava (1972), the Karolina coking plant in Ostrava (1989), and the Prague-Těšnov railway station (1985). The first systematic surveys of industrial heritage were conducted in the 1970s under the supervision of Professor Miroslav Baše, focusing on the Ostrava region (coal mines, coking plants, workers’ housing schemes). In the 1980s universities began to take an interest in the issue – particularly at the Architecture Faculty of the Czech Technical University in Prague (which now boasts the internationally renowned Research Centre for Industrial Heritage) and at the Brno University of Technology (under the supervision of Professor Helena Zemánková). See MATĚJ, Miloš. *Ochrana průmyslového dědictví v České republice*. In *Technical Monuments in Norway and the Czech Republic, Technické památky v Norsku a České republice*. Ostrava 2016, p. 14.
- 23) See BERKA, Miroslav. K aktuálním otázkám muzejní dokumentace techniky. In *Sborník Technického muzea v Brně*. Brno 1975, pp. 22–27.
- 24) Thanks to its close cooperation with the State Institute for Heritage Care and Nature Conservation (the predecessor of the National Heritage Institute), the Technical Museum in Brno has conducted several successful renovation projects at technical heritage sites, where it has created exhibitions documenting the authentic industrial environment; these include national cultural monuments (the water mill in Slup, the windmill in Kuželov, part of the old ironworks at Adamov) and cultural monuments (part of the old ironworks at Adamov, the Těšany forge, and the hammer mill at Hamry nad Sázavou).
- 25) The hammer mills at Dobřív and Malenice near Volyně, agricultural and workshop buildings near Chrudim and at Třebíz near Slaný, and open-air mining museums near Příbram and Kladno. See ČERNÝ, Karel. *Úkoly národního technického muzea a ostatních muzeí v oblasti ochrany technických památek*. In *Rozpravy Národního technického muzea v Praze 87. Symposium Technické památky. Technische Denkmäler. Praha 4.–6. 9. 1980*.



Łódź (Poland), Muzeum fabryki. An example of a new use for an industrial site where production has ceased. This museum installation at a former textile factory respects the original purpose of the building. Production machines (weaving looms) are arranged to create an exhibition interpreting the historical situation and working environment with the use of informative and illustrative materials. Photograph Jiří Merta, 2013.

managed by local museums or other organizations, as the NTM's policy of decentralization has meant that it has not taken direct control over such sites, instead focusing its attention primarily on movable heritage. It is only in recent decades that the NTM has become involved in heritage management not only by curating its own collections, but also in situ (a planned exhibition at the Railway Museum²⁶), a railway depository in Chomutov, a civil engineering heritage centre at Plasy, etc.²⁷). With regard to scholarship, the NTM's contribution to the documentation of technology and industrial heritage encompasses both theoretical activities (scholarly research and the publication of numerous journal papers and highly specialized texts²⁸) and practical activities (organizing or participating in various international professional organizations).

Since the 1990s, the curation of industrial heritage has become the preserve not only of museums, but also of heritage management bodies and university institutions,²⁹ professional bodies,³⁰ and recently also private initiatives. Today it is clearly evident that in order to find appropriate solutions enabling the application of institutionalized forms of heritage protection, it will be essential to pursue closer collaboration among different institutions and to develop a more conceptual approach.

With respect to collaboration between museums and heritage professionals,³¹ potential areas of cooperation now include acquisitions (for museum collections or controlled scrapyards) and the selection of appropriate forms of

Problémy výzkumu, evidence a využití technických památek. Probleme der Erforschung, Evidenz und Ausnutzung der Technischen Denkmäler. Part II. Praha 1982, pp. 159–160.

26) Železniční muzeum [online]. Národní technické muzeum [retrieved 4. 9. 2018]. Available at <http://www.ntm.cz/muzeum/sbirkova-oddeleni/zeleznicni-muzeum>.

27) Železniční depozitář Národního technického muzea v Chomutově [online]. Národní technické muzeum [retrieved 4. 9. 2018]. Available at <http://muzeum-chomutov.cz>.

28) See e.g. *Rozpravy Národního technického muzea v Praze 87. Symposium Technické památky. Technische Denkmäler. Praha 4.–6. 9. 1980. Problémy výzkumu, evidence a využití technických památek. Probleme der Erforschung, Evidenz und Ausnutzung der Technischen Denkmäler. Part II.* Praha 1982; *Technické muzejnictví. Problémy a praxe.* Praha 1982; *Rozpravy Národního technického muzea v Praze 113. Technická muzeologie I.* Praha 1991; *Rozpravy Národního technického muzea v Praze 137. Rekonstrukce výrobně-technických staveb k novým účelům.* Praha 1995.

29) Research Centre for Industrial Heritage, “Vestiges of Industry” platform (Industriální stopy), Faculty of Architecture, Brno University of Technology.

30) Collegium for Technical Monuments working under the Czech Chamber of Authorized Engineers and Technicians (ČKAIT) and the Czech Institution of Structural and Civil Engineers (ČSSI).

31) With the contribution of theoretical and practical knowledge from university institutions.

management and presentation (reconstruction, managed ruins, conversion projects, transfer to open-air museums or museum depositories, ecomuseums, online databases of museum collections, etc.).³² For example, heritage management bodies do not yet possess depositories for various technical and technological monuments, so the official responsibility for rescuing these monuments lies with museum institutions – although for technical and operational reasons, museums are unfortunately not always able to accept such transfers (due to their large size, weight or complexity or the absence of a suitable museum collection). This leads to losses, which in recent years have been partially compensated by the acquisitions of private collectors and associations (e.g. the Museum of Historical Machinery in Žamberk, the Technical Museum in Liberec, and others). In the case of unique technologies, official museum institutions miss out on the acquisition of items that cannot be acquired elsewhere.

Practical experience confirms the necessity (and benefits) of cooperation between museums and heritage experts. However, this type of cooperation currently has no legislative basis, and moreover it lacks institutionalized support in the form of subsidies or grants covering the transfer of items to museum depositories, rescue surveys, joint collecting projects, etc.³³

Examples of successful activities in this field also demonstrate that besides state institutions (heritage management bodies, museums constituted by ministries or local government bodies, etc.), various non-state bodies and initiatives may also contribute to the protection of industrial heritage by taking over the responsibility for managing sites and examples of technologies; the management of large sites and buildings, extensive technological ensembles, or large and heavy machinery places major financial demands upon an organization entrusted with this task,³⁴ and these demands may be beyond the reach of state-funded institutions. In the United Kingdom, for example, industrial heritage management is primarily entrusted to voluntary organizations, foundations or agencies (e.g. English Heritage, Conservation Areas Partnerships, the English Partnerships agency). A similar situation can be found in the Netherlands, where in 1982 a group of private organizations merged to create the Netherlands Federation for Technical Monuments (FIEN).

Examples from countries outside the Czech Republic prove that under certain conditions, collecting institutions may be created under the banner of an association of partners. In Germany, for instance, associations are responsible for some large-scale museum projects (e.g. the museums grouped together under the Sächsisches Industriemuseum in Chemnitz are managed by several associations: the Industrial Museum in Chemnitz is run by the Förderverein Industriemuseum Chemnitz e. V.; the Textile Museum in Crimmitschau is run by the Förderverein Westsächsisches Textilmuseum Crimmitschau e. V.; and the Knappenrode Energy Museum is run by a consortium of associations – AG Feuerwehrhistorik Hoyerswerda, Förderverein Lausitzer Bergbaumuseum Knappenrode e. V., Freunde historischer Feuerstätten Berlin-Mahlsdorf, Modellbahnclub Hoyerswerda e. V., Ring Deutscher Bergingenieure, Verein der Freunde für Mineralogie und Geologie – VFMG). Numerous industrial museums are owned by companies or foundations set up by companies (e.g. the museums of Ferrari, BMW, Škoda Auto, etc.).

Inspirational examples of unofficial initiatives (outside the state sector) curating industrial heritage in the Czech Republic include several associations that run museums, e.g. Společnost Barbora, z. s., (the Solvay Quarry open-air museum at Svatý Jan pod Skalou), Montánní společnost, o. s., (the Skalka mine at Mníšek pod Brdy), the Dolní oblast VÍTKOVICE association (the mining museum at Lanek Park in Ostrava), and ARMY FORT, s. r. o., (the military museum in Králíky). An equally large group comprises associations and societies taking a non-museum approach to curating industrial heritage, e.g. the Club For Old Prague (Klub za starou Prahu, a civic association), This Does Not Belong To A Developer

32) Staff at the Technical Museum in Brno and the National Technical Museum in Prague (NTM) have been addressing problems connected with the acquisition of movable and immovable technical monuments since the 1970s. The problems vary in nature, including technical, spatial, personnel, financial and conceptual issues.

33) An example of systematic work by state bodies in Norway is described in the publication *Technical Monuments in Norway and the Czech Republic, Technické památky v Norsku a České republice.* Ostrava 2016.

34) COSSONS, Neil. Průmysl včerejška, odkaz zítřku? In *Průmyslové dědictví. Industrial heritage. Sborník příspěvků z mezinárodního bienále Industriální stopy. Conference proceedings from the international biennial Vestiges of Industry.* Praha 2008, pp. 23–24. Here the author states that the British government very quickly realized that managing industrial heritage was more costly than managing pre-industrial monuments (which were already the focus of heritage professionals). As a result, the government entrusted the management of industrial heritage to organizations and individuals outside the state sector, providing funding to support their activities.

(Tady není developerovo, z. s., an association for the preservation of nature and cultural heritage in Prague 3), the Dolní oblast VÍTKOVICE association (which contributes to the activities of Ostrava's Science and Technology Centre, the Karolina Triple Hall, the Landek Park complex and other local sites), the 8smička foundation (which runs a cultural space and gallery in Humpolec), and more.

The model of a collecting institution focusing on scholarly activities and presenting technical heritage collections in a primarily static form has undergone a cultural crisis as a result of the development of more complex concepts influenced by industrial archeology, which have emerged since the 1960s. This crisis was initiated by a more broadly conceived approach to the research and interpretation of industrial and technical heritage (museum collections) that took a critical stance against the methodology of accepted museum practice (which was based on the use of substitutes representing real items). The need for interpretations of technology, social history, design history and cultural history viewed in broad terms also created a need for the musealization of large sites, landscape entities or still-functioning examples of industrial and technical heritage; museums had not previously had to address such possibilities, or they were not able to address them adequately. Instead of working with large-scale exhibits or items which were otherwise difficult to process physically, museums had traditionally resorted to models, dioramas and demonstrations. During the 1970s, new trends emerged in museums' collecting activities, their curation of collections, and their use of collections in exhibitions and for educational purposes. Museums began to focus more on visitors; they also developed new sub-disciplines, and there were improvements in theoretical awareness among museum staff.³⁵⁾ New demands on museums, and attempts to build new museums, culminated in the so-called museological revolution and the creation of new types of museums – including ecomuseums, inspired by the opening of the Ecomusée de la Communauté Le Creusot Montceau (1972), in a traditional French industrial region. The first successful example of cooperation between a museum and the surrounding area was implemented at the Ironbridge Gorge in England. The museum's main task was to musealize a large industrial product (an iron bridge) in situ, and it was run by the Ironbridge Gorge Museum Trust, whose mission is to present and interpret the place where the Industrial Revolution was born.³⁶⁾

Museum practice in Western Europe (and elsewhere in the world) is now being re-conceived under the influence of holistic philosophy to create an approach known as “New Museology”. With regard to museums' collecting activities, this holistic approach is reflected in changing conceptions of acquisitions; the answer to questions of what should be preserved in democratic systems, and why it should be preserved, is generated by a society-wide discussion, as the views and contributions of the non-specialist public are actively sought when selecting and subsequently protecting examples of historic heritage. The views of experts are modified through democratic participation during the selection process. When assessing cultural heritage values and selecting examples of cultural heritage, a much stronger emphasis is placed on predicting and pro-actively responding to future changes rather than on the preservation of old materials.³⁷⁾ It can be expected that Czech museums will be no exception in feeling the impact of this paradigm shift. The non-expert public will want to discuss museums' plans and participate in their work, and museums will focus more closely on working directly with the general public.

The first steps in this direction have already been taken by many museums, both in their approach to presentation and also in their acquisitions policies. In the case of industrial heritage, museums are making increased use of the knowledge of non-specialists (eyewitnesses, users, employees) in their documentation and research activities. These people can offer a wealth of insight, experience and knowledge which lends a new dimension to the documented items, mapping various interconnections and societal relations. Often members of the lay public are actively involved in selecting items for museum collections through targeted selection programmes and the documentation of technologies, knowledge, societal relations and so on.

In terms of the concept of sustainable development of cultural heritage values, it needs to be pointed out that curation by heritage professionals or museums is not enough on its own. The theory of sustainable development states

35) ŠOBÁŇOVÁ, Petra. *Muzejní expozice jako edukační médium*. Olomouc 2014, pp. 16–17.

36) The museum was awarded the title European Museum of the Year 1977, part of a programme supporting innovations in museum practice that was founded by Kenneth Hudson, a leading figure in the field of industrial archeology.

37) FOLTÝN, Dušan – HAVLŮJOVÁ, Hana. *Kulturní dědictví a udržitelný rozvoj místních komunit. Cultural Heritage and Sustainable Development of Local Communities*. Praha 2012, p. 14.

that economic tools can be used to satisfy social needs while respecting environmental limitations. With regard to the sustainability of cultural/industrial heritage values, we can state that besides the preservation of the physical basis of industrial heritage (via museum practice and heritage management), equally important roles are played by education (which is of particular relevance to the formation of public attitudes), legislative protection, funding policy and profit-making. None of the elements in an internally balanced system should be underestimated or neglected on a long-term basis. In view of this principle, it is not only museums and heritage bodies that must contribute to the protection of industrial heritage, but also other experts, politicians and members of the general public.³⁸⁾

The fundamental basis of the protection and management of industrial heritage, including terminology and stances on key issues, is defined in TICCIH's Nizhny Tagil Charter for the Industrial Heritage, a document published in 2003 at the 12th TICCIH congress in Nizhny Nagil, Russia. The Charter defines the role and mission of experts involved in the protection and management of industrial heritage.³⁹⁾ Another key text published by TICCIH is the publication *Industrial Heritage Re-tooled*.⁴⁰⁾ This is a collection of studies by leading experts from a range of countries, offering a more detailed source of information than the Charter with regard to stances, strategies and specific examples of the new utilization of industrial heritage (architecture, production sites, collection items) and its re-integration into the life of society. Both documents explicitly mention the role and mission of museums in protecting and utilizing surviving examples of industrial heritage, as well as in the interpretation of this heritage.

The Nizhny Nagil Charter defines the benefits of museums as follows: “Specialist industrial and technical museums and conserved industrial sites are both important means of protecting and interpreting the industrial heritage.”⁴¹⁾ In the collection *Industrial Heritage Re-tooled* (2012), Massimo Negri describes the benefits that museums bring to the management of industrial heritage, acknowledging the important role they play especially in the interpretation of this heritage: “Museums have always been among the foremost means for the interpretation of objects documenting our past at any time and in any sector. They create the necessary prerequisite for any interpretation programme, firstly to guarantee the future of objects by means of a set of procedures aimed at their best possible conservation, and secondly to make them accessible to the public by exhibiting them with more or less sophisticated tools of interpretation. Industrial, scientific and technological items do not “speak for themselves” as works of art are supposed to do (not always true, especially with contemporary art). They need to be put in a physical and conceptual framework which any object brings with it. The changes in these intellectual and practical processes have driven and continue to direct the development of museums in our society”⁴²⁾

Both sources cited above identify several important ways of preserving and protecting examples of industrial heritage that are considered of cultural significance – legal heritage protection, renovation for the original purpose or for a new purpose, or various forms of cultural and educational use, including museum-related activities (incorporating objects into museum collections, establishing a museum at a preserved site or in an important location, opening an exhibition at a preserved building or site, documenting obsolete buildings or sites, creating educational walking trails through industrial landscapes, activities not directly related to exhibitions, virtual museums, etc.), or combinations of these approaches.

In the case of industrial heritage, the musealization of a site or object (i.e. a surviving item of technical equipment) is a means of heritage protection that offers both a conceptual approach and a form of financial protection. Museums can play an important role in shaping the economic future of “unwanted heritage”. After considering all the available options for preserving industrial heritage, it may be the case that the only genuinely conceptual way of achieving such preservation is the creation or location of museum institutions (sometimes combined with other activities) at former industrial sites, or the transfer of surviving technical equipment to depositories.

38) Ibid., p. 22.

39) See VORLÍK, Petr. *Industriální topografie. Průmyslové dědictví a role akademické sféry*. Praha 2015, p. 8.

40) DOUET, James (ed.). *Industrial Heritage Re-tooled. The TICCIH guide to Industrial Heritage Conservation*. Lancaster 2012.

41) Nizhny Nagil Charter, Part 7: Presentation and interpretation.

42) DOUET, James (ed.). *Industrial Heritage Re-tooled. The TICCIH guide to Industrial Heritage Conservation*. Lancaster 2012. Chapter Industrial museums, p. 182.



Plasy, National Technical Museum, Civil Engineering Heritage Centre (Národní technické muzeum, Centrum stavitelského dědictví). The exhibition at the Civil Engineering Heritage Centre in Plasy presents a wide range of artefacts connected with residential and non-residential structures from the prehistoric era to the recent past. The exhibits enable individual developmental phases to be traced in detail. Selected phases are also documented by means of models, replicas of original construction techniques, and other supplementary and didactic elements. Photograph Ondřej Merta, 2018.

Museum institutions (collecting institutions) may also offer a viable future to people from communities associated with a particular type of industrial heritage that is being documented (and is under threat). Such institutions may recruit some former employees to do various jobs (guides, demonstrators, curators, conservation workers). They may involve the community in activities related to the documentation, research and presentation of industrial heritage, and they may also attract consumers to the location (visitors to the museum and other businesses in the area, e.g. cafés, restaurants, shops, cinemas, hotels, etc.), thus boosting the local economy.

The importance of museum practice for the protection of industrial heritage can be summarized in the following points:

- research of industrial heritage for scholarly purposes,
- research of industrial heritage for museum purposes (collection-building, thesauration, presentation),
- public education raising awareness of the values of preserved and non-preserved industrial heritage,
- preservation of intangible heritage by museum methods,
- presentation of intangible heritage to the public,
- preservation of tangible heritage by incorporation into museum collections,
- preservation of tangible heritage by applying museum techniques in situ (establishing museums, exhibitions, depositories, conservation/restoration centres, etc.),
- presentation of tangible industrial heritage to the public, including related technologies and other aspects related to it (raw materials, impacts, products, protective devices etc.),
- attempts to preserve collection items for future generations by means of preventive conservation or the application of other conservation/restoration (co/re) techniques,
- public education involving musealized industrial heritage,

The benefits of museum practice for the protection of industrial heritage can be summarized in the following points:

- creation of collections including industrial heritage,
- management of surviving industrial heritage,

- application of museum techniques to surviving industrial heritage,
- cultivation of public attitudes to the value and importance of preserved and non-preserved industrial heritage,
- museum practice may initiate proposals for new cultural monuments or national cultural monuments.

Museums are able to offer tried-and-tested methods for protecting both tangible industrial heritage and intangible forms of this heritage which are not available to heritage managers or other collecting institutions:

- they monitor and document the situation at the site (buildings, technologies, attitudes, knowledge, skills, customs, festivals, etc.),
- they build collections based on a process of selection,
- they store collection items in depositories,
- they preserve collection items for future generations by applying conservation/restoration (co/re) techniques,
- they present their collections and supplementary items to the public at exhibitions focusing on a wide range of topics, using a broad spectrum of exhibition techniques and resources,
- they incorporate musealized objects and knowledge associated with the entire phenomenon of industrial heritage into educational programmes run by museum pedagogues applying their own specific professional techniques,
- museum practice supports and contributes (directly or indirectly) to the preservation of knowledge, skills and social structures related to industrial heritage.

It is thanks to museums that selected examples of technologies from industrial sites, transport infrastructure or storage facilities have been preserved as part of museum collections. These include:

- The public transport depository of the Technical Museum in Brno, Brno-Líšeň,
- The railway depository at Chomutov – a branch of the National Technical Museum,
- A collection of equipment from the textile printing and cotton industries at the Textile Museum in Česká Skalice.

Museums also document and present important figures associated with industrial production in the form of memorials or exhibitions, including:

- The collection of the National Technical Museum containing items (posthumous estates) related to architects and architectural studios.
- The collection of the Technical Museum in Brno containing items (posthumous estates) related to prominent scientists and technical experts of the 19th and 20th centuries.
- The exhibition at the František Křížík Museum in Plánice.
- The exhibition at the birthplace of Ferdinand Porsche in Liberec-Vratislavice. The museum is run by the ŠKODA Museum and ŠKODAAUTO, a. s.
- The exhibition at the birthplace of Prokop Diviš in Žamberk. The museum is run by the Žamberk Municipal Museum.
- The exhibition on the legacy of the architect and patron Josef Hlávka at the chateau in Lužany near Přeštice. The exhibition was created in 2004 by the National Technical Museum in conjunction with the Josef, Marie and Zdeňka Hlávka Foundation.

Thanks to the establishment of new museums, buildings or sites which were formerly at risk or abandoned (or which had lost their original function) have now been re-utilized for new purposes as centres for science, scholarship and education. Museums have helped to preserve knowledge (including visual and audio documentation) of the existence of major industrial buildings, landscape features or production sites. Thanks to museums, it has been possible to document, describe, restore or maintain social and societal values associated with industrial or manufacturing activities, as well as cultural values (e.g. miners' festivals, pride in working at a particular factory) and knowledge of rare skills.



Lyon (France), Silk Museum (La Maison des Canuts). Demonstration of the production of silk brocade. The demonstration presents technology as it existed at the turn of the 20th century. Photograph Petra Mertová, 2002.

05. Defining the object of interest – industrial heritage

Industrial heritage is a category of cultural heritage (cultural-historical heritage) associated with sites of production, manufacturing, storage and transportation as well as with technological equipment. The concept of industrial heritage denotes physical (tangible) remains encompassing practically all areas of human activity in the fields of production (including mineral extraction), manufacturing, transportation, communications and storage, covering a broad timespan from the proto-industrial era to the industrial and post-industrial eras. The term “industrial heritage” is most frequently used to denote immovable heritage (real estate, i.e. buildings and sites), though movable heritage (equipment and technologies) may form part of these buildings and sites. Movable heritage is more vulnerable than immovable heritage; this is also the case if a building or site is converted for new use.

For historical reasons, and under the influence of various geomorphological conditions, industrial heritage is associated with regions where industrialization led to the development of advanced industrial activities on a large scale. Europe is considered to have played the leading role in global industrialization, though the process was concentrated in certain parts of the continent. As a consequence, cultural heritage dating from the industrial phase is not represented evenly across Europe; the degree to which this heritage has been preserved varies from place to place. Europe’s industrial heritage comprises a large quantity of unevenly distributed examples from diverse phases of human development.

Thanks to its geographical location at the centre of Europe, the territory of today’s Czech Republic (historically the Lands of the Bohemian Crown, consisting of the provinces of Bohemia, Moravia and Habsburg Silesia) has long been a natural crossroads of various cultural and technical influences. The continuity with which technical knowledge was passed from generation to generation, and the high standard of the education system, enabled the Bohemian Crown Lands to develop into one of Europe’s foremost industrial and technical regions over the course of their history. As a result, the Czech Republic today is the site of numerous physical (tangible) remains documenting the industrial history of the territory. Technical progress was most prominent in mining and metallurgy, which ranked among the most important industries and represented major drivers of innovation. In terms of their geographical distribution, individual industries (with the exception of the brewing industry) were closely linked with specific locations due to local geographic conditions, access to raw materials, the education system and the main transportation routes. Other locations (particularly mountainous regions and agricultural areas) remained untouched by industrial production.⁴³⁾

Following the closure of industrial production sites and a decline in a range of traditional industries (textile production, sugar refining, mining, metallurgy), the Czech Republic was left with a hugely broad spectrum of physical remains documenting former industrial production – buildings, sites and technical equipment formerly used for manufacturing, production, mineral extraction, storage and transportation – which were in need of new use. Some have undergone or are undergoing conversion; others have become brownfields, or face the acute threat of destruction. The situation is similar throughout Western Europe.

The need to define the values of industrial heritage and the attitudes of cultural sector professionals towards this heritage – a need which became clear during efforts to preserve industrial heritage – led to the formulation of the

43) ŠENBERGER, Tomáš. České země součást evropského industriálního prostoru. In *Průmyslové dědictví. Industrial heritage. Sborník příspěvků z mezinárodního bienále Industriální stopy. Conference proceedings from the international biennial Vestiges of Industry*. Praha 2008, pp. 114–153.

Nizhny Tagil Charter for the Industrial Heritage,⁴⁴⁾ a document created in 2003 by the International Committee for the Conservation of the Industrial Heritage (TICCIH).⁴⁵⁾

The Nizhny Nagil Charter is considered the most fundamental and internationally valid document defining industrial heritage and outlining key aspects related to its values, importance, research, maintenance, preservation, presentation, and popularization (including education). It refers to the already well-acknowledged heritage value of ground-breaking changes in production processes that have been revealed by archeological surveys. Drawing on this basis, the Charter expands its field of interest to include more recent remnants of the Industrial Revolution, beginning in the second half of the 18th century and continuing up to the present day; it argues that this period represents a major historical turning-point which had a global impact and represented a universal value for humankind. Besides its universal value, other aspects of industrial heritage are also reflected in various spheres of life: social (evidence of the lives of ordinary people, strengthening awareness of identity), technical and scientific (the history of manufacturing, engineering and civil engineering), and aesthetic (architecture and urban planning). Of particular value are production processes which have survived from an earlier era, unique “site typologies or landscapes”, and early or pioneering examples of particular processes and technologies. The Charter notes that investigations should focus not only on tangible, physical remains (including documents, human settlements, and the natural or industrial landscape), but also on intangible manifestations such as recorded memories or customs.

In its introduction, the Charter states that “the buildings and structures built for industrial activities, the processes and tools used within them and the towns and landscapes in which they are located, along with all their other tangible and intangible manifestations, are of fundamental importance. They should be studied, their history should be taught, their meaning and significance should be probed and made clear for everyone, and the most significant and characteristic examples should be identified, protected and maintained, in accordance with the spirit of the Venice Charter, for the use and benefit of today and of the future.”⁴⁶⁾

The Charter also outlines the most appropriate methodology for research of industrial heritage in the form of industrial archeology, which represents a type of interdisciplinary research encompassing all forms of industrial heritage (tangible and intangible, documents, artefacts, stratigraphy and structures, human settlements and landscapes) to which research methods can be applied in order to better understand the industrial past and the present day.⁴⁷⁾

In accordance with the Nizhny Nagil Charter, this methodological publication defines industrial heritage as tangible and intangible heritage associated with specific technologies of production, manufacturing, mineral extraction and storage technologies, buildings, sites and transportation routes, including residential buildings and educational institutions. Industrial heritage also includes documents of activities, raw materials, technical devices, supplementary documents, social and mental structures, landscape features, social events, and so on. It thus represents a highly diverse and varied range of objects, buildings, sites, technical equipment and various forms of accompanying documentation.⁴⁸⁾

44) Section 1. Definition of industrial heritage, Section 2. Values of industrial heritage. In: THE NIZHNY TAGIL CHARTER FOR THE INDUSTRIAL HERITAGE [online]. ICOMOS [retrieved 1. 9. 2018]. Available at <https://www.icomos.org/18thapril/2006/nizhny-tagil-charter-e.pdf>.

45) The Charter was published at the 12th TICCIH conference in Nizhny Nagil, Russia, and was approved by the TICCIH Assembly of National Representatives in Moscow (hence its alternative designation the Moscow Charter).

46) See the Nizhny Tagil Charter for the Industrial Heritage, Introduction. The text of the Nizhny Tagil Charter mentions the Venice Charter for the Conservation and Restoration of Monuments and Sites, formulated by the Second International Congress of Architects and Technicians of Historical Monuments, Venice 1964. The Venice Charter focuses on the fundamental principles of heritage management, and it is associated with the foundation of the International Council on Monuments and Sites (ICOMOS). It discusses the definition of monuments and the principles for their documentation, conservation and restoration, as well as focusing on heritage sites and archeological surveys. The Venice Charter was revised in 1993, 1995 and 2010. According to the official ICOMOS website, the Council’s mission includes compiling complete expert reports for UNESCO which evaluate heritage sites proposed by member states for inscription in the UNESCO World Heritage List from the perspective of their exceptional and universal cultural value as well as their preparedness for inscription. The members of ICOMOS disseminate and popularize principles of cultural heritage management, and if necessary they organize or participate in public campaigns for the rescue of heritage sites that are at risk. ICOMOS carefully monitors and disseminates scholarly knowledge and practices in cultural heritage management.

47) Industrial archeology is discussed in an already published *Methodology for the Evaluation and Protection of Industrial Heritage from the Perspective of Heritage Management*. Ostrava 2018.

48) A theoretical basis for understanding the nature of industrial heritage can also be found in other works: BUCHANAN, Robert A. *Industrial Archeology in Britain*. Harmondsworth 1972. COSSONS, Neil: Průmysl věřejška, odkaz zítřku? In *Průmyslové dědictví. Industrial heritage. Sborník příspěvků z mezinárodního bienále Industriální stopy. Conference proceedings from the international biennial Vestiges of Industry*. Praha 2008,



Oelsnitz (Germany), Bergbaumuseum Oelsnitz – Museum des sächsischen Steinkohlenbergbaus. A mine transportation system from the second half of the 20th century. Photograph Jiří Merta, 2012.

Because industrial heritage bears witness to the past, and because its importance and meaning is (and will continue to be) impossible to fully understand without appropriate interpretation and contextual knowledge, museum institutions play a crucial role in the process of protecting selected examples of industrial heritage. What non-experts may perceive as unpleasant burdens and remnants of industry may in fact, after detailed research, be revealed as examples of interesting architecture, forgotten technologies, knowledge and skills, and specific social structures. By exploring technologies and equipment from a particular era and society, we can at the same time gain an insight into the cultural development of that era and society. The values of such examples of industrial heritage can be interpreted in today's society by museum institutions offering a wide range of interpretative and educational programmes.

Immovable industrial heritage forms an integral part of our cultural heritage as a whole, and it holds strong potential for the future sustainable development of the regions in which it is located. Industrial heritage sites are just as valuable as other cultural monuments, and in many locations they represent important focal points lending the location a specific atmosphere (*genius loci*). Ideally, industrial heritage sites are adapted by their owners for continuing industrial use. In less ideal cases, new uses are found for these sites. Among the socially beneficial potential uses for such sites are conversions into venues for cultural, educational or leisure activities (run by state, municipal or privately-owned bodies). In order to support such activities, the European Strategy for the Promotion of Industrial Heritage has been created (Genk, Belgium, October 2014).⁴⁹⁾

Some important industrial heritage sites have already been inscribed on UNESCO's World Heritage List. Ironbridge Gorge was listed in 1986, followed in 1999 by the Cornwall and West Devon Mining Landscape and then by the textile mills at the Derwent Valley in Derbyshire, the commercial docks at Liverpool, the model industrial complex in the Scottish town of New Lanark, and the textile mills and employee housing at Saltaire in Yorkshire. Of course, many other industrial sites have also been listed. In the Czech Republic, industrial heritage is constantly monitored and assessed by heritage experts, and selected examples are granted the status of cultural monuments or national cultural monuments. They may be nominated for inscription on the UNESCO World Heritage List – see the Czech Republic's Central Register of Cultural Monuments (Ústřední seznam kulturních památek), which can be accessed by the public via the Heritage Catalogue (Památkový katalog), an online database maintained by the National Heritage Institute.⁵⁰⁾ Movable items of industrial heritage in museum collections are likewise evaluated. However, no complete list of these movable items is available from the database of the online Heritage Catalogue; details are only available selectively, subject to the consent of the owner.

05.01. Historical phases of industrial heritage

Tangible and intangible industrial heritage existing today in the world around us can be identified, studied, described and evaluated in order to classify it into several different phases in accordance with the typology of historical periods defined by taxonomies of industrial archeology. We can thus speak of the pre-industrial era (before the Industrial Revolution), the industrial era (until the mid-20th century), and the post-industrial era.⁵¹⁾

pp. 14–30; MATĚJ, Miloš – RYŠKOVÁ, Michaela – GUSTAFSSON, Ulf Ingemar (eds.). *Technical Monuments in Norway and the Czech Republic. Technické památky v Norsku a České republice*. Ostrava 2016.

49) European Strategy for the Promotion of Industrial Heritage. Suggestions for the further elaboration, development and implementation of the resolution 1924 (2013) "Industrial Heritage in Europe" adopted by the Standing Committee of the Council of Europe, acting on behalf of the Assembly, on 8 March 2013. Prepared by the project partnership for the programme Central Europe SHIFT-X and supportive European networks with interested partners. Adopted in Genk (Belgium) in October 2014. The Strategy focuses primarily on securing funding for projects which restore life to industrial heritage by finding new uses for it.

50) Památkový katalog [online]. Národní památkový ústav [retrieved 1. 9. 2018]. Available at <http://pamatkovykatalog.cz>. The opening page of the catalogue states the following (translated from Czech): "The Heritage Catalogue is a new system for registering monuments which contains complete information on cultural monuments, national cultural monuments, heritage zones, protective zones and now also other valuable sites of interest to heritage management. You will also find basic descriptive information, including photographs of the monuments and references to their location in cadastral maps. Additional information will be added on an ongoing basis, including the history of the monuments, stylistic descriptions, dates and attribution."

51) The Nizhny Tagil Charter states that industrial heritage is associated with the period from the onset of the Industrial Revolution (in the second half of the 18th century) to the present day. However, research has also explored the pre-industrial and proto-industrial eras. Additionally, studies have focused on labour, working methods and the history of technologies.

The pre-industrial phase covers a lengthy period lasting from prehistoric times (when stone tools were used for work) up until the beginning of the Industrial Revolution in the second half of the 18th century. Monuments dating from this era are generally known as technical monuments; this term is usually applied to relatively small-scale production technologies such as mills, hammer mills, forges, etc.⁵²⁾

Remnants of this period comprise primarily archeological finds, traces of former mining or manufacturing activities still present in the landscape, and physical remains most frequently associated with metalworking and iron production (former ironworks, hammer mills, charcoal-fuelled blast furnaces), food and drink production (breweries, mills, drying kilns, etc.), or textile production (textile workshops). Remnants of production dating from the pre-industrial era are generally located in the vicinity of raw materials (mines, quarries, forests) and a source of energy (most frequently a watercourse). The location of buildings and other structures in the landscape was determined not only by the above-listed factors, but also by the nature of the terrain and the technical options available at the time of construction.

A major breakthrough in the development of technology during the pre-industrial era came with the discovery of metallurgy – i.e. the processing of copper, bronze and iron. A further turning-point was the utilization of natural resources (water, wind, animals for traction) as sources of energy to drive the first mechanical systems – water mills, windmills, and gins, i.e. winch systems driven by animals). These primitive systems of propulsion remained in use at numerous small-scale production sites well into the 20th century. Water mills or windmills were in widespread use as a source of power for various mechanisms and production facilities – milling and grinding systems, sawmills, hammer mills, forges, glassworks, and wool fulling mills. Traces of the watercourses (e.g. mill-streams) that were an essential part of this technology are still clearly visible in the landscape today, and in some cases they are still in existence, as even after the onset of industrialization they were sometimes used as a source of power (to drive turbines) or for other technological processes (such as the finishing processes used in textile production).

Examples of the development of technologies during the pre-industrial era have survived in the form of various structures; some are only remnants (e.g. charcoal blast furnaces at the old Adamov ironworks or the Barbora ironworks at Jince and the ironworks at Šindelová, Kovářská, Drakov and Vrbno pod Pradědem), while others have survived intact, e.g. underground (a preserved water channel in Prachatice, a Romanesque bridge at Vyšehrad, a malt-house in Nymburk, the medieval Jeroným mine in Čistá near Sokolov, a mine at Kutná Hora, or the Rudolf water channel in Prague), and others are still functional (the Rožmberk pond system, the Charles Bridge in Prague, the bridge in Písek, etc.). Many of these remnants survive only as traces of ancient or medieval structures that can still be seen in the landscape (large water structures, bridges, parts of castle complexes).⁵³⁾

The second phase identified in the evaluation of industrial heritage is the industrial period, which began with the onset of the Industrial Revolution – specifically as a consequence of technical innovations in England embodied in James Watt's iconic invention of the steam engine (1765). The crucial importance of this invention is reflected in the epithet "the Age of Steam" that is often used to denote the entire century that followed. However, even before the steam engine there had already been other important inventions that had speeded up production and improved the organization of production processes or the transportation of goods. Another important milestone was Abraham Darby's use of coal (and later coke) to produce iron in his blast furnace (1709). A crucial invention for the mining industry was Thomas Newcomen's atmospheric engine (1712), which was used for mining in England and elsewhere.⁵⁴⁾ Monuments from this era are generally known under the heading industrial heritage; they comprise buildings and sites (including machinery and equipment) dating from the period of the Industrial Revolution.⁵⁵⁾

From the perspective of the organization of production, a key process during this era was the shift from a guild-based system to small-scale production in workshops (manufactories) and then ultimately to factory production. The first manufactories emerged in Italy during the 16th century; they were still based on the guild system. It was not until the advent of concentrated manufacturing systems, based on the division of labour, that it became possible to

52) DVORÁKOVÁ, Eva. Nové využití technického a průmyslového dědictví. *Zprávy památkové péče*, 2013, vol. 73, no. 3, p. 172.

53) DVORÁKOVÁ, Eva – MERTA, Jiří – VITÁSKOVÁ, Karin. *Revitalizace a konverze průmyslových objektů*. Ostrava 2010. CD-ROM, pp. 10–12.

54) Ibid.

55) DVORÁKOVÁ, Eva. Nové využití technického a průmyslového dědictví. *Zprávy památkové péče*, 2013, vol. 73, no. 3, p. 172.

increase production volumes. A model example of a workshop-type production facility in the Czech Republic is the (now defunct) wool manufactory in Horní Litvínov, founded by Count Wallenstein in 1715. A precursor to the development of concentrated manufactories was a system known as factoring, which was based on a partial division of labour scattered across a number of different locations but coordinated from a single point; home-based workers were supplied with raw materials enabling them to fulfil orders, and their products were then collected and sold. In some crafts (lacemaking, weaving) and in some industries (textiles), this system lasted into the 20th century. The manufactories also brought a new approach to the labour force. It was necessary for employees (particularly the most capable ones) to be located in the vicinity of the manufactory, so accommodation had to be built for them, and occupational training was introduced for workers. Factory-based production also brought increased interest in workers' social conditions; creches and nursery schools were established, as were apprentice colleges.

The industrial era also brought developments in architecture (factories and warehouses), bridge-building, railway-building and other forms of construction. New types of buildings were invented, including multi-storey factories and iron bridges. The world's first iron bridge was built from 1769 to 1779 by Abraham Darby at the Ironbridge Gorge. In the mid-19th century, structural engineers developed large factory halls exploiting new types of metal structures which spanned greater lengths and were able to bear higher loads. The first five-storey factory with an iron structural skeleton was built in the English town of Shrewsbury in 1796. The mid-19th century saw the emergence of single-floor multi-purpose buildings used as production halls containing various types of equipment and machinery for industrial production. New structural materials made it possible to span large areas with roofs incorporating new transportation systems based on rail-mounted mobile cranes. It thus became possible to situate heavy machinery (steam hammers, rolling mills, presses etc.) inside these factory halls. Another development was the use of skylights (roof windows) to illuminate interiors. Hall-type structures were also used in transportation; they became a universal type of structure at railway stations. Among the unique preserved examples of industrial heritage from this era in the Czech Republic are the Michal and Anselm coal mines in Ostrava, the Ševčín mine in Příbram, and the blast furnaces at the Vítkovice ironworks.⁵⁶⁾

The use of steam (and later electricity) to power machinery made it possible to build new industrial facilities outside urban or suburban areas. The construction and expansion of such facilities brought the need for workers' housing, which mushroomed in the vicinity of factories – either in an uncoordinated manner or organized by the factory-owners (tenement buildings, workers' housing schemes).

The turn of the 20th century saw the emergence of a new approach to the production process, as scientific studies of labour were undertaken with the aim of simplifying processes; the findings also gave rise to new approaches in architecture. New buildings no longer featured historical pastiche elements, instead becoming entirely utilitarian entities. The supporting structures of these buildings were clearly visible in their façades, and the buildings' windows were arranged in linear bands. Productivity was evaluated through the prism of a rational technological flow, and the configuration of factory buildings was subordinated to this principle. Buildings were arranged in such a way that the production process would form a continuous flow, from the initial stage to the final product. This rational approach was incorporated into production site layout plans, which set out the precise configuration of the various buildings at the site, determined by the operating requirements of the production process as a whole.⁵⁷⁾ Companies expanded their sites by building new factory premises or other structures, eventually creating entire factory complexes (such as the Baťa works in Zlín).

Surviving examples of tangible industrial heritage which are no longer in use and represent a burden for the urban or rural landscape are known as brownfields. These are former industrial buildings or sites which no longer fulfil their original function and for which no new function has yet been found; they thus fall into dereliction (along with the surrounding area). Typical properties of these locations or buildings include their large size or complexity, as well as the difficulty of defining the specific values of these industrial sites and their interconnections with the broader context.

56) DVOŘÁKOVÁ, Eva – MERTA, Jiří – VITÁSKOVÁ, Karin. *Revitalizace a konverze průmyslových objektů*. Ostrava 2010. CD-ROM, pp. 13–14. See also MATĚJ, Miloš – RYŠKOVÁ, Michaela. *Methodology for the Evaluation and Protection of Industrial Heritage from the Perspective of Heritage Management*. Ostrava 2018.

57) DVOŘÁKOVÁ, Eva – MERTA, Jiří – VITÁSKOVÁ, Karin. *Revitalizace a konverze průmyslových objektů*. Ostrava 2010. CD-ROM.



Brno, Technical Museum in Brno (Technické muzeum v Brně). An exhibition of computer technology also presents electron microscopes; some of the equipment is still in working order. Photograph Eva Řezáčová, 2017.

The positive and negative values of brownfields have been defined in the Methodology for the Evaluation and Protection of Industrial Heritage from the Perspective of Heritage Management,⁵⁸⁾ which presents an analysis of their historical, typological and technical development; brownfields have also been the subject of numerous expert studies, and the state authorities take a particular interest in these sites. For museums, brownfields represent a potential resource for acquisitions as well as an inspiration for educational and presentational activities. One option for the new utilization of brownfields that has successfully been tried in other countries⁵⁹⁾ is their conversion for cultural activities – including use as museums.

The final period in the development of industrial production, from the mid-20th century to the present day, is known as the post-industrial period. When documenting, recording and evaluating this era, museums use a technique referred to as documentation of the present.

In the evaluation of industrial heritage, emphasis is placed on the technical or technological value of a particular monument for its specific industry or sector, including knowledge related to production, transportation and storage.

05.02. Terminology

In specialist literature as well as texts aimed at the general public (in both written and spoken forms), descriptions of industrial heritage frequently include terms such as technical monument (Czech: technická památka) or industrial monument (Czech: průmyslová památka, industriální památka). It should be pointed out that the Czech legislation governing the country's system of heritage management does not use these terms in its categorization. The Czech word “památka” (meaning “monument”) is used in the phrases “kulturní památka” (cultural monument) and “národní kulturní památka” (national cultural monument); these terms denote movable or immovable objects, sites etc. which have been granted special legal protection and to which special care is devoted by the National Heritage Institute (Národní památkový ústav, NPÚ) in accordance with the application of Act no. 20/1987 Sb. and subsequent related legal regulations. The phrases “technical monument” or “industrial monument” thus do not always denote items movable or immovable heritage as defined in the relevant legislation.

The phrases cited above are often used in an attempt to provide an appropriate description of reality. The term “industrial heritage” denotes items associated with the process of industrialization, while the term “technical monument” is used with a wider, more general meaning.⁶⁰⁾ In the Czech Republic, the phrase “technická památka” (technical monument) is used to denote buildings and items that have been granted legal heritage protection particularly on the basis of ethnographic research: mills, forges, small bridges, drying kilns, and similar structures. Act no. 20/1987 Sb. on heritage management defines the mechanisms for the protection of movable and immovable monuments by means of granting the status of cultural monuments or national cultural monuments. Territorial protection is granted by means of the delineation of a protective zone (“ochranné pásmo”), which applies to individual monuments. A higher level of territorial protection is provided by the delineation of a heritage zone (“památková zóna”), which can apply to urban areas, villages, or landscapes. The highest level of territorial protection is provided by a heritage reservation (“památková rezervace”), which can likewise apply to urban areas, villages, or landscapes. Cultural monument status is granted by the Czech Ministry of Culture, while national cultural monument status (as well as territorial protection by means of heritage zones and heritage reservations) is granted by the Czech Government.

The term industrial heritage is codified by the Nizhny Nagil Charter (see above), and it can thus be used in the sense of a clearly defined item of terminology. According to the Nizhny Nagil Charter, industrial heritage “consists of

58) MATĚJ, Miloš – RYŠKOVÁ, Michaela. *Methodology for the Evaluation and Protection of Industrial Heritage from the Perspective of Heritage Management*. Ostrava 2018.

59) The integration of a museum institution or museum operations into a revitalized building does not automatically mean that the building will be saved. From a museum's operational perspective, not all buildings are suitable for this purpose, as a museum's needs are wide-ranging and variable. Museums must take into consideration constantly evolving requirements regarding climate control and security at depositories and exhibition spaces, facilities for visitors, educational activities, etc.

60) For more details see MATĚJ, Miloš – RYŠKOVÁ, Michaela. *Methodology for the Evaluation and Protection of Industrial Heritage from the Perspective of Heritage Management*. Ostrava 2018.

the remains of industrial culture which are of historical, technological, social, architectural or scientific value. These remains consist of buildings and machinery, workshops, mills and factories, mines and sites for processing and refining, warehouses and stores, places where energy is generated, transmitted and used, transport and all its infrastructure, as well as places used for social activities related to industry such as housing, religious worship or education.”⁶¹⁾

In the case of industrial and technical heritage, it is necessary to distinguish between movable and immovable heritage. Immovable heritage denotes buildings, while movable heritage denotes the fittings of such buildings (in the sense of technological equipment) or individual tangible objects.

05.03. Classification of industries and sectors

For both practical and theoretical purposes, industrial heritage may be classified depending on individual industries or sectors. Czech museums and heritage professionals do not yet use a single standardized system of classification. The following chapter (08) therefore describes several possible classifications used by Czech museums.

61) Section 1. Definition of industrial heritage. In: THE NIZHNY TAGIL CHARTER FOR THE INDUSTRIAL HERITAGE [online]. ICOMOS [retrieved 1. 9. 2018]. Available at <https://www.icomos.org/18thapril/2006/nizhny-tagil-charter-e.pdf>.



Liberec, Technical Museum in Liberec (Technické muzeum Liberec). An exhibition of bicycles as an outcome of a careful process of selection with a clear goal. Photograph Ondřej Merta, 2018.

06. Selection as a process of evaluating industrial heritage

The approach taken by museology and museography to the evaluation of industrial heritage comprises a specific activity denoted by the term selection. This process involves the observation and identification of objective cultural-technical values (cultural, historical, aesthetic and technical values) and the determination of the specific museum value (museality) of an object, building etc., on whose basis the item is identified as a suitable representative of a phenomenon whose preservation (i.e. protection against natural destruction) is deemed desirable for society.

Examples of industrial heritage that may be incorporated into museum collections include:

- a complex of buildings (site) or landscape area,⁶²⁾
- a building,
- a storage facility,
- a transportation route,
- an example of a technology,
- a means of production,
- a technical device,
- a raw material,
- a semi-finished product,
- a product,
- a historical document,
- photographic documentation,
- an audio or video recording,
- or intangible heritage represented by tangible remains (items) or records.

The methodology of the selection process is based on the approach taken by the discipline of museology, which attempts to define and identify the values of all examples of industrial heritage that can be perceived by the human senses, i.e. including intangible heritage, properties and relations among various elements, applying philosophical and methodological approaches and contributing to the formulation of ethical standards.⁶³⁾

Museology applies an interdisciplinary approach which takes into account the perspectives of both social and natural sciences in order to utilize the resources of museums to create an image of the world of the past, thus contributing to a better understanding of the present-day world.⁶⁴⁾ Museology also identifies the values of industrial heritage from the perspective of museums' role in documentation and communication as part of the education process; this includes analyzing the benefits of different forms of documentation for the content of collections, possible forms of presentation, and so on. Currently, especially in Western Europe, the selection process is increasingly incorporating elements of discussion and cooperation with the general (non-expert) public, whose members are able to provide an insight into other criteria (e.g. local specifics, cultural pluralism) when evaluating the value of a particular item.

62) Act no. 122/200 Sb. (Section 2, Subsection 2) states that "A collection item as per Section 1 is a movable object or an immovable object or a set of these items, either naturally occurring or human artefacts."

63) LEHMANNOVÁ, Martina (ed.). *Etický kodexy. Etický kodex ICOM, Etický kodex ICOM pro přírodovědná muzea. Dokument o profesi konzervátora-restaurátora*. Praha 2014. See also STRÁNSKÝ, Z. Z. *Úvod do studia muzeologie*. Brno 1980, pp. 91–92; WAIDACHER, Friedrich. *Průručka všeobecné muzeologie*. Bratislava 1999. Practical considerations are discussed in the methodological materials published by Jiří Žalman.

64) ŽALMAN, Jiří et al. *Příručka muzejníková I. Tvorba, evidence, inventarizace a bezpečnost sbírek v muzeích a galeriích*. Praha – Brno 2002, p. 15.



Ostrava, Landek Park Mining Museum (Landek Park), exhibition of mine rescue equipment. The selection process took into consideration the typological development of these series-produced items. Photograph Ondřej Merta, 2018.

In the case of industrial heritage, practical experience has shown that curators should play an active role in acquisitions policy, rather than merely waiting to see what is offered to them (or what ultimately remains of a particular site, building etc.), i.e. taking a passive approach to selection. Selection should be an active process. Industrial heritage is far more acutely threatened by vandalism, destruction, sale and demolition than any other type of cultural heritage. Passive selection⁶⁵⁾ is therefore not recommended for collection curators or any other persons involved in a museum's acquisitions policy.⁶⁶⁾

In order to ensure that museums are able to act effectively in protecting industrial heritage, it is necessary to apply a process of selection to identify which surviving aspects of industrial heritage are of genuine importance and value in terms of their explanatory capacity (exemplifying information and contextualization), to determine whether musealization is a viable option in practical terms, and then, if items are selected for the museum collection, to ensure that the values embodied in the items in question are not destroyed or suppressed during the process of musealization.

As a process of evaluating industrial heritage from the perspective of the source discipline and museum-related disciplines, selection is a long-term process involving discussions in which perspectives from the discipline as a whole (typologies) come into contact with individual perspectives (the curator's own views pertaining to the concept of the collection). Both these perspectives are subject to change as a consequence of ongoing developments in relevant disciplines (source disciplines, technical disciplines) and the changing attitude of the curator (as a result of societal changes and developing knowledge).

In the case of acquisitions, both these perspectives on industrial heritage result in a collection item which has been removed from its original economic context (from active use or from its original location) and which possesses explanatory capacity (exemplifying information and contextualization).

65) Passive selection refers to the approach taken by a curator who waits to see which heritage items have survived and then attempts to acquire (select) these items for a collection.

66) The acquisitions process primarily involves the museum's director and senior management team, as well as the advisory committee for acquisitions. Subject to the museum's internal regulations, decision-making on acquisitions (either with an advisory role or a decisive role) may involve staff from the museum's department tasked with managing and caring for the collections (conservation and restoration experts, depository managers), and it may also involve other persons.

Every curator involved in the selection process must be aware that their decision is binding: the selection has a definitive impact on what the museum will offer to visitors as a tangible representative of a particular phenomenon.

The selection and subsequent transportation of an item to a depository always leads to the rupture or erasure of numerous contextual links, which can then no longer be restored. The original production process can no longer be resumed; the entire factory or site can no longer be returned to its former active function. These contextual links must always be documented as part of the selection process; in the forms of texts, photographs or other media, they must also be recorded in the relevant accompanying documentation.⁶⁷⁾ Selection may minimize the destruction of these contextual links if the item is left in its original location, e.g. as part of a museum installation at a heritage site.

In the case of museums devoted to science, technology and industrial heritage, for each industry or field (i.e. for each part of the collection) it is necessary to determine both general and specific developments in the technological history of the particular industry or field, and to determine an appropriate form of documenting these developments (primary, secondary or accompanying documentation, substitute supplementary documentation, documentation of the present – see below). Within these categories, it should be decided in which form the particular phenomenon should be represented within the museum collection – as an original or a replica, or merely in the form of accompanying documentation. The originality of an item is a property of the item itself. The authenticity of an item is associated with the activity that is embodied within the item.⁶⁸⁾

An original item is an item directly related to the environment or situation from which it originated, with the capacity to act as an authentic witness to a particular reality. An original may be unique (e.g. a prototype) or repeated. In the case of industrial heritage, we can distinguish between two types of repeated items – series and replicas:

- a series is when the same item is produced two or more times in a row,
- a replica is an imitation of an original item produced by the person(s) who produced the original.⁶⁹⁾

If it is not possible to preserve and hold an original, museums often resort to substitutes. This solution is most frequently chosen when the original is not accessible, if the original needs to be replaced (due to damage or destruction), if it is necessary to expand the collection or incorporate new items representing different phases of development, or if the item is to be used in a presentation (an exhibition or an educational project). With the exception of the last of these options (presentational purposes), the reason for using a substitute arises from the requirements of collection-building and acquisitions.

A reproduction is a substitute either using the same medium of communication (a photograph of a photograph, a sculpture based on a sculpture) or a different medium (a two-dimensional reproduction of a three-dimensional object, changes in production techniques, colours etc.).

A copy is anything which imitates an original item using the same techniques but created by a different person or persons; it is very similar to the original in its form, function, material and size (a cast, facsimile, imitation, reconstruction, or dummy).

A model is a reduced-scale imitation of an item which may be highly faithful to the original or may illustrate it with a certain degree of licence. In museum practice, models are used when for various reasons (size, weight, inaccessibility either in time or place) the original item cannot be exhibited or incorporated into a collection. Models may occupy the position of originals in a museum's records if the models were produced at the same time as the original, at an appropriate scale, with a high degree of resemblance to the original (e.g. models of a product produced for purposes of teaching and training, company presentations, etc.).⁷⁰⁾

In Czech museum practice, there is no legal support for the selection of industrial heritage-related exhibits for a collection⁷¹⁾ on the basis of the curator's opinion; the process relies primarily on the curator's expertise when collecting

67) Accompanying documentation refers to museum documents registering and recording items held by the museum.

68) WAIDACHER, Friedrich. *Průručka všeobecné muzeologie*. Bratislava 1999, p. 189.

69) *Ibid.*, pp. 189–190.

70) *Ibid.*, pp. 189–190.

71) Items cannot be listed as part of a collection unrestrictedly. It is always necessary for the original owner to transfer an item to the museum on the basis of a legal act – either for payment or free of charge.

items in situ (e.g. at brownfields, archeological sites, ruins) as well as on random donations, purchase offers and research activities. In these cases, the item must undergo a selection process and experts must evaluate its value for society as a whole and its potential contribution to the collection and to the museum's future activities.

When carrying out selection the field of industrial heritage, museum professionals collaborate closely with heritage experts, architects, technical experts, archivists, and representatives of the particular industry or field;⁷²⁾ each of the parties involved in this process views the item in question from a slightly different perspective, and museums must take this plurality of approaches into account when formulating their final evaluation.

Heritage management experts⁷³⁾ are primarily concerned with preserving selected buildings (or entire complexes) and their technological equipment at the original location and in the most authentic form possible. The primary purpose of museum practice is not to protect entire production complexes or territories; this is the domain of heritage management. Museums' role lies in the selection of examples of industrial heritage which serve as representatives of a particular phenomenon, containing the broadest possible information potential that can be utilized in the process of cataloguing, presenting and educating the general public. Museums are concerned with items which can be incorporated into their collections via the process of selection (i.e. entered into the museum's records of the items for which it is responsible, and then into the Central Register of Museum-Type Collections – Centrální evidence sbírek muzejní povahy, CES); from the outset, the museum is aware that the items will be removed from their original location and transferred to depositories (i.e. to a neutral environment). This process of selection involves the evaluation of the extent to which an item is compatible with the museum's collection policy (plan); an item is thus assessed either as appropriate or inappropriate for incorporation into the museum's collection. The process of selection – i.e. the identification of industrial heritage values from the perspective of museum practice (museography), is divided into a number of separate phases, which may take place:

- 1) Before acquiring an item (object, structure etc.) for the museum's collection, when the item is evaluated with regard to its potential contribution to the museum's collection(s) and the museum's future role in preserving and interpreting the item's value for the general public.
- 2) If the industrial heritage values of a collection that already includes a particular item or items are undergoing assessment (re-evaluation), when the contents of the collection (including the item/s) are assessed (re-evaluated) from the perspective of the institution's conceptual approach to its collections and acquisitions policy.

06.01. In situ selection – selection of items (pre-acquisition)

The identification of industrial heritage values in situ as part of the selection process is based on:

- scholarly knowledge of the history of science and technology,
- information on the history of industrial heritage within the territory under investigation,
- the expert's own research based on the documentation and description of the industry/field under investigation,
- knowledge of the societal contexts that are relevant to the phenomenon under investigation,
- knowledge of the contents of the current museum collection and the collections of other museums with similar focus or in the particular region,
- the content of the conceptual planning documents of the museum and for the specific collection,
- the institution's specific plans for research and scholarly activities (research projects, planned exhibitions),
- planned or implemented presentational (interpretative) activities facilitating visitors' interaction with museum objects,
- the museum's capacity (depositories and exhibition spaces),
- requirements for preventive conservation or conservation/restoration work,

⁷²⁾ If possible, when assessing examples of industrial heritage, museums should take account of all technical and technological details, which are best evaluated by representatives (experts) from the relevant industry or field. The opinions of these experts should be taken into consideration.

⁷³⁾ The evaluation of industrial heritage by heritage professionals focuses on surviving examples of this heritage viewed from the perspective of its architectural and urbanistic value, the presence of technical equipment and its continuity as part of the overall technological flow, and the typological significance of the items in question.

Brno, Technical Museum in Brno (Technické muzeum v Brně). An exhibition of computer technology also presents electron microscopes; some of the equipment is still in working order. Photograph Eva Rezáčová, 2016.



- transportation capacity requirements,
- financial requirements for the acquisition,
- the ownership situation with regard to the original owners (identified, unclear, subject to conditions, etc.).

The identification of industrial heritage values in situ as part of the selection process with regard to the needs of the community is based on:

- knowledge of social links within the community,
- knowledge of the community's awareness of the topic,
- knowledge of the community's attitudes to the topic,
- the community's needs with regard to education about the topic,
- risk factors placing the industrial heritage under threat (demolition, reconstruction projects).

06.02. In situ selection – selection of an environment/building for the application of museum practice (pre-acquisition)

A more sensitive approach by museums involves the application of museum working methods at a location where economically active industrial activities have ceased; such a location offers an appropriate environment for the selected items (in terms of typology, historical era and architectural style) as well as providing the necessary facilities for working with the items. This situation occurs in cases when a museum (or part of it, i.e. an exhibition) is located in a former factory, at a former production site, a former railway station, mine, etc. In the case of newly established museums, the creation of the new institution may also act as a stimulus for new collection-building, exhibitions and educational activities. In such cases, the items in question need not necessarily be removed from their original location; they may remain exactly where they were, or they may be placed in a depository housed in the same building. The industrial heritage undergoes the same processes as in cases when items are removed (i.e. selection, thesaurization, protection and presentation).

In such cases too, it is first necessary to select viable environment(s) for the items in terms of whether the museum can carry out its tasks: collection-building, the application of preventive protection, exhibitions, educational activities, the provision of visitor and staff facilities, etc.

The identification of industrial heritage values in situ as part of the selection process as a platform for museum practice is based on:

- scholarly knowledge of the history of science and technology,
- information on the history of industrial heritage within the territory under investigation,
- the expert's own research based on the documentation and description of the industry/field under investigation,
- knowledge of the societal contexts that are relevant to the phenomenon under investigation,
- knowledge of the contents of the current museum collection and the collections of other museums with similar focus or in the particular region,
- the content of the conceptual planning documents of the museum and for the specific collection,
- the institution's specific plans for research and scholarly activities (research projects, planned exhibitions),
- planned or implemented presentational (interpretative) activities facilitating visitors' interaction with museum objects,
- the museum's capacity (depositories and exhibition spaces),
- requirements for preventive conservation or conservation/restoration work,
- requirements for protective methods in the case of surviving technologies (co/re techniques),
- financial requirements for the acquisition,
- financial requirements for the reconstruction and museum operations (museum activities),
- the viability of creating visitor facilities
- the viability of carrying out museum activities (collection, protection, exhibition, depositing, education, administration and other operations)
- local topography (accessibility, tourist facilities, infrastructure, other tourist attractions etc.)
- the ownership situation with regard to the original owners (identified, unclear, subject to conditions, etc.).

The identification of industrial heritage values in situ as part of the selection process with regard to the needs of the community is based on:

- knowledge of social links within the community,
- knowledge of the community's awareness of the topic,
- knowledge of the community's attitudes to the topic,
- the community's needs with regard to education about the topic,
- risk factors placing the industrial heritage under threat (demolition, reconstruction projects).

06.03. Assessment (re-evaluation) of industrial heritage values already incorporated into a museum collection

Industrial heritage values may also be assessed (re-evaluated) after particular items have already been incorporated into collections; in such cases the preceding selection is assessed (re-evaluated). This most frequently occurs when a collection is subjected to an expert assessment for purposes of systematic record-keeping, as part of an inventory, or if a catalogue or exhibition is created. It may also occur following the appointment of a new collection curator or museum management, or if the museum adopts a new acquisitions policy (collection plan). In such cases, the entire contents of the collection are assessed (re-evaluated) from the perspective of the institution's conceptual approach to its collections and acquisitions policy.

Such a process may result in de-acquisition (the removal of items from a museum's collection if the acquisition was inappropriate or due to the poor physical condition of the item, requiring excessively expensive co/re work or rendering co/re work impossible) or the re-allocation of the item to a more appropriate collection. Such a step places demands on the museum's record-keeping systems, so ideally, items are retained as part of their original collections.

The assessment (re-evaluation) of industrial heritage values already incorporated into a museum collection is based on:

- scholarly knowledge of the history of science and technology,
- information on the history of industrial heritage within the territory under investigation,
- the expert's own research based on the documentation and description of the industry/field under investigation,
- knowledge of the societal contexts that are relevant to the phenomenon under investigation,
- knowledge of the contents of the current museum collection and the collections of other museums with similar focus or in the particular region,
- the content of the conceptual planning documents of the museum and for the specific collection,
- the institution's specific plans for research and scholarly activities (research projects, planned exhibitions),
- planned or implemented presentational (interpretative) activities facilitating visitors' interaction with museum objects,
- the museum's capacity (depositories and exhibition spaces),
- requirements for preventive conservation or conservation/restoration work,
- requirements for protective methods in the case of surviving technologies (co/re techniques).

The assessment (re-evaluation) of industrial heritage values already incorporated into a museum collection with regard to the needs of the community is based on:

- knowledge of social links within the community,
- knowledge of the community's awareness of the topic,
- knowledge of the community's attitudes to the topic,
- the community's needs with regard to education about the topic,
- risk factors placing the industrial heritage under threat (demolition, reconstruction projects).

06.04. The selection process

In practical terms, selection is an active process which takes place on the basis of:

- 1) documentation and research,
- 2) the museum's acquisitions policy and its specific institutional collection plan.

These two aspects influence the selection of the item(s) for the purpose of representing aspects of reality.

06.04.01. Documentation and research

06.04.01.01. Field-specific research

In museum practice, the physical remains of industrial heritage initially undergo documentation and primary research comprising classification and evaluation; these items (structures, technical equipment, etc.) are assessed from the perspective of the history of the specific field (industry) as examples of the development of production, science and technology. Based on the information collected, items and structures are compared with each other to assess their cultural and documentary value.⁷⁴⁾ This primary research and documentation may apply tools with their own specific methodology, such as field surveys conducted in situ (e.g. non-destructive architectural-historical surveys), archive research, historiographic research, research based on eyewitness accounts (oral history, ethnographic research, etc.), industrial archeology, as well as methods based on statistical processing, imaging and analysis. Field-specific research is followed by specialist research – in this case museological research (collections, catalogues, databases); see below.

74) Many authors even highlight the necessity for such detailed research that if the monument were to be destroyed, the research would enable it to be restored/reconstructed to its authentic state.



Rožmitál pod Třemšínem, Podbrdské muzeum (Podbrdské muzeum). An arranged exhibition presenting a foundry workshop and displaying selected collection items. Photograph Ondřej Merta, 2016.

06.04.01.02. Industrial archeology

When evaluating the remnants of former production buildings and technologies in situ, the method of industrial archeology⁷⁵⁾ is recommended; this is an interdisciplinary form of research. Industrial archeology emerged during the second half of the 20th century, and it became established among the Czech scholarly community partly as a result of the activities of Czech museums.⁷⁶⁾ Industrial archeology can trace its origins back to the 1950s. In the initial phase, it focused on investigating the “physical remains” of industrialization. Later, these physical remains came to be viewed as a resource for studying and understanding broader processes of economic development and societal transformation.⁷⁷⁾

The methods and techniques used in archeological investigations of production sites and technologies do not differ from the methods and techniques commonly used in standard archeological surveys. The production site (or an entire production complex) may be located and investigated as a result of information received, or as a result of scholars’ own field surveys which reveal traces of the former site. Archeologists may also investigate structures which are still partially intact; these structures may be documented, identified, and in some cases attempts may be made to conserve and preserve the structures (this will be demonstrated below via examples illustrating technical and technological developments – power generation machinery, mining and mineral processing, the construction of furnaces and heating systems – with the use of slides, sketches, maps etc.). All examples of technical and technological developments are of irreplaceable value for our understanding of the broader development of human society, so the study of such developments (and, if

possible, the preservation of both tangible and intangible records of these developments) should be of general interest to society as a whole.⁷⁸⁾

06.04.01.03. Museological research

For museum purposes, the primary research phase includes not only field-specific research, but also specialist museological research applying its own specific methods. The basis of this museological research is the identification of the documentary and source value of particular items; not all natural or societal phenomena possess this value. The result of this research is the identification of items which can serve as embodiments of museum value (museality).⁷⁹⁾

Museological research draws on a range of comparable materials in the form of field-specific catalogues of exhibitions and collections or other published materials presenting the collections or contents of other museums. Recently, there has been a growth in the use of electronic documents and online databases of the collections of museum institutions (e.g. Sbírký⁸⁰⁾, the Europeana collection⁸¹⁾), which enable items to be searched for and compared. In order for these materials to be of practical utility, it is essential that they provide as complete information as possible about the items in them: dates, dimensions, materials, places of production, attribution (authorship), producers, ornamental details, purpose of use, and other technical parameters.

Of equal importance is information on historical contexts, phenomena or events associated with an item – i.e. information that demonstrates the item’s authenticity while also being of illustrative value. Such information frequently needs to be collected during the process of selection or at the moment of acquisition. The loss of this information following the incorporation of the item into a museum collection and during the process of thesaurisation may lead to the item losing its explanatory value, thus reducing its value for future museum activities as well as for future research in relevant fields.

When evaluating architectural heritage or surviving heritage items located within the Czech Republic, experts can draw from comparative materials contained in several online databases: the Map of Technical Monuments in Moravia and Silesia (maintained by the National Heritage Institute)⁸²⁾, the Industrial Topography platform (maintained by the Research Centre for Industrial Heritage)⁸³⁾ and the online database “Heritage Catalogue”⁸⁴⁾ (“Památkový katalog”, formerly “Monumnet”), which administers the Central Register of Cultural Monuments (maintained by the National Heritage Institute). Other important comparative resources include published books containing catalogues of buildings, products, registers of surviving heritage sites and items, guidebooks to museums, etc.

06.04.02. Acquisitions policy and collection plans

06.04.02.01. Acquisitions policy

Acquisitions policy related to the documentation of industrial heritage by official collecting institutions is a broad area which encompasses factors such as the museum’s specific collection profile, the expertise of the curator, and unfortunately also the museum’s storage capacity and the viability of transportation options. A museum’s acquisitions policy is guided by the museum’s director and senior management team, the advisory committee for collections (also

75) Industrial archeology is a specific discipline which focuses on the description and investigation of individual types of tools and machinery, production facilities, manufactories and factories, as well as research covering the relevant industry/field (e.g. mining, railways) and also (as part of a holistic approach) urban planning and the environmental situation at entire industrial complexes associated with specific industries (mining, metallurgy, mechanical engineering, textile production) or transportation and storage.

76) Since 1978 the Technical Museum in Brno has held annual seminars focusing on investigations of former production facilities using archeological methods. The seminars are held under the title “Archeologia technica”, and papers are published in a peer-reviewed journal of the same name. For several decades the National Technical Museum in Prague has published volumes of proceedings focusing on the history of mining and metallurgy.

77) A more detailed account of the emergence of industrial archeology as a discipline is given in the publication MATĚJ, Miloš – RYŠKOVÁ, Michaela. *Methodology for the Evaluation and Protection of Industrial Heritage from the Perspective of Heritage Management*. Ostrava 2018.

78) DVOŘÁKOVÁ, Eva – MERTA, Jiří – VITÁSKOVÁ, Karin. *Revitalizace a konverze průmyslových objektů*. Ostrava 2010, pp. 43–45.

79) WAIDACHER, Friedrich. *Průručka všeobecné muzeologie*. Bratislava 1999, p. 196.

80) The “eSbírký” (meaning “eCollections”) portal is the Czech Republic’s national aggregator for the Europeana digitalized database, which summarizes cultural heritage on a European level. eSbírký – kulturní dědictví online. O nás [online]. Národní muzeum [retrieved 1. 9. 2018]. Available at esbirky.cz.

81) The Europeana collections portal offers access to the collections of European archives, libraries and museums. Europeana collections [online]. [retrieved 1. 9. 2018]. Available at europeana.eu/portal/en.

82) Technické památky Moravy a Slezska [online]. Národní památkový ústav [retrieved 1. 9. 2018]. Available at <http://mapy.npu.cz/flexviewers/indd>.

83) Industriální topografie [online]. VCPD FA ČVUT [retrieved 1. 9. 2018]. Available at <http://vcpd.cvut.cz/industrialni-topografie-cr>.

84) Památkový katalog [online]. Národní památkový ústav [retrieved 1. 9. 2018]. Available at <http://pamatkovykatalog.cz>.



Jablonec nad Nisou, Museum of Glass and Jewellery (Muzeum skla a bižuterie). The outcome of the selection process is a developmental series of glassmaking technology documented via production technologies and products at the Museum of Glass and Jewellery. Photograph Ondřej Merta, 2018.

known as the purchasing committee), and staff from the museum's department tasked with managing and caring for the collections (conservation and restoration experts, depository managers). The collection curator also consults members of the expert community, who provide assistance in decision-making or inform the curator about potential acquisitions from companies and educational institutions. Museums implement their acquisitions policy in an active manner on the basis of their collection plan; owners are not legally required to offer items for a museum's collections, but do so on a voluntary basis. The primary purpose of a museum's acquisitions policy is to set out the general direction in which the museum's collections will progress while respecting the provisions of the relevant legislation (Act no. 122/2000 Sb.), the museum's charter of incorporation,⁸⁵ the nature of its collections and sub-collections as stated in its application for listing in the Central Register of Collections (Centrální evidence sbírek, CES), and the museum's strategy or concept for collection-building.

06.04.02.02. Collection plans

A museum's collection plan is a key document guiding the selection of in situ examples of industrial heritage for the institution's collections. The collection plan defines the concept of the museum's collections and stipulates criteria for the selection of items for the collection on a precisely targeted basis, as acquisitions should not be a random process. Museums select items for their collections as an active process implemented in accordance with key documents issued by museums on the basis of the relevant management instruments. These key documents are:

- the charter of incorporation (in Czech “zřizovací listina”; in the case of the National Gallery in Prague, the gallery's statute),
- the nature of its collections and sub-collections as stated in its application for listing in the Central Register of Collections (Centrální evidence sbírek, CES),

⁸⁵ This is a fundamental internal regulation issued by the constituting body of the institution and stating (inter alia) its main areas of activity. In the case of a museum, the main activity is collection-building. The charter of incorporation should therefore include information on the fields to which the museum's collections pertain and the territory (region) from which its collections are primarily sourced.

- the museum's strategy or concept for collection-building and the acquisitions policy (collection management policy) based on this, divided into individual “sub-collections”.

A decisive role in the selection process is played by the manner in which the strategic part of the collection plan defines the goals of the museum's collection-building activities, i.e.:

- whether the museum documents industry, science and technology as a whole, or whether it focuses on more narrowly specialized aspects of industry or technology (e.g. museums of railways, mining, glassmaking, etc.),
- whether the region's scope is local, regional, national or international,
- which historical periods the museum documents.

The content and focus of the collection plan are determined by the curator of the museum's collections and other movable items, taking into account the above-listed key documents. The curator is entrusted with the care and management of the collection, and this remit includes decision-making on how the concept of the collection will develop in the future. The completion of the selection process thus lies primarily within the remit of the curator.

Decisive criteria of the collection plan for the selection process:

- appropriateness for the field(s) in which the museum specializes
- compatibility with the aims set out in the collection plan
- presence in the collection – not yet present, already present (identical, similar – different type, wear and tear, etc.)
- frequency of occurrence
- degree of authenticity
- capacity for musealization
- representation of territory (region) and period
- requirements for co/re work (current, expected)
- depository requirements (space, climatic conditions, form and manner of storage, transportation options)
- requirements for regular maintenance – coatings, lubrication, fuel, production or purchase of spare parts, etc.
- technical parameters – dimensions, weight
- risk assessment re: fire, theft, vandalism (list)
- special requirements for maintenance, management and storage – special conditions due to the technical parameters of items (e.g. very heavy or large items, moving machinery etc.)
- special requirements connected with original owners – contractual demands
- cost of purchase (sum)

06.04.02.03. Form for evaluating items with regard to the museum collection concept (pre-acquisition and re-evaluation)

This methodological publication includes an appendix (no. 1) which consists of a Form for evaluating items with regard to the museum collection concept (pre-acquisition and re-evaluation). The purpose of the form is to assist in the evaluation of items from the perspective of whether they are compatible with the concept governing the museum's collection-building activities. The form contains a set of questions whose answers are classified on a scale from 0 to 2 expressing the degree to which the item is compatible with the museum's collection concept (0 = incompatible, 1 = partially compatible, 2 = entirely compatible).

After evaluating the answers, it is possible to determine whether the item under assessment

- is not compatible with the museum's collection concept (primarily answers scoring 0),
- is partially compatible with the museum's collection concept (primarily 1),
- is compatible with the museum's collection concept (1 and 2 equally represented),
- is compatible with the museum's collection concept (primarily 2).

06.05. Identification of industrial heritage values in museum practice

Based on the documentation and primary research, the item is classified:

- depending on the period it represents (the boundaries between the periods are more or less fuzzy):
 - pre-industrial and proto-industrial period (from the Paleolithic to the mid-18th century)
 - industrial period (from the beginning of the Industrial Revolution to the mid-20th century)
 - post-industrial period (the present day – digital technologies).⁸⁶⁾
- depending on the field (industry) it represents: examples of metallurgy, mining, textile production, power engineering, transport, storage, food production, etc. This classification by field (industry) is potentially problematic because institutions (researchers) do not use a single standardized system of classification. The differing classifications used in the collections of museums in the Czech Republic demonstrate the lack of consensus among Czech museums regarding a system of classification.

The official classification system for industries used by the Czech Ministry of Industry is the Typological Classification of Economic Activities (Oborová klasifikace ekonomických činností, OKEČ). The issue has also been discussed by scholars in other countries, e.g. Marylin Palmer and William R. Jones: *Dictionary of Industrial Archeology* (1996),⁸⁷⁾ whose systems would also be appropriate for application to Czech museums.

The Methodological Centre for Industrial Heritage (part of the National Heritage Institute) uses a system of classification consisting of nine categories:

- transport – sites, buildings and equipment designed for air, road, water and rail transport and travel,
- energy – sites, buildings and equipment designed for energy production, concentration, distribution and transformation,
- mining – sites, buildings and equipment designed for the extraction of mineral resources,
- metallurgy (including mechanical engineering) – sites, buildings and equipment designed for the production, refining and further processing of metals and glass, and subsequently for metal finishing/forming and the production of machinery,
- food and drink – sites, buildings and equipment designed for the production and storage of food and drink,
- textile production – sites, buildings and equipment designed for the processing of raw materials for textiles, the production and finishing of yarn, cloth, clothing and hats,
- science, technology, others – sites, buildings and equipment designed for the observation and measurement of natural phenomena or activities not classifiable under the other areas,
- water management – sites, buildings and equipment designed for the regulation of watercourses, retention, accumulation, treatment and purification of water, and water structures for energy generation and production facilities,
- manufacturing – sites, buildings and equipment designed for the processing of natural resources (e.g. lime, wood, oil, clay, leather etc.), chemical production.

The Methodological Centre for Industrial Heritage uses the term “services for industries” as a designation of inter-industry links. The category “services for industries” includes e.g.:

- buildings and equipment supplying energy to industrial facilities (water wheels, boilers, turbines, boiler houses, chimneys, engine halls for steam engines, etc.) form part of the area designated above as “energy”, but they also provide a service to other industries,
- water structures supplying water as a power source for machinery and equipment (e.g. dams, weirs, mill-streams) form part of the area designated as “water management”, but they also provide a service to other industries and can thus be grouped together with the buildings and sites that they were intended to serve (mills, power plants etc.),

86) These periods are taken from the classification used in industrial archeology to describe the development of production methods.

87) For older works see e.g. HUDSON, Kenneth. *Industrial Archeology. An Introduction*. London 1967. REISROCK, Artur. *Industrial Archeology*. London 1972.

Chemnitz (Germany),
Sächsisches
Industriemuseum –
Industriemuseum
Chemnitz. A modern
machine (for knitting)
as a document of the
present, selectively
presenting the
cultural development
of contemporary
society and the
production methods
of the textile
industry. Photograph
Ondřej Merta, 2015.



Chemnitz (Germany), Sächsisches Industriemuseum – Industriemuseum Chemnitz. An exhibition presents a brief outline of the development of sewing technology. Photograph Ondřej Merta, 2015.

- water structures related to transport (canals, canal locks, etc.) form part of the area designated as “water management”, but they also provide a service to transport.

The above-listed categories are supplemented by universal buildings (office buildings, warehouses, workshops etc.) and buildings providing social infrastructure (workers’ housing schemes, market halls, schools etc.).⁸⁸⁾

An internationally accepted system for classifying industries is the Universal Decimal Classification (UDC).⁸⁹⁾ This is a tool designed for librarians and professionals in bibliographic and information services, which facilitates the indexing and classification of information resources.

There are also other classification systems available, but these are not generally used by Czech museums. They include Classification Schemes on the Web, the Library of Congress Classification⁹⁰⁾, and the Dewey Decimal Classification.

In addition to these classifications, the following pages discuss the structure of the collections at a number of large Czech technical museums. The National Technical Museum (Národní technické muzeum, NTM) uses a classification system created in-house for the purpose of coordinating the museum’s research activities and facilitating its acquisitions processes.⁹¹⁾ The NTM’s collection is divided into 3 sub-collections, each of which is further divided into its own internal structure:

- The Science, Technology and Industrial production sub-collection includes collection groups (11) and individual collections (56):
- the Exact Sciences group consists of 6 collections (Astronomy, Geodesy, Mathematics, Physics, Cartography, Music Machines),
- the Chemistry and Biotechnology group consists of 3 collections (Alchemy, Laboratory Equipment, Applied Chemistry),
- the Food Industry group consists of 5 collections (Sugar Industry, Brewing Industry, Spirits Industry, Milling Industry, Other Foodstuffs),
- the Mining group consists of 6 collections (Historical Mining Technology, Present-Day Mining, Geology and Mineralogy, Geophysics, Diving, Photo Documentation of the History of Mining),
- the Metallurgy group consists of 5 collections (Iron Metallurgy, Metallurgy of Non-Ferrous Metals, Mechanical Engineering Metallurgy, Artistic Cast Iron Works, Blacksmithing and Locksmithing),
- the Mechanical Engineering group consists of 7 collections (Engines, Mechanical Engineering Technology, Measurement in Mechanical Engineering, Chronometric Technology, Clockmaker Technology, Non-Electrical Lights, Work Safety),
- the Electrical Engineering group consists of 6 collections (Energy, Measuring Technology, Electrical Lights, Telecommunications, Electronics, Information Processing Machines),
- the Acoustics group consists of 4 collections (Electro-Acoustic Transducers, Sound Recording Equipment, Audio Carrier Media, Measuring Sound and Vibrations),
- the Transportation group consists of 6 collections (Aviation, Boats, Automobiles, Hippomobiles, Motorcycles, Bicycles),
- the Photography-Cinematography group consists of 4 collections (Past Processes of Photography, Instruments and Accessories of Photography, Prehistory of Cinematography, Instruments and Accessories of Cinematography),
- the Consumer Goods Industry group consists of 4 collections (Printing, Writing Technology, Textile Technology, Household Technology).

88) MATĚJ, Miloš – RYŠKOVÁ, Michaela. *Methodology for the Evaluation and Protection of Industrial Heritage from the Perspective of Heritage Management*. Ostrava 2018.

89) UDC Universal Decimal Classification [online]. UDC Consortium [retrieved 7. 1. 2019]. Available at <http://www.udcc.org/index.php/site/page?view=about>.

90) The Library of Congress [online]. Library of Congress Classification Outline [retrieved 1. 9. 2018]. Available at <http://www.loc.gov/catdir/cpsolcco>. The only Czech institution to use this system is the National Technical Library in Prague.

91) DVOŘÁKOVÁ, Eva. Nové využití technického a průmyslového dědictví. *Zprávy památkové péče*, 2013, vol. 73, no. 3, pp. 171–178.

The Architecture, Civil Engineering and Industrial Design sub-collection consists of:

- the Architecture group,
- the Civil Engineering group.

The Railway sub-collection consists of:

- the Locomotive Rail Vehicles group,
- the Drawn Rail Vehicles group,
- the Small Rail Vehicles group,
- the Communication and Safety Technology group,
- the Other group.⁹²⁾

The Technical Museum in Brno (Technické muzeum v Brně, TMB) uses its own classification system for its collections, which was devised to meet the museum’s specific needs:

- electrical engineering and electronics,
- electric motors, dynamos, alternators, starters,
- power engineering equipment: steam engines, portable engines, steam turbines and their components, models of steam engines, water wheels, water turbines, components and accessories of hydraulic machinery, models of water turbines, wind engines,
- geodetic and cartographic equipment: theodolites, levelling instruments, inclinometers, planimeters, astronomic and telescopic telescopes, components of measuring devices, devices for staking angles and measuring lengths, various types of maps, special atlases,
- chemical laboratory equipment: basic laboratory equipment, instruments for physical-chemical measurement and instrumental analysis, radiation monitoring instruments, models of chemical production facilities,
- office equipment and reprographic equipment: typewriters, copying machines, duplicating machines,
- aviation and astronautics: powered aircraft, gliders, helicopters, autogyros, aircraft equipment and armaments, aviation engines, model aircraft, aviation plaquettes, badges, maps, sketches, posthumous estates of important figures in aviation,
- hunting weapons: shotguns, rifles, rifle-shotguns, historic weapons, pistols, small-calibre firearms, air guns, cold weapons, development of knives,
- mechanical musical instruments: phonographs, mechanical music boxes (wind, keyboard, music boxes with tongue mechanisms),
- urban public transport: tram vehicles, horse-drawn vehicles, steam and electric traction vehicles, buses, trolleybuses,
- measuring equipment: instruments for measuring dimensions, time, flexion, pressure, heat, humidity, quantity, weight, electrical measurements, instruments for displaying and recording processes, analyzers,
- milling equipment: milling machines, millstones, milling rollers, grinders, cutting machines, sorting (grading) machines, model windmills, auxiliary machinery,
- machine tools, tools and measurement devices: various types of manual and mechanical machine tools and their components, sets of manual and mechanical tools, measurement devices and other devices used in mechanical engineering,
- optics: photography and film equipment and machinery, slide projectors, photography and film accessories, light and electron microscopes,
- regulating technology: electric, hydraulic and pneumatic devices for measurement, amplification and actuation in regulating circuits, complete regulators,
- communication technology: radio receivers, transmitters, telegraphs, telex, tape recorders, gramophones, telephone devices, televisions, special measurement instruments for radio engineering,

92) Centrální evidence sbírek [online]. Národní technické muzeum [retrieved 1. 9. 2018]. Available at <http://www.ntm.cz/muzeum/centralni-evidence-sbirek>.

- combustion engines: stable combustion engines, historic automobiles (especially Z and Wikov), tractors (Zetor, Wikov), motorcycles, velocipedes,
- metallurgy for mechanical engineering: examples of historic iron production, models of metallurgical facilities, iron castings for decoration and practical use,
- household equipment: lamps, grinding machines, robots, irons, mangles, sewing machines, weighing scales, clocks
- equipment for trades and crafts: tools, instruments and accessories for blacksmiths, locksmiths, cobblers, butchers, bookbinders, lumberjacks, barrel-makers, wheelwrights, carpenters, bag-makers, barbers and knife-makers,
- textile machinery and equipment: manual and mechanical weaving machines, spinning machines, knitting machines, finishing machines, trial machines and equipment, samples of raw materials for textile production,
- water management: pumps, equipment from water works and treatment plants, models of water structures, irrigation equipment,
- computing/information technology: simple calculation devices, mechanical and electromechanical calculators, invoicing and accounting machines, control tills, hole-punch machines, automatic digital and analogue computers, structural elements and operating documentation of calculating machines and computers,
- medical technology: X-ray machines, electrocardiographs, massage machines, dental instruments, laboratory equipment,
- militaria: the South Moravian fortification system, weapon systems technology, military technology
- special documents, photographs, films, slides, company brochures, posters, maps, plans of production facilities, technical drawings,
- posthumous estates of important technical experts, scientists, historians and others: Viktor Kaplan, František Píšek, Vladimír List, Erich Roučka, Vítězslav Veselý, Antonín Smrček, Josef Sumec, Konrád Hruban, Jaroslav Jičínský, Vilém Jičínský, Jiří Wellner, Leopold Grimm, Stanislav Kratochvíl, František Houšť, Vladimír Bárta, Jan Krumbach, Jan Anderle, Zdeněk Zavřel, etc.,
- archive documents related to important blind or partially sighted figures (Josef Smýkal, Jaroslav Had, Klement Lukeš, etc.),
- industrial archeology,
- aids for blind and partially sighted people,
- work clothing, protective devices,
- didactic devices, technical games,
- customs administration.⁹³⁾

06.05.02. Evaluation

06.05.02.01. Development of the field and degree of authenticity

After classifying an item (object, building) with regard to its historical period and type of industry, the item is evaluated from the perspective of the development of the relevant industry in terms of predicted frequency of occurrence and degree of authenticity:

Here it is necessary to assess whether the item is an example of a widespread type of technology or production process, or whether it exemplifies a rare or exceptional solution.⁹⁴⁾

Depending on the frequency of occurrence, the item (object/building) is evaluated as rare (an entirely exceptional item which enables us to determine what is typical, e.g. a machine with rare modifications); unique (the only example of a rare item, e.g. the only prototype or the only surviving example, or one of very few surviving examples); a remnant (a surviving example of a certain aspect of reality, of which only a limited number of examples now exist); or an example (a

93) Technické muzeum v Brně. Available at www.technicalmuseum.cz.

94) MATĚJ, Miloš – RYŠKOVÁ, Michaela – GUSTAFSSON, Ulf Ingemar (eds.). *Technical Monuments in Norway and the Czech Republic. Technické památky v Norsku a České republice*. Ostrava 2016, p. 17.

typical item characterizing a particular situation, production process etc., which offers an appropriate illustration and demonstration of the industry/field in question, and which is widespread and still exists in large numbers in situ or in museum collections – it can be borrowed, and it documented at more than one location). A specific group consists of artworks – paintings, drawings, engravings, sculptures, etc.

In museology, the degree of authenticity (genuineness) depends on the relation between the item and the phenomenon (location, person, period) in question. As a result, the degree of authenticity of collection items may fluctuate depending on the topic. This potential fluctuation covers a range from the highest degree of authenticity (items surviving in their complete form and in their original location, items associated with producers or designers, e.g. prototypes) to the lowest degree of authenticity (fragments, partial remains, or merely information about the item). An item may only demonstrate a particular process or phenomenon if it can be demonstrably and verifiably linked with that process or phenomenon. This originality must be proved and documented using scholarly methods.⁹⁵⁾ In the case of industrial heritage management, the degree of authenticity is essentially identical to the degree to which the item has survived intact – i.e. whether it still exists as a complete entity, in situ, or merely as a fragment or partial remains, or in the form of historical information.⁹⁶⁾

06.05.02.02. Heritage value

In the case of industrial heritage taking the form of a building or site (complex), the architectural importance, aesthetic value and topographic value are also evaluated; see the methodological publication for heritage management.⁹⁷⁾ When industrial heritage takes the form of objects, it is necessary to assess whether the objects are present at a location historically linked with the technology in question (e.g. on a historic mill-stream) and whether or not the objects are present at a location that is typical of the industry in question.

For the purposes of museums, fundamental criteria for evaluating a building include the presence of the building's technological contents and the completeness of this technology (continuity of the technological flow), the presence of machinery in situ, and (if applicable) the presence of sources of energy at the site (mill-streams, boiler halls, turbine houses, steam engine halls, transmission systems, etc.).⁹⁸⁾

Aesthetic value is an umbrella term denoting various values which are assessed having made an impression on the evaluator when perceiving the item (building, site, object). The assessment focuses on what can be termed the final aesthetic value of the item.

06.05.02.03. Museum value

Museum value is a specific property of items assessed from the perspective of the requirements of museum practice. The item is evaluated with reference to numerous criteria derived from the museum's collection concept (see above), including its explanatory capacity and ability to be a bearer of museality; i.e. whether the item embodies information making it an appropriate subject for study and presentation, and whether it is able to bear witness to reality thanks to the information it embodies and its links with the broader context. The item is thus evaluated as being either able or unable to be a bearer of museality.

An item is always evaluated with consideration given to the development of the particular industry in the particular territory or location, compared with developments in the same industry elsewhere in Europe or beyond. What may be common in one territory may be rare – and thus important – in another territory.

In order to assist in the evaluation of items as part of the process of selection and based on the criteria outlined

95) WAIDACHER, Friedrich. *Príručka všeobecnej muzeológie*. Bratislava 1999, p. 111.

96) MATĚJ, Miloš – RYŠKOVÁ, Michaela – GUSTAFSSON, Ulf Ingemar (eds.). *Technical Monuments in Norway and the Czech Republic. Technické památky v Norsku a České republice*. Ostrava 2016, p. 16.

97) MATĚJ, Miloš – RYŠKOVÁ, Michaela. *Methodology for the Evaluation and Protection of Industrial Heritage from the Perspective of Heritage Management*. Ostrava 2018.

98) JAROŠ, Jiří. Vodní mlýn ve Slupi. Expozice mlynářské techniky. (Principy a praxe památkové obnovy). In *Muzejní a vlastivědná práce*, vol. 30. *Časopis společnosti přátel starožitností*, vol. 100, no. 3, 1992, p. 141.



Kopřivnice, Kopřivnice Regional Museum: Tatra Technical Museum. The “Slovenská strela” (Slovak Bullet) train is an example of an authentic original which is currently a unique item – the only surviving example of two trains that were originally produced. The exhibit has been declared a national cultural monument. Photograph Ondřej Merta, 2018.



Kopřivnice, Kopřivnice Regional Museum: Tatra Technical Museum. A replica of the first NV goods vehicle (1899), built in 1979 and based on an original product of the Kopřivnice car plant. Photograph Ondřej Merta, 2018.

above, a Form for field research (pre-acquisition) has been elaborated; the form comprises appendix no. 2 to this methodological publication.

The information entered into the form is evaluated using a scale from 0 to 2; 0 denotes missing information, 1 denotes partial information, and 2 denotes complete information. On this basis, the item can be evaluated in terms of its degree of explanatory capacity (depending on the information embodied in the item and its contextual interrelations), thus enabling a decision to be reached on how suitable the item is for the collection:

If evaluations of 0 are prevalent, the item lacks explanatory capacity; further research is needed, and acquisition is not recommended.

If evaluations of 1 are prevalent, the item possesses limited explanatory capacity; further research is needed, and acquisition is not entirely appropriate.

If evaluations of 1 and 2 are present in approximately equal numbers, the item potentially possesses authentic explanatory capacity provided that additional research is conducted; acquisition is recommended.

If evaluations of 2 are prevalent, the item possesses authentic explanatory capacity, and acquisition is appropriate.

06.06. Conclusion of selection

Based on a selection process carried out by a museum (documentation, research and evaluation with reference to criteria determined by the institution’s collection plan and acquisitions policy), a suitable item is identified which represents and demonstrates a particular historical phase of industrial heritage and societal phenomena related to that phase, and which is at the same a bearer of a specific museum value (museality). Museums provide protection to selected

items by incorporating items into museum collections, provided that the item is considered an appropriate subject for museum practice; in such cases the museum can take the item into its care by applying Act no. 122/2000 Sb. The physical item may be taken to a museum depository, or it may be protected in situ (by conservation and/or restoration). The museum may also contribute to an item’s declaration as a cultural monument/national cultural monument – either in collaboration with heritage professionals or on its own account.

After being incorporated into a museum collection, such authentic items become primary documents and thus perform the role of authentic documentation. A process of selection may also identify secondary items, which have a close connection to the primary documents and which after incorporation into a collection acquire the same status as primary documents from the perspective of the protection provided by museums. Another possible outcome of the selection process is the identification of accompanying documentation (printed materials, company leaflets, photographs).

The acquisition of items for a museum’s collections takes place within the parameters stipulated by relevant legislation, primarily Act no. 122/2000 Sb. on the protection of museum-type collections. However, the Act does not require original owners to transfer these items to a museum (whether as a donation or in the form of a purchase). A museum has no legal entitlement to acquire an item; it must engage in discussions with the owner and leave the decision up to the owner whether s/he is willing to donate or sell the item to the museum.

06.06.01. Substitute supplementary documentation

A museum’s active acquisitions policy also includes building collections of substitute supplementary documentation in cases when original documentation has not survived or cannot be incorporated into the collections (due to excessive dimensions or weight). The creation of substitute supplementary documentation includes models, dummies, dioramas, copies, reproductions, castings, imitations, reconstructions, facsimiles etc.

The creation of replicas, technological reconstructions and experimental archeology are well-established methods. They provide new insights into the design, construction and operation of industrial and other machinery – e.g. replicas of locomotives, an experimental reconstruction of Charles Babbage’s unbuilt difference engine for tabulating polynomial functions (at the London Science Museum),⁹⁹⁾ or replicas of iron ore smeltings at the Technical Museum in Brno.

These items are not usually incorporated into museum collections in the form of collection items which are then entered into the Central Register of Collections (CES). Their registration takes a different form, which is specified by the museum’s internal regulations. In exceptional cases, such items may be incorporated into a collection – e.g. if they represent objects which no longer exist, products which have not survived, etc.

99) COSSONS, Neil. Průmysl včerejška, odkaz zítřku? In *Průmyslové dědictví. Industrial heritage. Sborník příspěvků z mezinárodního biennale Industriální stopy. Conference proceedings from the international biennial Vestiges of Industry*. Praha 2008, pp. 14–30, p. 21.



Hlučín-Darkovičky, Silesian Museum (Slezské zemské muzeum). Authentic installation of part of the weaponry in a room inside an infantry block. A pair of ZB-53 heavy machine guns in an embrasure at the MO-S 19 Alej infantry block, a former Czechoslovak fortification at Hlučín-Darkovičky. Photograph Ondřej Merta, 2018.

07. Creating a museum collection: thesauration

The primary activity of a collecting institution is collection-building, as museums communicate primarily through physical items (collection items). The value of these items lies in the information and meanings that they embody as well as in their relevance for society. Information is a tool for numerous other types of institutions (such as libraries and archives) and organizations, but museums are the only type of institution to focus their activities primarily on the conceptual creation of collections, which are then managed, researched and displayed for the public; it is the public that interprets the items (thus also interpreting their importance and values).¹⁰⁰⁾

Industrial heritage, once it has been extracted from reality and has become a subject of interest for museum practice, is then subjected to a set of techniques which are already codified and supported by legislation; this set of techniques is collectively known as thesauration – i.e. the creation of museum collections as entities. These techniques are interrelated or conditional upon each other: expert collection-building, cataloguing, keeping records and conducting inventories, exhibiting (display), conservation and restoration, and the creation of projects enabling a collection to be integrated into educational and other activities (this may include outputs in electronic form).

Part of thesauration is musealization – a process in which certain elements of reality are extracted (removed) from that reality on the basis of selection (see the preceding chapter) because these elements document (i.e. provide a true, authentic image of) the form and state of human culture within a specific period. In the process of musealization, these selected material elements embodying aspects of human culture are protected against natural destruction and continue to be used by museums in various ways in order to further human cultural development.

The role of the curator¹⁰¹⁾ of a collection of museum objects is to create and update the collection plan, on whose basis the curator manages the collection – keeping records, caring for the items, and utilizing them for educational and scholarly purposes.¹⁰²⁾ Thesauration also includes conducting inventories and, if necessary, de-accessioning (permanent removal of items from the collection).

The process of collection-building is codified in Act no. 122/200 Sb., which precisely defines what records of acquired items must be kept both for administrative reasons (managing the collection) and for scholarly reasons (specialist evaluation of the collection). According to the Act, museum documentation is a specific type of activity conducted in the public interest and consisting of the planned and systematic gathering and maintenance of records of the development of the natural world, society or human activities. Museum documentation is carried out by museums using specific museum techniques, and museum collections represent the outcome of this process. The new legislation on museums (Act no. 122/2000 Sb., 7 April 2000) introduced a new system for keeping records of museum collections by creating the Central Register of Collections (Centrální evidence sbírek, CES), which is maintained by the Czech Ministry of Culture.

07.01. Acquisitions

The starting point for the management and care of industrial heritage is the process of acquisition, by which an item is incorporated into a museum collection. The item may be removed (extracted) from its original location or from the site

100) ŠOBAŇOVÁ, Petra. *Muzejní expozice jako edukační médium*. Olomouc 2014.

101) Besides the position of curator, Czech museums also have the position of “documenter” (“dokumentátor”) of collections and other movable items; the difference between the job roles and responsibilities of the two positions is specified in the museum’s internal employment regulations and job descriptions.

102) ŽALMAN, Jiří et al. *Příručka muzejníková I. Tvorba, evidence, inventarizace a bezpečnost sbírek v muzeích a galeriích*. Praha – Brno 2002, pp. 13–14.



Bielsko-Biala (Poland), Stara Fabryka – Muzeum Historyczne w Bielsku-Bialej. A specialist collection of textile machinery at the Stara Fabryka – Muzeum Historyczne w Bielsku-Bialej, the photograph shows a self-acting mule and a carding machine. Photograph Ondřej Merta, 2013.



Bielsko-Biala (Poland), Stara Fabryka – Muzeum Historyczne w Bielsku-Bialej. A specialist collection of textile machinery originating mainly in the local region. Exhibits demonstrating the preparation of yarn for weaving and warping. Photograph Ondřej Merta, 2013.



Bielsko-Biala (Poland), Stara Fabryka – Muzeum Historyczne w Bielsku-Bialej. A specialist collection of textile machinery originating mainly in the local region. Simple mechanical hand-powered weaving looms. Photograph Ondřej Merta, 2013.

at which it was discovered,¹⁰³⁾ or it may be left in situ as part of the interior fittings of a building, workshop etc. The item formally becomes a part of a museum collection once certain legal steps have been taken (defined in Act no. 122/2000 Sb.); it is incorporated into the museum collection (and recorded as such), and during the process of thesaurization it undergoes research (musealization) in order to identify the information and contextual connections associated with the item.

In the case of industrial and technical heritage, acquisitions policy is a relatively complex area; key factors include the museum's specific collection profile, the curator's expertise, and unfortunately also the museum's storage capacity and the viability of transportation options. A museum's acquisitions policy is guided by the museum's director and senior management team, the advisory committee for collections (also known as the purchasing committee), and staff from the museum's department tasked with managing and caring for the collections (conservation and restoration experts, depository managers); see the previous chapter.

Currently, acquisitions policies for industrial heritage are also taking into consideration the need to collaborate with the expert community – those with practical experience, technical experts, academics and eyewitnesses. Experience has shown that an enlightened collection-building policy and acquisitions strategy can greatly benefit from the knowledge and experience of people from the field (industry) with which an item is associated. It is not possible for a member of museum staff – the curator – to maintain a complete overview of all fields of technology and all industries from their very beginnings to the present day. It is thus essential for curators to consult members of the expert community, who can provide invaluable assistance to the curator in the decision-making process and can also inform curators about potential acquisitions from companies and educational institutions.

Museums implement their acquisitions policy in an active manner on the basis of their collection plan; they seek out items in situ, map technical buildings, and monitor production process. Owners are not legally required to offer items for a museum's collections, but do so on a voluntary basis. For this reason, it is desirable for the curator of a collection to work closely alongside the expert community (heritage experts, architects, technical experts, etc.) as well as with a group of collaborators (e.g. volunteers, consultants, etc.) who are able to monitor the situation on the ground and notify the curator of potential acquisitions, assist with the transfer of items to the museum's depository, and also provide assistance with the subsequent cataloguing of items or their display at exhibitions.

For several decades, the Technical Museum in Brno has been developing and using an exemplary collaborative network including numerous employees of companies, research institutions, universities, technical and vocational colleges and other institutions; this networking has enabled the museum to identify potential acquisitions with a relatively high degree of success. In many cases, this collaboration is based on the voluntary activities of members of the museum's Circle of Friends, which is organized into 19 separate sections covering all relevant topics, and which also offers the general public a relatively broad range of possibilities for contributing to the museum's work. Members of the Circle of Friends are involved in the preparation and implementation of various supplementary programmes organized by the museum – as bus or trolleybus drivers, operators of technical equipment, etc. In other countries, it is entirely normal for members of the public to collaborate in museums' acquisitions and in managing and displaying (exhibiting) their collections; indeed, some institutions are built entirely on the principle of voluntary work.

07.02. Collections

A museum collection is a set of items that are held by the museum. Although the first museums were created (inter alia) as a result of human society's need to create something akin to a bank for cultural memory, over the years museums have developed into something more: they are now interpreters and mediators of cultural memory, playing an active role in reviving this memory and constantly enriching our understanding of the past.¹⁰⁴⁾ Museums do not build up their collections solely as closed systems for scholarly purposes; a central part of their work involves presenting the collections to members of the public.

103) See STRÁNSKÝ, Zbyněk Z. *Úvod do studia muzeologie*. Brno 1979, p. 41. Entry "Selekcce, muzejní".

104) ŠOBÁŇOVÁ, Petra. *Muzejní expozice jako edukační médium*. Olomouc 2014.

The techniques used by museum-type institutions with regard to the protection of industrial heritage are based on managing and caring for collections of items, which in the case of industrial heritage are highly specific to this particular field: they are frequently very large and heavy objects, examples of series-based mass production, sets of exhibits representing an entire technological process, fragments of larger entities, exhibits that have been preserved in situ (inside buildings or outdoors) and cannot viably be transported to a museum's depository, and in some cases the buildings themselves.

A further specific feature of industrial heritage is the fact that it includes not only buildings, but also other structures and machinery that were built for industrial purposes; they were made for work, not for aesthetic effect. Many machines were designed for a precise, unique purpose, for a particular location, and so on. The opposite situation arises when surviving technologies were originally designed for series production, for a large number of different uses, users and spaces. Often these technologies have been preserved in working order. In most cases, they are still operational, though no longer used for their original purpose: microscopes, computers, road or rail vehicles, locomotives, aircraft, lathes, textile production machinery, etc. However, in some cases machinery and equipment can still be used for its original purpose. This brings the need for special care of items held in museum depositories or conservation workshops, or items



Bistra u Vrhnika (Slovenia), Technical Museum (Tehniški muzej Slovenije). A petrol pump. An example illustrating historical technology at a transport exhibition. This remnant is a representative of a type of item that used to be widespread. Photograph Ondřej Merta, 2006.



Hlučín-Darkovičky, Silesian Museum (Slezské zemské muzeum). Installing a ZB-53 heavy machine gun in a cast steel embrasure. The installation is shown in a didactic manner, so that the system of the embrasure, the gun carriage and the gun itself can be explained. Examples installed in an authentic environment – a former Czechoslovak fortification at Hlučín-Darkovičky, MO-S 19 Alej infantry block. Photograph Ondřej Merta, 2018.

on public display. Technologies have always required maintenance, repair, replacement of parts, or upgrades, and this fact should be taken into account when assessing their value, their importance for a museum collection, the requirement for co/re work, or the need for preventive conservation. And naturally, these considerations must also be reflected in the way in which the items are presented by the museum.

07.02.01. Collection plans

A museum collection is built on the basis of a collection concept. The first stage in this process involves setting the criteria for selecting collection items; these criteria are set out in a collection plan. The criteria for selection should reflect a targeted approach: acquisitions should not be a random process. Creating a collection involves “creating specific values which reside in the entire collection's explanatory value with regard to nature or society”.¹⁰⁵⁾

- Museums select items for their collections as an active process implemented in accordance with key documents issued by museums on the basis of the relevant management instruments. These key documents are:
- the charter of incorporation (in Czech “zřizovací listina”; in the case of the National Gallery in Prague, the gallery's statute),
- the nature of its collections and sub-collections as stated in its application for listing in the Central Register of Collections (Centrální evidence sbírek, CES),¹⁰⁶⁾
- the museum's strategy or concept for collection-building and the acquisitions policy (collection management policy) based on this, divided into individual “sub-collections”.¹⁰⁷⁾

In practice, this means that acquisitions are guided by a museum's specific area of focus, its acquisitions policy, and its collection plan.

The current situation at Czech museums is that industrial heritage collections are highly variable and do not exist in a standardized form. In the case of collections created as private initiatives, the items have often been acquired in an uncoordinated manner, without any deep analysis. The Czech Republic has no overarching concept which could help to coordinate official institutions' industrial heritage collections according to specific principles in order to ensure that items would be representative and distributed evenly or appropriately across different institutions. Each collecting institution thus operates independently of all other similar institutions in its decision-making processes when acquiring items for industrial heritage collections or documenting a particular phenomenon via a collection.

Czech museums thus build collections according to various criteria:

- according to the types of industries operating (past and present-day) within the territory of the Czech Republic;
- according to the material from which items are made (wood, metal, textiles, etc.);
- according to societal phenomena (labour, entertainment, unemployment, etc.);
- according to aesthetic criteria (design collections, do-it-yourself collections, etc.);
- according to the origin of the items (collections related to individuals, companies, brands);
- according to territorial origin (collections from a particular location or region);
- according to a historical period (trades and crafts, the communist era, etc.).

105) Metodický pokyn MKČR k provádění některých činností souvisejících s tvorbou sbírek, péčí o sbírky a vývozem sbírkových předmětů do zahraničí č. j. 14.639/2002, článek I. Sbírkotvorná činnost muzea. (Methodological instruction issued by the Czech Republic Ministry of Culture, on the implementation of certain activities connected with the creation and management of collections and on the export of collection items to foreign countries, ref. no. 14.639/2002, Article 1. Collection-building activities at museums.)

106) This is a fundamental internal regulation issued by the constituting body of the institution and stating (inter alia) its main areas of activity. In the case of a museum, the main activity is collection-building. The charter of incorporation should therefore include information on the fields to which the museum's collections pertain and the territory (region) from which its collections are primarily sourced.

107) Metodický pokyn MKČR k provádění některých činností souvisejících s tvorbou sbírek, péčí o sbírky a vývozem sbírkových předmětů do zahraničí č. j. 14.639/2002, článek I. Sbírkotvorná činnost muzea. (Methodological instruction issued by the Czech Republic Ministry of Culture, on the implementation of certain activities connected with the creation and management of collections and on the export of collection items to foreign countries, ref. no. 14.639/2002, Article 1. Collection-building activities at museums.)



Chemnitz (Germany), Sächsisches Industriemuseum – Industriemuseum Chemnitz. An example of a concept-driven selection of textile machinery with an emphasis on maintaining the machinery in working order. The exhibits are related to the local region and form part of the museum exhibition. Photograph Ondřej Merta, 2012.

Collections are most frequently conceived as documenting a particular industry or field of activity, especially in relation to a certain region. Examples include the glassmaking collection at the Glass Museum in Kamenický Šenov (www.muzeumskla.cz), the sub-collection of artistic cast iron at the Blansko Regional Museum (www.muzeum-blanenska.cz), or the collection of mining-related and cast iron-related items at the Municipal Museum in Bystřice nad Pernštejnem (www.muzeumbystricko.cz). Institutions with collections documenting a broad spectrum of industries and whose scope transcends regional boundaries include the National Technical Museum in Prague, the Technical Museum in Brno, and also the Textile Museum in Česká Skalice and the Military History Institute (Vojenský historický ústav) in Prague.

For the future, and to enable comparisons to be made between the achievements of different museums, we recommend that industries/fields should be classified according to a system also used by other disciplines, which would facilitate interdisciplinary approaches to documenting particular industries/fields – for example, the Universal Decimal Classification (UDC) or the classification used by the Methodological Centre for Industrial Heritage at the National Heritage Institute (see above).

One of the most recent trends in museum practice involves cases when museums do not build collections in a conceptual manner, as constantly developing systems, but instead create collections with a view to a current (or planned) exhibition project, and then do not continue expanding the collection further once the exhibition has been completed.¹⁰⁸⁾ No examples of this practice have been found at Czech museums.

07.02.02. The concept of a collection

All museums define specific strategies¹⁰⁹⁾ for their collections. In the case of industrial heritage, such a strategy sets out the goals of the museum's collection-building activities:

- whether the museum documents industry, science and technology as a whole, or whether it focuses on more narrowly specialized aspects of industry or technology (e.g. museums of railways, mining, glassmaking, etc.),
- whether the region's scope is local, regional, national or international,
- which historical periods the museum documents.

A methodological instruction issued by the Czech Ministry of Culture (ref. no. 14.639/2002) outlines the general rules governing the creation of the strategy set out in a museum's collection plan. The plan is an internal document taking the form of an individual management instrument issued by the museum's Director. It is based on the characteristics of the museum's collection and its individual "sub-collections" as stated in the its application for listing in the Central Register of Collections (Centrální evidence sbírek, CES) and in the museum's charter of incorporation. It is one of the museum's implementing programmes related to its key area of activity, covering either the mid or long term.¹¹⁰⁾ It guides the museum's acquisitions policies for its individual "sub-collections"; these policies form a fundamental basis for the work of curators. The strategy defines:

- the period that it covers,
- the expected outcomes of the museum's collection-building activities, i.e. how these activities will lead to an increase in the explanatory power of the collection as a whole and its individual "sub-collections" with regard to nature or society,
- the museum's "internal" priorities when acquiring new items for its collection, i.e. how best to increase the value of the collection,
- the museum's "external" priorities when acquiring new items for its collection, i.e. how to exploit known sources of potential collection items which are under threat or which have recently been discovered, e.g. the exploitation of locations that are in the process of becoming defunct (sources of natural materials, archeological finds, etc.), increased presence of potential collection items on the market, etc.,
- priorities for conducting inventories of collection items (inventory scheduling),

108) DOLÁK, Jan. Otevírání se veřejnosti nebo „nová ortodoxie“? *Muzeológia a kultúrne dedičstvo*, 2017, vol. 5, no. 1, pp. 137–145.

109) The strategy may alternatively be called a collection development concept or a similar title.

110) Usually for 5 years.

- criteria for removing items from the collection records if they are no longer needed – for the collection as a whole and/or for individual “sub-collections”.¹¹¹⁾

The concept for building a collection focusing on the documentation of industrial heritage is formulated with regard to several criteria:

- knowledge of the history and development of the phenomenon in question (forecasts of future developments in the field),
- knowledge of the contents of the institution’s own collection and the collections of other institutions with similar focus,
- knowledge of trends in museum collections and display/presentation concepts,
- heritage experts’ perspective on the evaluation of movable and immovable industrial heritage,
- evaluation of the contents of the collection with regard to storage capacities at depositories and the exhibiting options available to the museum (this is a key issue in the case of industrial heritage),
- evaluation of the physical condition of the items and requirements for co/re work,
- evaluation of the technical parameters of the items and requirements for maintenance (lubrication, inflation, assembly, etc.),
- previous/current options for acquisitions and future opportunities for acquisitions,
- the number of loaned items or exhibition events,
- future plans for exhibitions and publications.

07.02.03. Preparation of a collection plan

The content and focus of a collection plan fall within the remit of the collection’s curator and take into consideration the museum’s acquisitions policy. The curator is tasked with managing and caring for the collection, and this also includes decision-making on the future concept for the collection. The concept of the collection plan is also impacted by the opinions of staff responsible for the physical condition of the collection (conservation centres and workshops), the institution’s research and scholarly activities (coordinated by a designated member of staff), and the senior management of the museum (the Director).

The collection plan provides guidance both for the curator and for other individuals involved in the administration, management and care of the collection. For example, it may guide the museum’s approach when dealing with donors or the constituting body, when planning co/re work or exhibitions, etc.

A museum’s collection plan is usually displayed publicly on the institution’s website.

07.02.04. Structure of a collection plan

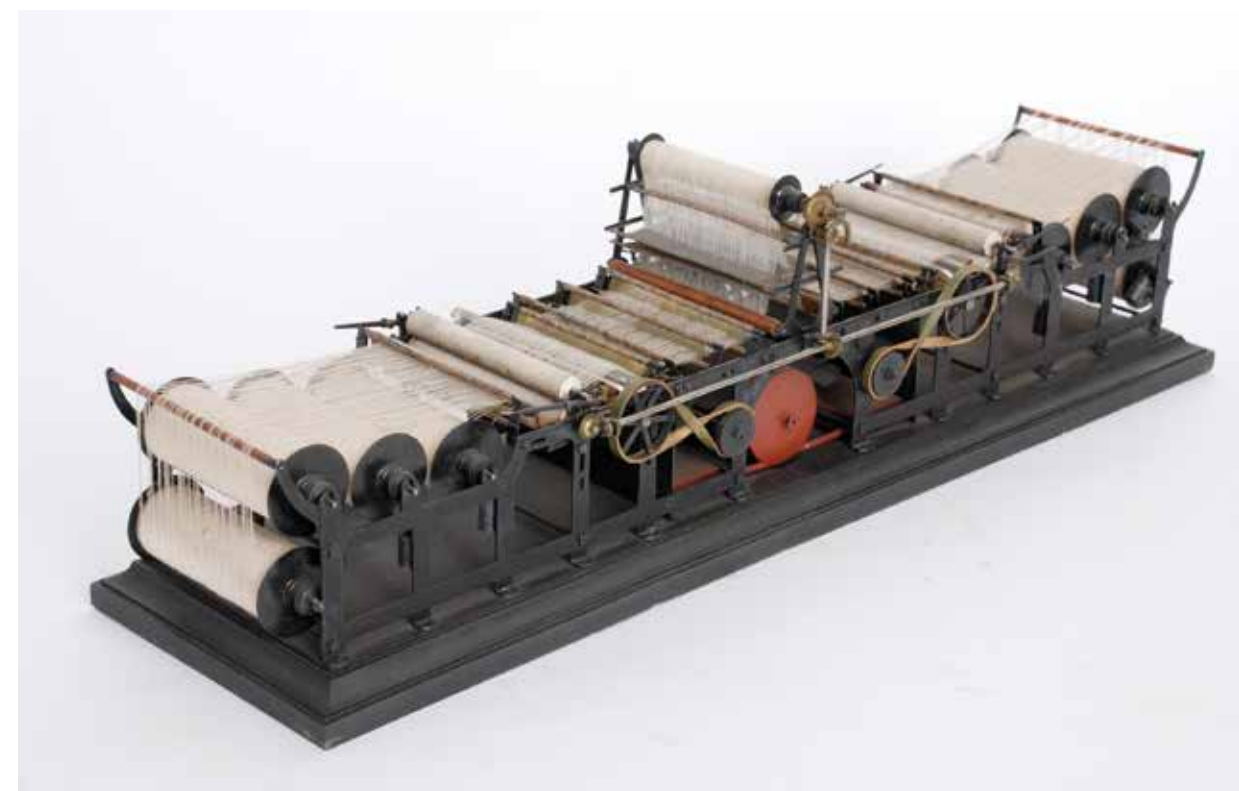
- 1) Description of the current collection and requirements for care of the items:
 - the field to which the collection belongs,
 - subdivision into sub-collections,
 - analysis of the collection’s status with regard to other similar collections in the region, the Czech Republic and Europe (from the perspective of the collection’s cultural-historical value),
 - regional origin and historical period – where the collection is from, and from which historical period(s),
 - volume of the collection – number of collection items, number of accession nos. and inventory nos.,
 - presence of cultural monuments or national cultural monuments,
 - presence of archive materials,

111) Metodický pokyn MKČR k provádění některých činností souvisejících s tvorbou sbírek, péčí o sbírky a vývozem sbírkových předmětů do zahraničí č. j. 14.639/2002, článek I. Sbírkotvorná činnost muzea. (Methodological instruction issued by the Czech Republic Ministry of Culture, on the implementation of certain activities connected with the creation and management of collections and on the export of collection items to foreign countries, ref. no. 14.639/2002, Article 1. Collection-building activities at museums.)



Brno, Technical Museum in Brno (Technické muzeum v Brně). A box with examples of shorn wool, Napajedla 1861. Collection of the Technical Museum in Brno, inventory no. 08.10-07. An example of a primary collection item that is now rare. Photograph Eva Řezáčová, 2014.

Brno, Technical Museum in Brno (Technické muzeum v Brně). A unique model of a sizing machine from the collection of the Technical Museum in Brno, inventory no. 08.21-77. Photograph Eva Řezáčová, 2014.





Jablonec nad Nisou, Museum of Glass and Jewellery (Muzeum skla a bižuterie). A diorama with representatives from a museum collection which specifically documents glassmaking and jewellery-making technologies mainly from the Jablonec region. Permanent exhibition "The Endless Story of Jewellery". Photograph Ondřej Merta, 2018.

- description of the main items – general description, important or unique items, identification of items not yet forming part of the collection (and analysis of the reasons why),
 - evaluation of the current situation with regard to the management and care of the collection – remaining capacity of depositories, appropriateness of storage, special requirements for climatic conditions and form and manner of storage at depositories, transportation options/requirements, expected co/re work, planned or already implemented co/re work, requirements for regular maintenance – coatings, lubrication, fuel, production or purchase of spare parts, etc.,
 - assessment of technical parameters for the presentation of the collections – appropriateness of the space and climatic conditions, appropriateness of the form of presentation, wear and tear due to presentation activities, etc.
 - risk assessment re: fire, theft, vandalism,
 - special requirements for maintenance, management and storage – special conditions due to the technical parameters of items (e.g. very heavy or large items, moving machinery etc.),
 - special requirements connected with original owners – contractual demands.
- 2) Evaluation (forecast) of future developments:
- description of amendments to the current collection plan (if necessary),
 - evaluation of potential options for acquisitions with regard to the depository situation (remaining capacity available)
 - evaluation of potential options for acquisitions with regard to the financial situation (financial requirements for purchase),
 - identification (and justification) of items that will be the focus of future acquisition efforts – if appropriate/possible, including details on numbers, dimensions (i.e. demands on depository space and transportation to depositories), cost of purchase or production,
 - aims of long- and short-term collection-building activities connected e.g. with the presentation of items (exhibitions), publications, research projects (symposiums, workshops), planned events in the region (closure of factories, demolitions), etc.,
 - plans for conservation/restoration work – immediate co/re jobs or long-term care of collection items.

07.03. Utilization of acquisitions

Acquisition is not an activity carried out for its own sake. The acquisition of a new item may enrich an existing collection. Acquisitions do not only add to collections; they may also include additions to libraries, archives, or study resources. Acquisitions may:

- 1) enrich the contents of a museum collection,
- 2) enrich the contents of a collection of auxiliary materials or study resources,
- 3) enrich a museum's library stocks,
- 4) enrich a museum's photographic or audiovisual archives (with photographs or video recordings),
- 5) enhance the curator's specialist knowledge and expertise,
- 6) build new contacts between the museum and educational institutions, industrial companies, testing and research institutes, etc.,
- 7) be presented in the form of conference or seminar papers,
- 8) enable the presentation of the history and development of the relevant field/industry at an exhibition, incorporating knowledge of the current situation,
- 9) be presented to the general public via non-exhibition activities (lectures, excursions),
- 10) enable items to be incorporated into educational projects and programmes,
- 11) be presented in the form of published outputs (printed, electronic, etc.).

Technical museums cannot incorporate all physical items into their collections, so they create documentation collections consisting of e.g. photographs of industrial heritage sites (exteriors and interiors) and working processes, sets of printed company materials, posters, video recordings etc.; these resources are used as substitutes for items which



Ostrava, Lanek Park Mining Museum (Lanek Park), Museum exhibition of mine rescue equipment. Representatives of unique breathing apparatus from the diving equipment used by mine rescue workers. Photograph Ondřej Merta, 2018.



Svitavy, Municipal Museum and Gallery in Svitavy (Městské muzeum a galerie ve Svitavách). Exhibition “History of Laundry Technology”. Representatives of a collection of laundry technology assembled regardless of the regional origins of the exhibits. Photograph Ondřej Merta, 2015.

have been destroyed, are excessively large and/or heavy, or are not accessible for other reasons. Besides the primary items in the collection, museums may thus also gather secondary or auxiliary materials (printed materials, photographs, video recordings, digitalized resources, etc.).

Museums are able to offer tried-and-tested methods for protecting both tangible industrial heritage and intangible forms of this heritage which are not available to heritage managers or other collecting institutions:

- they monitor and document the situation at the site (buildings, technologies, attitudes, knowledge, skills, customs, festivals, etc.),
- they build collections based on a process of selection, documenting intangible heritage and managing/caring for it properly, as well as presenting it to the public where possible,
- they incorporate musealized objects and knowledge associated with the entire phenomenon of industrial heritage into educational programmes run by museum pedagogues applying their own specific professional techniques,
- museum practice supports and contributes (directly or indirectly) to the preservation of knowledge, skills and social structures related to industrial heritage.

07.01. Documentation of the present

Another option open to museums focusing on industrial heritage is a form of pre-stage to the process of evaluation and selection; this pre-stage involves the documentation of the present, which is a way of mapping historical developments as they occur. The museum does not merely wait to see what elements of reality will survive and be preserved; instead it actively maps present-day developments in industries and attempts to forecast future developments and prepare itself for potential acquisitions. For documentation of the present to be applied successfully, the curator must be personally committed to this course of action, and it is also desirable to build up networks of contacts with various groups of people or institutions, as museum staff often cannot hope to monitor all developments across the entire range of fields and industries. Here valuable assistance can be provided by:

- voluntary collaborators,
- staff from universities and secondary schools,
- staff from research and development centres,

Trieste (Italy), Trieste Sea Museum (Museo del mare). Models in an exhibition devoted to Josef Ressel. Photograph Ondřej Merta, 2015.



- employees in industry – factories, production plants etc.,
- various state authorities and institutions,
- the donor community (the private sector – households, companies etc.),
- businesses – antique dealers, recycling centres, second-hand shops etc.

For this reason, it is desirable for museums to build up strong networks of contacts with various individuals, institutions and companies, and to involve them in the documentation process.

The London Science Museum receives new equipment and products as donations from industrial companies. Museums frequently organize excursions to companies, where they actively document production processes and may also acquire new or contemporary products and equipment. The Technical Museum in Brno makes use of its Circle of Friends to assist it in this process of cooperation.

When documenting the present, curators are swamped with huge quantities of information, advertising brochures and leaflets, product samples, and more. Working with such material is difficult because it is part of the living present, so we do not yet view it with a degree of distance or from the perspective of historical developments. For this reason it is not possible to acquire knowledge of an entire issue all at once; nor is it possible to gain documentation for everything – and indeed it is not necessary to incorporate into a museum collection everything and anything that can be acquired. It is appropriate to wait a certain length of time (5 to 10 years) before processing and classifying the documents and information acquired in this manner.

Documenting the present also requires curators to address several questions and issues which may have a substantial impact on the form of documentation and the options for utilizing the material at the museum. Of relevance here are the parameters for documentation set out in the museum’s charter of incorporation or statute and in Act no. 122/2000 Sb. with relation to documenting the present; the protection of production processes from industrial espionage; the accessibility of statistical data; technical and staffing options available to the museum (demands on time, equipment, staffing etc.); and the options for applying museum techniques to the knowledge and materials acquired via documentation of the present.

Outcomes of this documentation of the present include collections of prototypes, models, samples etc., and frequently also collections of accompanying documentation (photographs, plans, sketches, leaflets, promotional samples, instruction manuals, etc.).



Kropa (Slovenia), Kovaški muzej Kropa, Nail-making workshop (Klinarjeva hila). Authentic installation of the equipment of a nail-making workshop, enabling practical demonstrations of production methods used when making tacks and nails. Photograph Ondřej Merta, 2010.

o8. Care and management of industrial heritage collections at museums

The protection of surviving industrial heritage held by museum institutions is an organic process which also involves finding solutions to issues connected with the care and management of collection items (depending on their material composition, dimensions, mechanical and kinetic properties). This process begins at the moment when the item is collected from its original location, and it continues during the storage of the item at a depository as well as during the presentation of the item at exhibitions or in an authentic environment. Many museums in the Czech Republic and other countries make use of largely authentic display environments incorporating the original technological equipment and/or newly installed equipment; in such cases, it is important to ensure that the equipment is in working order for purposes of demonstrating technological processes. This is also the case with collections of mobile items (such as vehicles), where it is essential for exhibits to be in working order so that visitor safety is ensured. Museums today must also respond to this situation. Issues related to these requirements are most frequently addressed by conservation and restoration centres, building maintenance departments, or security guards. However, the curator's requirements with regard to collections and other movable items must always be respected; the curator sets out the parameters of how items of industrial heritage should be treated and handled in depositories or in exhibition spaces.

o8.01. Strategies for protection

Professional care of surviving examples of industrial heritage, either on the premises of a memory institution (museum, gallery, memorial) or in the hands of individuals, associations or communities devoted to industrial heritage, is an essential precondition for the successful long-term continuation of cultural activities related to industrial heritage. One of the key missions entrusted to memory institutions in the Czech Republic (and one which is defined by legislation – see below) is the preservation of cultural heritage items for current and future generations.

In order to successfully carry out this mission, it is essential for institutions to define an overall protection strategy for these items (museum collections) and to ensure that this strategy is strictly applied in all areas and at all levels. The basis for a protection strategy is to ensure appropriate external environmental conditions wherever items are located (whether in a depository or at an exhibition or installation) and to apply the principles of practical preventive conservation. In the case of industrial heritage, these are demanding tasks which frequently require unique solutions and novel approaches due to the nature of industrial heritage items – their dimensions, age, rarity, location in situ, requirements for functionality, requirements for access by visitors or demonstrators, and so on.

The elaboration of a protection strategy for industrial heritage involves discussions among various actors: museum professionals, heritage experts, architects and other professionals whose input is necessary in order to devise an optimum solution. Everybody involved in this process should attempt to define measures that combine modern technical standards with the requirements set out by museum and heritage professionals with regard to the preservation of cultural assets.¹¹²⁾ It is often necessary to implement individual solutions, tailor-made to the requirements of collecting institutions and heritage sites or buildings, where it is often preferred to use original features of buildings and original components of technical equipment, production machinery, vehicles etc. (e.g. original materials, components, tyres,

112) SELUCKÁ, Alena – MRÁZEK, Martin – ŠTĚPÁNEK, Ivo – MAZÍK, Michal – GROSSMANNOVÁ, Hana (et al.). *Metodika uchování předmětů kulturní povahy*. Brno 2018, Introduction, p. 7.



Brno, Technical Museum in Brno (Technické muzeum v Brně). Exhibition with protective features ensuring visitor safety – guardrails, warning signage. A Kaplan turbine – an operational exhibit from the exhibition of hydraulic engines. Photograph Eva Řezáčová, 2014.



Brno, Technical Museum in Brno (Technické muzeum v Brně). Memorial to Viktor Kaplan, with original exhibits actually touched by the inventor of one of the three most frequently used types of water turbines. Exhibits are displayed in a protective case. Exhibition of hydraulic engines, Technical Museum in Brno (Technické muzeum v Brně). Photograph Eva Řezáčová, 2003.

upholstery, paints and other coatings, etc.) rather than applying new technologies and materials. Protection strategies also require solutions to be found for issues connected with the physical properties of industrial heritage items and the environment (buildings) in which they are located, the technological systems they incorporate, and measures to prevent fire and theft (including requirements of storage systems, etc.). As a result, protection strategies incorporate elements from other related disciplines.

In the Czech Republic, protection strategies for industrial heritage (and cultural heritage in general) must reflect the recommendations and stipulations of Czech legislation. This is not a standard approach in all countries. The key legislative documents defining the responsibilities of the managers or owners of museum collections or heritage collections during long-term care and storage are Act no. 122/2000 Sb. on the protection of museum-type collections, Implementing Decree no. 275/2000 Sb. of the Czech Ministry of Culture (implementing the above-mentioned Act), and Czech National Council Act no. 20/1987 Sb. on state heritage management. Applicable legislation to archives and library documents includes Act no. 257/2001 Sb. on libraries and the conditions for operating public library and information services (the Libraries Act), Act no. 499/2004 Sb. on archives and document services, and European standards applicable to cultural heritage protection drawn up by the European Committee for Standardization's Technical Committee CEN/TC 346, which are issued in the form of Czech technical standards (ČSN) by the Czech Office for Standards, Metrology and Testing (Úřad pro technickou normalizaci, metrologii a státní zkušebnictví).¹¹³⁾

Recently, the first Czech methodological materials have been published which take into account the comprehensive requirements for the care and management of various types of cultural items, including preventive conservation, incorporating and applying knowledge of practices used in the Czech Republic and other countries. The purpose of these materials is to help responsible staff to better specify the requirements in the planning phase of new projects and to assist in decision-making on individual solutions connected with depository operations, the planning and implementation of exhibitions, and preparations for co/re work on movable items. These materials have been elaborated by a team of authors from the Conservation Methodology Centre (Metodické centrum konzervace) at the Technical Museum in Brno, and they are freely available to view at the centre's website.¹¹⁴⁾

Other materials have been produced via a consortium-based project involving staff from the Conservation Methodology Centre at the Technical Museum in Brno, the National Heritage Institute and the Moravian Gallery in Brno. A methodological guide entitled *Methodology for the Storage of Cultural Objects* discusses important aspects connected with buildings, their interior environment, security criteria and potential risks associated with the use of cultural heritage items. The guide explains how owners or operators can evaluate the appropriateness of buildings for the long-term storage of cultural items in order to predict the impact of the buildings on the collections contained within them and thus to assess the sustainability of the storage. Another methodological guide is entitled *Preventive Care of Cultural Objects in Exhibitions, Depositories and Accessible Authentic Interiors*; this is targeted mainly at staff who come into contact with cultural items.¹¹⁵⁾

Another important document providing a general overview of the care and management of cultural heritage is a manual for the planning of co/re projects published by the Committee for Conservation and Restoration at the Czech Association of Museums and Galleries, entitled *Recommendations of the AMG Committee for Conservation and Restoration for public tenders for conservation/restoration work*, which was compiled by Ivo Štěpánek, Alena Selucká, Jan Josef, Alena

113) Ibid., p. 16.

114) The materials comprise the following recommendations and methodological instructions: General characteristics of museum depositories; Recommended values of relative humidity and temperature for the storage of collection items; Appropriateness of materials for use in a museum environment; Simple methods of identifying metallic materials for the purposes of conservation research; Fire risk estimation for cultural heritage; Recommended conditions for the application of tannin-based rust stabilizer; VOC emissions monitoring using A-D STRIPS; Measurement using manual XRF spectrometers in museums; Options for the use of microdots for the protection of collection items; Questionnaire to determine the risk of fire damage at a museum. Other methodologies include: Technology for fire protection of cultural heritage (certified 2012); Methodological instruction for the protection of museum collections and collection items against theft, burglary and fire (issued by order of the Department for the Protection of Movable Cultural Heritage at the Czech Ministry of Culture no. 1/2010. See <http://www.technicalmuseum.cz>.

115) SELUCKÁ, Alena – MRÁZEK, Martin – ŠTĚPÁNEK, Ivo – MAZÍK, Michal – GROSSMANNOVÁ, Hana (et al.). *Metodika uchování předmětů kulturní povahy*. Brno 2018; CICHROVÁ, Kateřina – OURODOVÁ, Ludmila – TROUPOVÁ, Ivana – VAVERKOVÁ, Zuzana. *Preventivní péče o předměty kulturní povahy v expozicích, depozitářích a zpřístupněných autentických interiérech*. České Budějovice 2017.



Hlučín-Darkovičky, Silesian Museum (Slezské zemské muzeum), former Czechoslovak fortifications. Outdoor exhibition – a T-34/85 tank and anti-tank barriers at the MO-S 19 Alej infantry block. The perimeter barrier evokes the situation before the German invasion of 1938 and also encloses the site; the tank evokes the situation during the liberation operation in 1945. Photograph Ondřej Merta, 2018.



Ostrava, Landek Park Mining Museum (Landek Park). Exhibition of mine rescue equipment using display cases. Photograph Ondřej Merta, 2018.

Jablonec nad Nisou, Museum of Glass and Jewellery (Muzeum skla a bižuterie). A museum installation using display cases with airflow, enabling internal climate control and meeting safety requirements. Photograph Ondřej Merta, 2018.



Komendová, Aranka Součková-Daňková and Dušan Perlík. Another relevant document is entitled Recommendations for elaborating restoration documentation submitted in accordance with Section 14a, Subsection 4 b) of Act no. 20/1987 Sb. on state heritage management. This text was elaborated as a working document by the Restoration Committee at the Czech Ministry of Culture. It does not contain a complete and fixed list, but rather sets out a starting position, as the precise approach take in each case will naturally differ depending on the specifics of the planned restoration work. Restoration documentation must always focus on demonstrating expert competencies covering the full range of requirements applicable to the relevant specialist area.¹¹⁶⁾

o8.02. Preventive care

Preventive care plays an important role in the management of cultural heritage. It encompasses a number of measures whose aim is to ensure that cultural objects are maintained in the best possible condition without having to carry out costly and sometimes problematic restoration work. Even small-scale, sensitively conducted restoration work represents an intervention into the material properties of an item, thus leading to a loss of its value. It is therefore desirable to limit the need for restoration work to a minimum. From this perspective, preventive care is always better – and ultimately less costly – than carrying out repairs to rectify damage that has already been sustained.¹¹⁷⁾

The only way of carrying out preventive care is to ensure that items are kept in the best possible environment, which does not negatively impact the materials from which they are made. It is equally important to handle the items with care and to install them in an appropriate manner – i.e. a manner which not only avoids damaging the items, but also helps to maintain them in good condition for as long as possible. It is also important to protect items from visitors – i.e. both potential damage or potential theft.

116) Both documents are available at the website of the Czech Association of Museums and Galleries (AMG). Dokument o profesi konzervátora-restaurátora [online]. Asociace muzeí a galerií [retrieved 1. 9. 2018]. Available at <http://www.cz-museums.cz/web/amg/organy-amg/komise/komise-konzervatoru-restauratoru/dokumenty>.

117) CICHROVÁ, Kateřina – OURODOVÁ, Ludmila – TROUPOVÁ, Ivana – VAVERKOVÁ, Zuzana. *Preventivní péče o předměty kulturní povahy v expozicích, depozitářích a zpřístupněných autentických interiérech*. České Budějovice 2017, pp. 8–9.



Brno, Technical Museum in Brno (Technické muzeum v Brně). This exhibition of a historic stereovision system presents a unique solution responding to the parameters and physical condition of the main exhibit – a machine for viewing stereo slides. The room is air conditioned, and the display cases are also climate controlled. Photograph Eva Řezáčová, 2003.

Of course, all preventive measures are most effective when applied to items that are in good condition. However, even if items have been damaged (whether slightly or severely) by being kept in an unsuitable environment, it is possible, if more appropriate conditions are provided, to at least retard the degradation processes that are underway. Some measures may at first sight appear to be difficult and costly. However, in the care of heritage items – just as in other fields of activity – the general principle applies that it is better to prevent negative situations rather than to rectify their consequences. Ultimately, when analyzed over a longer period, this approach is in fact more cost-effective.¹¹⁸⁾

There are certain differences in the approaches to caring for an item of industrial heritage depending on whether it is (i) a museum object stored at a depository or presented at an exhibition, or (ii) a musealized example of industrial heritage displayed in its original environment (such as at a forge, where the item is not merely static, but also moves to provide a demonstration of production processes, e.g. the action of bellows or a blacksmith's use of an anvil and hammer). Museums emphasize the storage and presentation of individual exhibits (or sets of exhibits) as a means of interpreting some aspect of historical reality. Industrial heritage is interpreted for the general public in various forms – either in an interpreted environment or in an original, authentic environment, and most frequently using exhibition furniture (e.g. display cases), if the physical properties of the item make this possible. Museums' approaches to the presentation of industrial heritage in interpreted or authentic environments have traditionally drawn on the principles of heritage management in historic buildings, when not only the interior fixtures, but also other historically verified contents of the building are presented, creating a form of authenticity based on the "last working day" principle. The main aim of this approach to heritage management is to preserve the most authentic possible historic installations and configuration of fixtures and fittings – even though in many cases it is obvious that locating the exhibits inside display cases would provide better conditions for them. This approach is motivated by the effort to preserve information about the culture of work, housing and everyday life in past eras. The preservation of this image of historical life is fully in accordance with current trends in historiography, which now places considerable emphasis on the history of everyday life – an aspect of history which used to be somewhat overlooked.¹¹⁹⁾

118) Ibid., p. 8.

119) Ibid., p. 9.



Bistra u Vrhnika (Slovenia), Technical Museum (Tehniški muzej Slovenije). Technological equipment for hydraulic power generation relocated to the Slovenian Technical Museum – a former hammer mill. Photograph Ondřej Merta, 2010.



Vsetín. Items are transferred to a museum collection using lifting equipment designed for loads of up to 1 tonne; in order to prevent damage, cooperation is required from the staff of the transport company as well as staff at the point of dispatch and at the depository. The locations must enable the item to be loaded, unloaded and moved to a suitable place for storage. In order to ensure problem-free transportation to the depository, it is essential to plan the operation in detail, map the options and the parameters of the available equipment, and plan the staffing and scheduling of the operation in accordance with the capacities of all institutions and individuals involved. Photograph Petra Mertová, 2015.

Preventive care of industrial heritage (and of cultural heritage in general) must be based on knowledge of the parameters of the environment in which the items are located, the principles governing the correct handling of the items, the principles of appropriate storage in depositories, the required environmental parameters, and appropriate fittings (furniture) for exhibition purposes. This knowledge must be applied to all items, whether they are installed in display cases, on open display in an exhibition space, in storage at depositories, or on open display at an authentic heritage site (in a factory, a residence, etc.). These parameters must be monitored, and any changes over the course of time must be noted – whether changes during a single day or changes occurring over a longer period (e.g. during the course of a year, depending on seasonal changes or weather conditions). At the same time, the care and management of industrial heritage also needs to take account of environmental effects caused by concentrations of pollutants or the presence of biological pests, as well as potential indirect effects such as the threat of fire, water damage, vandalism or theft. All these factors need to be taken into consideration when storing and preserving items for the future.¹²⁰⁾

Environmental parameters monitored:

- Relative humidity
- Temperature
- Light intensity (lx)
- Pollutants
- Biological pests

These environmental parameters affect the condition of stored or exhibited items to varying degrees depending on the materials from which the items are made. Descriptions giving details of individual material groups and the types of risk factors associated with them (as well as descriptions of the most frequent types of damage) are provided in the above-cited methodological publications and the documents to which they refer.¹²¹⁾

08.02.01. Human influences

Humans represent an important factor which can have either a positive or a negative effect on the care of items, and thus also on preventive conservation. This applies both to the people who carry out or coordinate the care and management of items (conservation or restoration staff, technicians) and also to people who are present in exhibition spaces or depositories (curators of collections or managers of depositories); technical staff and security staff at a museum likewise impact upon preventive care through their activities and presence. As has been noted above, the aim of preventive care is to preserve movable items in as authentic a condition as possible, minimizing essential co/re work. For this reason, people who may affect this process of care must be properly trained in order to minimize their negative impacts on the process as well as on preventive conservation (e.g. when handling items, selecting packing materials, carrying out cleaning work in exhibition spaces, regulating the interior climate, etc.).

In practice, the care of cultural objects always involves a team of museum staff whose members play various roles in the hierarchy of museum activities. In order to ensure that preventive conservation is successful, it is important that these staff members should keep each other informed and respect certain essential rules. The specification and management of essential tasks associated with the practical implementation of preventive care principles is always entrusted to management staff and specialists. Any specific steps taken as part of preventive care must always be discussed in advance with the curator of the collection; if these steps concern an exhibit's presence in an exhibition space, optimum methods and environmental conditions should also be discussed with architects, designers and construction teams responsible for implementing exhibitions, as well as with pedagogical staff (the museum pedagogues who devise programmes for specific exhibitions), etc.

In the case of industrial heritage, particular emphasis is placed on providing access to exhibits and enabling visitors to operate some of the items. Such interactivity is of course highly beneficial for museum exhibitions, yet at the same time it also places considerable demands on the museum with regard to ensuring visitor safety as well as protecting the exhibits that are made accessible in this way. It is important to consider the degree to which an exhibit can be kept in operation (in motion) and for how long – e.g. how long it will take before the exhibit begins to suffer from excessive wear, what range of activities can be demonstrated, what temperatures or frequencies etc. can reasonably be attained if the exhibit is to be maintained in a sustainable manner. These considerations also involve various technical standards which must be met by machines and other devices in order for them to be legally operated – pressure tests, technical inspections for road vehicles, and so on.

120) Ibid., p. 11.

121) See note 118.



Hejnice-Bílý Potok, Jizera Mountains Technical Museum (Jizerskohorské technické muzeum). Original factory equipment – a Breitfeld–Daněk steam boiler (1907) that was used to power the original textile factory in Hejnice-Bílý Potok. The factory was closed, and now it is used as the venue for the Jizera Mountains Technical Museum (Jizerskohorské technické muzeum) and as premises for a locksmith/repair workshop, Hejnice, Czech Republic, photograph Ondřej Merta, 2018.

09. Presentation and interpretation of industrial heritage

A large part of the industrial heritage in the care of collecting institutions is stored in depositories. Only a part of a museum's total holdings is presented to the public via various types of exhibitions and other forms of presentation, which aim to raise public interest in and awareness of this type of cultural heritage and thus to help cultivate public space, strengthen national and regional identity, and disseminate knowledge of these issues among the expert community. This presentation of the history and progress of society is not restricted merely to economic and technical fields; it is also relevant to the level of culture as a whole. "Public interest and affection for the industrial heritage and appreciation of its values are the surest ways to conserve it. Public authorities should actively explain the meaning and value of industrial sites through publications, exhibitions, television, the Internet and other media, by providing sustainable access to important sites and by promoting tourism in industrial areas."¹²²⁾

An important part of this presentation is interpretation, which is connected with the degree of authenticity: "... authenticity is not a property of objects, because objects can only exist "alongside each other", but they cannot be related to each other. The creation of relations – in the case of objects, their involvement in categorial relations known e.g. from logic – is a product of human consciousness... the only possible bearer of authenticity is a museum visitor. The visitor does not only pay for learning something from our institution; we also learn from our visitors. Our knowledge – that of the visitor and the museum – takes the form of a dialogue... In a museum we create a new type of reality, which is not the same as the realities that form the inputs to our museum work, and we must always keep this category difference in mind if we are not to fall prey to an illusionism deeper than that with which we are swamped by today's information media..."¹²³⁾

If both the content and the form of a museum's presentation and interpretation are comprehensible and acceptable for the public, the museum will become an appropriate place for self-education and leisure activities. Today, technical museums form an important part of the leisure economy, as industrial heritage is becoming an attractive topic and an area of deeply personal interest for many visitors. Both exhibitions and other forms of presentation are powerful visitor attractions at museums focusing on industrial heritage.

The leisure economy forms an important component of GDP and helps to create new jobs. Culture offers opportunities for spending leisure time and fulfilling personal goals, while also generating new jobs in areas that are threatened by unemployment. This is particularly visible in the case of museums that have been built at abandoned former industrial locations in areas where industrial production (mining, fishing, textile production, etc.) is being or has been phased out; museums have provided employment to some former staff of the closed factories, and their attractive programmes and exhibitions have drawn visitors to the area, thus generating further jobs in the tertiary sector of services and trade.

One definition of culture states that it contributes to an individual's integration into society and helps to develop citizens' intellectual, emotional and moral capacities. It plays a role in education, socialization and enculturation; it performs important creative and value-forming functions. Culture is the basis for individual identity and a means of

122) Section 7. Presentation and interpretation. In: THE NIZHNY TAGIL CHARTER FOR THE INDUSTRIAL HERITAGE [online]. ICOMOS [retrieved 1. 9. 2018]. Available at <https://www.icomos.org/18thapril/2006/nizhny-tagil-charter-e.pdf>.

123) ANTONÍN, Luboš. Fenomén „autenticity“ v prezentační činnosti muzeí. In *Rožpravy národního technického muzea v Praze, Tractatus musei nationalis technici Pragae. Technická muzeologie I. Praha 1991*, pp. 128–129.



Brno, Technical Museum in Brno (*Technické muzeum v Brně*), the technical games centre. A didactic exhibition demonstrating basic physical phenomena. Photograph Eva Řezáčová, 2016.

transmitting information from generation to generation. It integrates the Czech Republic with other countries, yet at the same time it makes the country unique, distinct from other cultures.¹²⁴⁾

Industrial heritage forming part of a museum collection is not a form of scholarly explication in its own right; it only plays this role when humans use it as a subject of research. The thesaurus thus becomes a medium through which a museum initiates direct contact between people and these “bearers of memory”. In this way, and with the assistance of accompanying information, a museum exhibition mediates knowledge and stimulates understanding of the meaning and importance of the musealized reality. Objects in museum collections – or displayed at exhibitions – are tangible bearers of authentic witness to this reality. Museum collections capture a culture as it existed at a certain point in time, enabling us to look back at it, gain knowledge of it and study it.¹²⁵⁾

Currently, public presentations by museums of industrial heritage take various forms, including but not limited to exhibitions. Exhibitions (whether permanent or temporary) draw on the fundamental basis of the museum – its collection; collection items and accompanying materials are transferred into the artificial environment of a museum, where they mediate communication (between the museum and visitors, in both directions),¹²⁶⁾ or they are left in situ (in an authentic environment).

A collection is presented in a certain environment, and this presentation may take the form of an exhibition. In order to support the communication, various textual, visual and multimedia resources are used. The basis of exhibitions as a form of museum presentation is the display of original objects and the communication mediated by this display. From the perspective of learning processes, museum presentations differ from other forms of presenting phenomena, and this distinct quality renders them an effective medium of education; this role is the field covered by the discipline known as museum pedagogy. Museum presentations do not end with the exhibition (display) itself; the presentation serves to mediate knowledge, so innovative didactic elements are incorporated into exhibitions in order to enhance their explanatory value. This is why exhibitions feature not only the objects themselves, but also accompanying information and various types of supporting materials whose purpose is to help visitors interpret the topic, boost its attractiveness, support pedagogical processes, and create groups of elements which occupy various levels in the hierarchy of exhibition resources. Some materials provide information directly related to a particular museum object, while others help provide contextual information (situating the museum objects in their broader context). Some provide information in graphic form (images and graphic depictions to provide information or for illustrative purposes), while others provide information

124) TITTELBACHOVÁ, Šárka. *Turismus a veřejná správa*. Praha 2011, pp. 56–57.

125) ŠOBÁŇOVÁ, Petra. *Muzejní expozice jako edukační médium*. Olomouc 2014, p. 14.

126) DOLÁK, Jan. *Expozice jako prostředek komunikace muzeí*. In *Muzeum a změna III. The Museum and Change III*. Praha 2010, pp. 59–67.



Bielsko-Biala (Poland), Stara Fabryka – Muzeum Historyczne w Bielsku-Białej. A museum installation of selected examples of textile technologies in an original woollen goods factory (the Büttner factory) adapted for museum purposes. Photograph Ondřej Merta, 2013.

in textual form (descriptive texts, e.g. descriptions of objects). Besides these materials, an important role is also played by lighting, colours, the spatial configuration of an exhibition (density, depth, distance), the positioning of the exhibits, and the choice of exhibition furniture.¹²⁷⁾

09.01. Forms of exhibitions

Presentations through the medium of exhibitions are based on displaying exhibits and other elements. The terminology used in the Czech museum sphere clearly distinguishes between a long-term exhibition (“*expoziční*”) – essentially a permanent arrangement, which may last from 5 to 15 or more years – and a short-term exhibition (“*výstava*”), which may last several weeks or months.¹²⁸⁾ The former (a long-term exhibition) is conceived as a manifestation of the museum’s comprehensive long-term exhibition programme, reflecting the institution’s key areas of focus. The latter (a short-term exhibition) is conceived as a shorter, supplementary programme which focuses on a narrower topic.¹²⁹⁾ A detailed discussion of museum terminology can be found in a terminological dictionary of museology published by the

127) ŠOBÁŇOVÁ, Petra. *Muzejní expozice jako edukační médium*. Olomouc 2014, p. 22; WAI DACHER, Friedrich. *Průručka všeobecné muzeologie*. Bratislava 1999.

128) An explanation of this Czech terminology is provided e.g. in the Czech translation of the museological dictionary *Key Concepts of Museology*, entitled *Základní muzeologické pojmy*.

129) ŠOBÁŇOVÁ, Petra. *Muzejní expozice jako edukační médium*. Olomouc 2014, p. 17.



Trhové Sviny, Bušek hammer mill. An authentic installation – a hammer and a grinding machine powered by water wheels. Photograph Ondřej Merta, 2016.



Trhové Sviny, Bušek hammer mill. The area around the monument, with remains of former hammer mills. Photograph Ondřej Merta, 2016.

ICOM International Committee for Museology with the assistance of the Musée Royal de Mariemont.¹³⁰⁾ This work also discusses concepts such as digital exhibition or cyber exhibition – forms of presentation which exploit the resources of the internet and take place in virtual time and space.

Objects should be viewed in their broad social, historical and cultural context. A museum's approach to the topics it presents should not involve formulating some absolute truth; after all, cultural development has never been neutral.¹³¹⁾ Visitors to exhibitions of industrial heritage appreciate functioning exhibits, exhibits which are presented as parts of logical entities or interpreted in terms of their various interrelations. It is possible to display working exhibits (mechanisms in motion), to explain their purposes, and to use models as a means of demonstrating the design, construction and functions of mechanisms. Visitors will appreciate coming into direct contact with exhibits, being literally able to touch

130) A Czech translation of this dictionary Key Concepts of Museology has been published with the title *Základní muzeologické pojmy*.

131) DOLÁK, Jan. Otevírání se veřejnosti nebo „nová ortodoxie“? *Muzeológia a kultúrne dedičstvo*, 2017, vol. 5, no. 1, p. 1141.

Crimmitschau (Germany), Sächsisches Industriemuseum – Tuchfabrik Gebr. Pfau. The Pfau Brothers woollen goods factory (weaving mill). An authentic space with original exhibits presented in accordance with the “last working day” principle. Photograph Ondřej Merta, 2016.



them. For example, the Technical Museum in Brno holds shows of automotive technology at its depository in Řečkovice, where visitors can board buses, climb inside military vehicles, or see these vehicles in operation.

An important issue in presenting information at exhibitions is the volume and form of the information (texts, images, audio and video, smells, etc.). Especially in the case of technical museums, there is a great danger of using excessive amounts of specialist terminology, which will discourage ordinary visitors. Here a sensitive approach and a degree of experience is essential.

Another important factor in a technical museum presentation is the appropriate use of space. The best effects are produced by authentic spaces or arranged spaces which seek to evoke original settings; this helps to enhance visitors' impression of the presentation by demonstrating the original purpose and use of technical exhibits. There is a difference between authentic and non-authentic spaces, interiors and exteriors, and there is no doubt that visitors greatly appreciate the use of "enlivened" spaces. The Technical Museum in Brno exploits the advantages of authentic spaces and situations in its external exhibitions located at a number of technical sites: the water mill in Slup, the windmill in Kuželov (both national cultural monuments), the complex of technical structures at the old ironworks (Stará huť) at Adamov, the Těšany forge (a cultural monument), the iron mill in Hamry nad Sázavou (a cultural monument), and the former Czechoslovak fortifications in Šatov, where an original infantry block (MJ-S3) has been opened up to visitors. The advantage of these exhibitions is that visitors are present at the original site itself, where they can become acquainted with the original purpose of the structure and its technological equipment (water wheels, mill machinery, a blacksmith's furnace, etc.), which "comes alive" only on certain days when a blacksmith demonstrates production at the forge, mill machinery is set in motion, and so on. Experience has demonstrated that the "enlivening" of such monuments – the demonstration of the original processes for which they were created – greatly enhances visitors' overall impression of the exhibition, as it activates their senses of hearing, smell and sight. They thus take away a more comprehensive impression of the technologies and the work process – and thanks to this powerful experience, they often return repeatedly. Visitors also appreciate exhibitions that are located in original authentic spaces, with exhibits installed in a manner that approximates the original installation as closely as possible. For this reason it is important to have access to photographs, sketches and other documentation of original interiors or production facilities.

In order to provide a high-quality, professional presentation of technologies, it is essential to ensure that the museum staff are properly trained – not only in terms of their intellectual knowledge, but also in terms of practical skills. It is not always the case that complementary knowledge and skills are combined in one person, so the Technical Museum collaborates closely with experts – such as historians or people with practical skills, whether from the educational or commercial/industrial sectors. This collaboration has proved useful for both sides. If a curator understands how a particular object was used and what its purpose was, they will be able to correctly interpret the object in their presentational activities. This means that the curator will be able to install (and in some cases, use) the object correctly if it is used as a demonstration aid.

In order to ensure that presentational events and activities are successful, it is important that the staff are able to apply their expertise in order to comment on and explain processes, instruct visitors, assist in manual tasks, and so on. It is desirable for an activity to be demonstrated by a professional, who is able to draw visitors' attention to various small aspects which differ from present-day practice. Of course, the museum itself benefits from such expertise and insights, as its curators can apply this knowledge in future lectures and exhibitions, as well as when cataloguing collections. If a curator understands how a particular object was used and what its purpose was, they will be able to correctly interpret the effects of using the object – i.e. its effects on production volumes and quality, on the operator of the object, the environment, etc. This means that the curator will be able to view the object in its broader contexts, at different levels. An important contribution here can be made by the involvement of cooperating volunteers (at weekends, during holiday periods, or in other defined periods); in many countries, this is common practice when demonstrating industrial heritage or presenting the societal contexts connected with the industrial heritage on display.

A museum space can itself serve as an exhibit if its aesthetic quality exceeds that of the exhibits displayed there. The passage of time and detailed research have shown that industrial remains which at first sight may appear unattractive frequently conceal valuable architecture, forgotten technologies and rare details displaying great craft and skill.

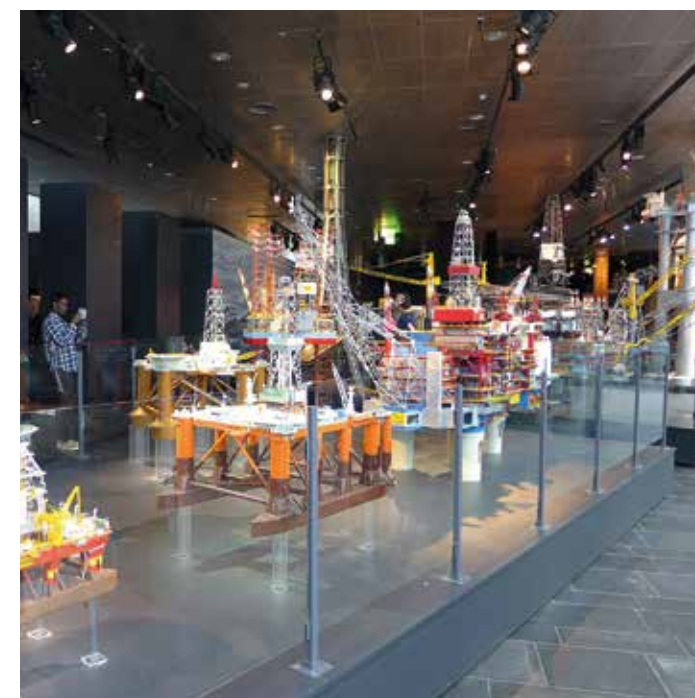
09.01.01. Forms of exhibition presentations

09.01.01.01. Presentation of exhibits as an arranged exhibition in a neutral space

Museums may present a collection of exhibits as an arranged exhibition (combining display cases, dioramas, information panels, etc.) in a neutral space. Museum collections and borrowed exhibits are used. They have zero connection with the space in which they are displayed. The interpretation of the topic depends on the communication between the exhibition and the visitor. It is necessary to communicate information on several different levels and to use different types of educational resources.

Examples:

- **Stavanger (Norway), Norwegian Petroleum Museum (Norsk Oljemuseum).** The Norwegian Petroleum Museum is housed in a modern building. The exhibitions present the origins of petroleum, current extraction methods, and various uses for oil and gas. The exhibitions include displays of the technological flow in the oil industry.¹³²⁾
- **Bochum (Germany), German Mining Museum (Deutsches Bergbau-Museum).** The museum was founded in 1930. The current museum building was constructed under the supervision of the architect Fritz Schupp in 1935–1941. The museum presents various forms of mining throughout the world. A special attraction is a simulated "visitor mine" built 20 metres under the museum. Covering around 20 000 square metres and with 3 kilometres of walkways, the visitor mine demonstrates real working conditions, methods and technologies.¹³³⁾



Stavanger (Norway), Norwegian Petroleum Museum (Norsk Oljemuseum). Photograph Michaela Ryšková, 2015.

132) See <https://www.norskolje.museum.no/en/>.

133) See <https://www.bergbaumuseum.de/en/>.



Oelsnitz (Germany), Bergbaumuseum Oelsnitz – Museum des sächsischen Steinkohlenbergbaus. A model as a substitute for reality – an exhibition at the Bergbaumuseum Oelsnitz – Museum des sächsischen Steinkohlenbergbaus. Photograph Jiří Merta, 2012.

Kopřivnice, Regional Museum in Kopřivnice (Regionální muzeum v Kopřivnici), Tatra Technical Museum (Technické muzeum Tatra). A diorama at a museum exhibition illustrating the beginnings of the Tatra company (originally the Nesselsdorfer Wagonenbau-fabrik-gesellschaft). Photograph Ondřej Merta, 2018.



Rožmitál pod Třemšínem, Podbrdy Museum (Podbrdské muzeum). An arranged exhibition from a nail-making workshop, enabling staff to demonstrate this craft. Photograph Ondřej Merta, 2016.



Nový Jičín, Hat Museum (Muzeum klobouků), Nový Jičín Museum (Muzeum Novojičínska). An arranged installation showing a hat-making workshop (diorama). Photograph Petra Mertová, 2018.



Liberec, Technical Museum in Liberec (Technické muzeum Liberec). A diorama showing a historic automobile when found – installation of the situation at the Technical Museum in Liberec. Photograph Ondřej Merta, 2018.





Chazelles-sur-Lyon (France), Atelier-Musée du Chapeau. An authentic production site with functioning machinery – a hat workshop at a hat museum. Photograph Petra Mertová, 2002.



Chazelles-sur-Lyon (France), Atelier-Musée du Chapeau. A museum installation of original machinery in an authentic space – a hat museum – the figurine illustrates working techniques. Photograph Petra Mertová, 2002.



Chazelles-sur-Lyon (France), Atelier-Musée du Chapeau. A museum installation of original machinery with images, at a hat museum. Photograph Petra Mertová, 2002.

Stará huť u Adamova, Technical Museum in Brno (Technické muzeum v Brně). A museum exhibition of ironmaking in the Moravian karst region, installed in a former foundry. Photograph Eva Řezáčová, 2005.



09.01.01.02. Collections at an authentic space/building

Museums may work with a collection at an authentic space/building which is itself an example of industrial heritage and can thus be used for museum purposes. In such cases the building is not a collection item in its own right (though under Act no. 122/2000 Sb. it could be classified as such); it becomes an exhibited item thanks to its quality and history. On the basis of research by the National Heritage Institute, a building may be declared a cultural monument or a national cultural monument. The building may be used to present arranged exhibitions (display cases, dioramas, information panels, etc.) in an authentic space that has been adapted for museum purposes; this represents a combination of approaches typical of museums and those that are typical of heritage professionals. The topic is presented in the form of an exhibition featuring a combination of collection items and other substitutes without a direct connection to the space in which they are displayed. Visitors appreciate the overall impression of the exhibition, its attractiveness and information content. If models and functioning systems (e.g. machinery) are used, the impression and information value of the exhibition are higher than if the exhibition is static (non-functioning). The exhibition need not necessarily be directly connected with the history or original purpose of the building.

- **Steyrdorf (Austria), Museum Arbeitswelt.** Occupying two former factory buildings (which used to produce knives and cutlery) in Wehrgraben, a part of Steyr, the museum was created by an association which acquired the buildings in 1985. The establishment of the museum was part of a wider project to revitalize the entire area on the basis of a decision taken by Austria's Federal Heritage Authority in 1966. The museum owns mainly two-dimensional collections on the topic of labour. Its exhibitions present the transformation of the world of labour during the past 150 years.¹³⁴⁾
- **Kerschbaum (Austria), Horse-Drawn Railway Museum (Pferdeeisenbahn Museum & Gaststätte).** This museum has been created in an original station building from the former horse-drawn railway from České Budějovice (Czech Republic) to Linz (Austria). It was built by the municipality of Rainbach. The building also houses a restaurant, training centre and apartments.¹³⁵⁾
- **Nový Knín, Museum of Gold Mining and Processing (Muzeum zlata).** The museum is located in a historic former mint building from the 15th century on the town's main square, the former location of the Burgomaster's office in this historic Central Bohemian royal mining town. The exhibits present the history of gold mining and processing in the region from the earliest period to the 20th century, as well as showcasing the town's history, local crafts and industry, and the history of the gold panning world championship.¹³⁶⁾

134 See <http://museum-steyr.at/>.

135 See <http://www.pferdeeisenbahn.at/>.

136) See <http://muzeum-pribram.cz/>.



Plasy, National Technical Museum, Civil Engineering Heritage Centre (Národní technické muzeum, Centrum stavitelského dědictví). The Civil Engineering Heritage Centre in Plasy was created by revitalizing a farm/brewery building from a former monastery and converting it to serve as a museum. Photograph Ondřej Merta, 2016.



Plasy, National Technical Museum, Civil Engineering Heritage Centre (Národní technické muzeum, Centrum stavitelského dědictví). An exhibition presenting original collection items (models). A technical play area for children. Photograph Ondřej Merta, 2016.



Plasy, Plasy cast iron exhibition hall (Výstavní síň plaské litiny). An exhibition in which a historical model of a foundry forms the central element in the installation. Photograph Ondřej Merta, 2016.



Lódź (Poland), Muzeum fabryki. An example of a museum exhibition combining collection items (a box with wool, a pail for waste from the spinning mill, a self-acting mule) with supporting information materials (images and an authentic example of raw material). The form of installation mediates knowledge on several levels of information. Photograph Jiří Merta, 2013.



Těšany, Technical Museum in Brno (Technické muzeum v Brně). An arranged installation in an authentic building – the Těšany forge. Photograph Eva Řezáčová, 2013.



Slup, Technical Museum in Brno (Technické muzeum v Brně), water mill in Slup (national cultural monument). Photograph Ondřej Merta, 2012.

09.01.01.03. Industrial heritage in the form of a technological flow arranged in an authentic setting (building/space)

Museums may present industrial heritage in the form of a technological flow arranged in an authentic setting (building/space). This represents a combination of approaches typical of museums and those that are typical of heritage professionals. The technological flow is arranged using items taken to the museum from various sites, i.e. collection items; these items may lack an authentic connection with the building/space, or they may be connected with it. Visitors evaluate the completeness and attractiveness of the technologies displayed. If items are functioning, the impression and information value of the exhibition are higher than if the exhibition is static (non-functioning).

Example:

- **Slup, Water mill in Slup.** Located in South Moravia, this monument is managed by the Technical Museum in Brno. The Renaissance building of the large mill possesses a unique aesthetic value in its own right. The building has four functioning water wheels. The exhibition presents the history of milling; the main focus is on the mill itself, where visitors can see four complete production units – a standard milling system, a mill for millet, an American-type system and a roller system. These units enable the entire process of milling to be explained. The mill is situated on the Krhovice-Jaroslavice mill-stream, which is a cultural monument.¹³⁷⁾

137 See <http://www.technicalmuseum.cz/en/pamatky/water-mill-in-slup/>.

Slup, Technical Museum in Brno (Technické muzeum v Brně), water mill in Slup (national cultural monument). Machinery from various locations is now displayed on this mill floor, forming a logical technical entity. Photograph Eva Řezáčová, 2012.



Slup, Technical Museum in Brno (Technické muzeum v Brně), water mill in Slup (national cultural monument). An exhibition of the history of milling, installed in the residential part of the water mill in Slup. The exhibition communicates its information using a combination of original collection items and other elements (images, text, lighting) to aid interpretation on various levels. Photograph Eva Řezáčová, 2012.



Salhus (Norsko), Norwegian Knitting Industry Museum (Trikotasjemuseum). Photograph Michaela Ryšková, 2016.

09.01.01.04. Industrial heritage in the form of an authentic technological flow in an authentic setting (building/space)

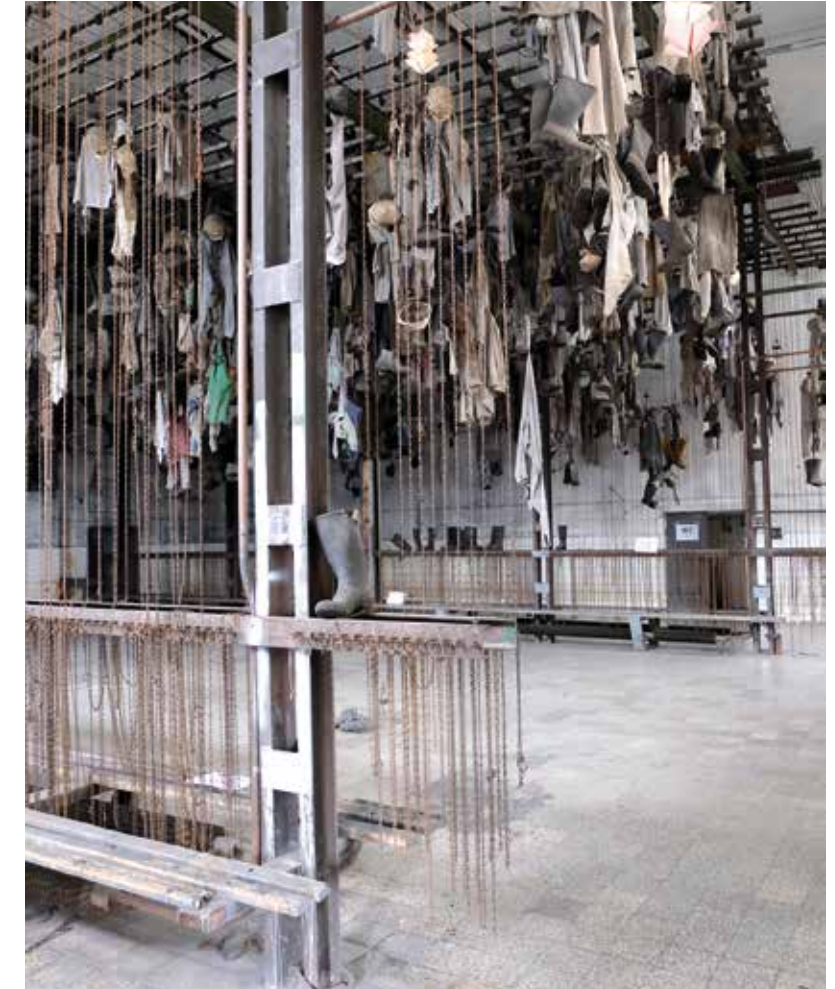
Museums may present industrial heritage in the form of an authentic technological flow in an authentic setting (building/space). Here the highest possible level of protection is the preservation of industrial heritage identified as being of typological importance, in the form of technical equipment demonstrating the continuity of the production process (the technological flow). This represents a combination of approaches typical of museums and those that are typical of heritage professionals. In such cases, it may be possible to restore a monument while preserving its technological flow, or to provide public access to conserved monuments and technological flows (e.g. in the form of managed ruins); this is a highly demanding process due to visitor safety requirements. This approach tends to succeed best with relatively small structures, often ethnographic monuments. It is possible to combine a renovation of buildings and sites with the preservation of the technological flow by applying the “last working day” method, which preserves the unique atmosphere (genius loci) of the location; this approach has been chosen at the Michal mine in Ostrava-Michálkovice (run by the National Heritage Institute) and the old waste water treatment plant in Prague’s Bubeneč district (run by a private company, owned by the City of Prague). In such cases the exhibitions possess the maximum possible degree of authenticity.

Examples:

- **Lozère (France), Le musée vivant de la Filature des Calquières.** This textile exhibition is based on a presentation of surviving technologies from a wool spinning mill, with original machinery from the 19th and 20th centuries. It is housed in the oldest spinning mill in France, and it is enlivened by various animated elements.¹³⁸⁾
- **Salhus (Norway), Norwegian Knitting Industry Museum (Trikotasjemuseum).** This museum has been created in a former textile factory building, the Salhus Tricotagefabrik (1859–1989). The exhibition presents the history of

138) See <https://www.musee-lozere.com/>.

Ostrava, Landek Park Mining Museum (Landek Park). A chain-system changing room – an exhibition based on the “last working day” principle. Photograph Ondřej Merta, 2018.



Ostrava, Landek Park Mining Museum (Landek Park). An above-ground exhibition of mining machinery including authentic exhibits. Photograph Ondřej Merta, 2018.





Dobřív, hammer mill, Dr. Bohuslav Horák Museum, a branch of the West Bohemian Museum in Plzeň (Západočeské muzeum v Plzni). The hammer in Dobřív (national cultural monument), featuring complete functioning machinery enabling technologies to be presented to visitors. Photograph Ondřej Merta, 2016.



Vordernberg (Austria). An authentic sledge and a charcoal wagon from the late 19th century, from the Radwerk IV ironworks in the Styrian town of Vordernberg. Photograph Martin Barák, 2017.



the knitting industry in Norway, encompassing a full range of technologies from spinning to knitting and finishing (sewing).¹³⁹⁾

- **Rouen (France), La Fabrique des Savoirs.** This multidisciplinary institution includes a museum, archives, and a centre for architectural studies (CIAP). The museum was founded in 1884 thanks to the private collection of Pierre Noury. It is located in the former Blin et Blin textile factory.¹⁴⁰⁾
- **Dobřív, water hammer mill (Vodní hamr Dobřív, national cultural monument).** The mill (and the entire industrial landscape including the ponds, mill-streams and timbered cottages, which comprise a heritage zone) is one of the most important monuments in the Czech Republic related to the iron industry. During its active existence, it formed part of a larger ironworks complex at Dobřív, where iron production and processing went on continuously for 450 years. The blast furnace remained in service until 1817, and the rolling mill was active until 1903. The closure of the blast furnaces impacted upon the technologies at the upper hammer mill, which was subsequently used for producing tools. In 1901 the production facility was re-opened, and its wheels did not stop turning until 1949. It has been open to the public as a technical monument since 1967. The mill houses an extensive collection of tools and devices from the 18th to the 20th centuries. It is connected to a historic system of watercourses taking water from the Padrt' stream (which is sometimes considered an upper branch of the Klabava river) and distributing it to the individual parts of the former ironworks (partially via vaulted underground channels). Other historic buildings at Dobřív include a former rolling mill, water structures used by the former ironworks, an office building, architecturally valuable farm buildings, and workers' cottages. A bridge (known as the "Swedish" bridge) has connected the village with the lower hammer mill complex since the end of the 17th century. The presentation of the technologies is based on active demonstrations. The site is managed by the West Bohemian Museum in Plzeň.¹⁴¹⁾
- **Lešetice, Vojna Memorial (Památník Vojna), museum of the victims of communism and the history of uranium mining.** This authentically preserved prison complex in Central Bohemia was originally used as a camp for German prisoners-of-war. It was situated among former uranium mine shafts. In 1949–1951 it was used by the communist regime as a forced labour camp, and then until 1961 it served as a prison camp for political opponents of the regime. The

139) See <http://www.muho.no/en/the-norwegian-knitting-industry-museum/>.

140) See <http://lafabriquedessavoirs.fr/fr/la-fabrique-des-savoirs/>.

141) See <http://www.zcm.cz/expozice/>.



Příbram, Příbram Mining Museum (Hornické muzeum Příbram), Vojtěch mine, steam winding engine from 1889. Photograph Příbram Mining Museum, 2015.



Příbram, Příbram Mining Museum (Hornické muzeum Příbram). Winding tower and pit-head building at the Ševcůnský mine, publicly accessible Anna drainage adit. Photograph Michaela Ryšková, 2011.



Ostrava, DOV (Dolní oblast Vítkovice). An outdoor exhibition in an authentic space. This wagon for transporting slag from the blast furnace at Lower Vítkovice has an information panel describing the history and purpose of the exhibit. Photograph Michaela Ryšková, 2011.



exhibitions present the political persecution that followed the communists' seizure of power in 1948, the role of the anti-communist resistance, and the history of uranium mining.¹⁴²⁾

- **Příbram-Březové Hory, Mining Museum Příbram (Hornické muzeum Příbram).** This exhibition is located in historical mine buildings and office buildings; it presents the region's rich history as a centre of mining (silver, uranium and other ores). Visitors can choose from three tour routes: the Ševcůn, Anna and Vojtěch mines. Tours include unique steam-powered winding engines, an extensive collection of minerals, and presentations of mining folklore.¹⁴³⁾

09.01.01.05. Open-air Museums

An established form of museum presentations involves open-air museums; buildings and technologies may be taken to a site, or museums may be created on the original site of the exhibits. Open-air museums mainly display technical monuments that could not be preserved at their original locations. A disadvantage of the transfer in such cases is the accompanying loss of authenticity. If large structures or technological entities are transported to these sites, they need to be dismantled and then rebuilt at the new location; this likewise reduces their degree of authenticity. Currently the Czech Republic has a number of industrial open-air museums displaying buildings, machinery, means of transport, etc.

- **Rožnov pod Radhoštěm, Wallachian Open-Air Museum (Valašské muzeum v přírodě), Mill Valley.** The Mill Valley was opened in 1982. The complex contains still-functioning technical structures, mainly powered by water. The positioning of the fulling mill, flour mill and sawmill is an almost exact reconstruction of their positioning in the first half of the 19th century at the Podtáté valley in the nearby village of Velké Karlovice. The oil press is an original structure from the 17th century, and the hammer mill is a reconstruction of a structure from the town of Ostravice. With the exception of the oil press, all the mechanisms are water-powered. A reassembled transport depot from Ostravice houses an exhibition focusing on various means of transport that were used in agriculture, forestry, trade, passenger transport and for other purposes. In 2008–2009 the complex was expanded to include three new structures – a house from Trojanovice, a forge from Horní Lideč, and a barn from Podtáté in Velké Karlovice. The part

142) See <https://www.muzeum-pribram.cz/cz/pamatnik-vojna-lesetice/z-historie/>.

143) See <https://www.muzeum-pribram.cz/cz/hornicky-skaznen-brezove-hory/prohlidkove-arealy/>.



Rožnov pod Radhoštěm, Wallachian Open-Air Museum (Valašské muzeum v přírodě), Mill Valley. Photograph Michaela Ryšková, 2019.

of the complex including the hammer mill was also expanded to include a timber-built belfry from Dolní Bečva, which had originally been located in a different part of the Wallachian Open-Air Museum (the Little Wooden Town).¹⁴⁴⁾

- **Vysoký Chlumec, Open-Air Museum (Skanzen / Muzeum vesnických staveb středního Povolaví).** This museum presents valuable examples of rural buildings tracing the development of folk architecture from the mid-17th century to the early 20th century in the Central Bohemian hills and the central part of the Vltava River valley, a region affected by widespread quarrying. It also includes a water-powered mill originally from Dolní Sloupnice near Chrudim. The complex is located in the valley of a stream, and it houses a range of residential, technical, agricultural and small sacred structures that have been transferred to the site in order to protect them from destruction. The interiors present the rural way of life and work. The installation of the exhibitions also draws on the current local history collection of the Mining Museum in Příbram and the collection of the Municipal Museum in Sedlčany (with which the Mining Museum has very close links).¹⁴⁵⁾

144) See <https://www.vmp.cz/cs/navstevnici-prohlidka-muzea/prohlidka-muzea/mlynska-dolina/>.

145) See <https://www.muzeum-pribram.cz/cz/skanzen-vysoky-chlumec/z-historie/>.

Telford (England), Ironbridge Gorge Museums. Photograph Michaela Ryšková, 2011.



09.01.01.06. Ecomuseums

The so-called museological revolution has given rise to a new type of museum known as an ecomuseum. The first such institution was the Ecomusée de la Communauté Le Creusot Montceau in France, opened in 1972. The ecomuseum model is characterized by the musealization of an entire area – both for tourists and for the local population. In addition to collecting and displaying material remains, such museums also emphasize the need to document and preserve an entire area in a holistic way – including its cultural and natural features.

Examples:

- **Houdeng-Aimeries (Belgium), Bois-du-Luc Museum of Mining and Sustainable Development (Site minier du Bois-du-Luc).** Bois-du-Luc is a noteworthy example of a mining community that has been preserved as a whole, including residential buildings as well as industrial, social, cultural and religious structures. The aim of the exhibition projects is to enable visitors to experience for themselves what life in Bois-du-Luc was like, gaining an insight into the cultural environment in which the workers and their families lived, which balanced the profit motive with social control.¹⁴⁶⁾
- **Ironbridge (England), Ironbridge Gorge museums.** This set of museums, historic buildings and technical sites forms an original, complete whole. It is run by the Ironbridge Gorge Museum Trust, whose primary aim is to present and interpret the place where the Industrial Revolution was born. The presentations are illustrative, with an emphasis on the maximum possible authenticity. The demonstrators (dressed in period costumes) are highly skilled. Visitors can thus gain a powerful experience of the past, including various other insights into life at the turn of the 19th century. The museum offers a comprehensive experience of the topics it presents.¹⁴⁷⁾

146) See <http://www.ecomuseeboisduluc.be/>.

147) See <https://www.ironbridge.org.uk/>.

09.02. Other forms of presentation besides exhibitions (lectures, excursions, popularization)

museums offer the general public a space in which they can cultivate connections with industrial heritage in the form of various activities not directly connected with exhibitions – i.e. a space where they can spend active leisure time. These activities may include programmes related to exhibitions, or special programmes for the general public without any direct link to a specific exhibition. Many museums and galleries organize various activities for the general public – either on a regular basis or in connection with important events – as well as organizing activities for the expert community such as conferences, seminars and workshops. Planning such events places relatively high demands on time and staffing, as does the organization at the event itself and the production of follow-up materials in printed or electronic form. Event proposal forms – which in most museums are standard documents used by the department responsible for collection-building – can act as guides and manuals for planning these types of events.

Industrial heritage is also the topic of numerous tourist routes and educational trails, such as the European Route of Industrial Heritage (ERIH).¹⁴⁸⁾ Route der Industriekultur is a project grouping together a range of tourist destinations in the Ruhr region of Germany, with trails covering around 400 km. Among the destinations are some presenting the region's industrial heritage, primarily associated with mining.¹⁴⁹⁾

An increasingly popular type of activity among the general public and experts are excursions to places associated with industry in the past – or places still devoted to industrial production or transport. The aim of these excursions is to contribute to an understanding of the importance of surviving buildings, the development of urban planning in industrial areas, or the genius loci of individual places; visitors gain these insights at the exact locations where industry or transport used to exist (or still exists), the sites of authentic surviving buildings or of former demolished structures. Museum-type institutions can incorporate this type of activity into their visitor programmes.

Another type of presentational activity involves publications by museums. These may be periodicals, collection catalogues, specialist publications, guidebooks, and more. They mostly combine texts and images, and may be published either in printed form or electronically (DVDs, online databases, websites, etc.).

A form of communication with the general public that is currently enjoying considerable popularity is the presentation of surviving examples of industrial heritage in online collection catalogues or databases. Usually these include a search function, so visitors can browse the data and images as they wish. If a user is interested in a particular exhibit, they can contact the curator or another responsible staff member directly to arrange a visit to the depository or a guided tour of an exhibition. Other options include the online guided tours of museum premises (exhibitions), or the use of various apps or other systems as a repository of digital information on collections or a presented activity. Museums are also increasingly making use of social media (e.g. Facebook, Twitter, TripAdvisor) in their communications.

From the perspective of a museum's range of services to the public, we can conclude that non-exhibition-type activities are now an important facet of the activities of technical museums – as well as representing an economically important component of the cultural sphere.

Brno, Technical Museum
in Brno (Technické muzeum
v Brně). Foto Eva Řezáčová,
2019.



10. Conclusion

The management of movable and immovable cultural heritage is a core mission for the cultural sector, especially for museums and heritage experts. Industrial heritage is one aspect of the Czech Republic's total cultural heritage; it is evaluated by museum institutions which are able to provide protection to selected examples of this heritage. This methodological publication has been created in order to support an informed, enlightened approach to the evaluation of surviving items at individual museums, guided by the institution's concept for its collection-building activities and the needs of the local community.

148) European Route of Industrial Heritage [online]. [retrieved 1. 9. 2018]. Available at <https://www.erih.net>.

149) Route der Industriekultur. [online]. [retrieved 1. 9. 2018]. Available at <http://www.route-industriekultur.ruhr>.



Roubaix (France), La Manufacture.
Photograph Michaela Ryšková,
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**Methodology for the Evaluation
and Protection of Industrial Heritage
through Museology**

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Published by the National Heritage Institute,
Methodological Centre for Industrial Heritage, Ostrava branch,
Odboje 1941/1, 702 00 Ostrava
and the Technical Museum in Brno, Purkyňova 2950, 612 00 Brno-Královo Pole
in 2019 as the 102nd volume in the series
'Specialist and Methodological Publications'.

First edition

Editor: Markéta Kouřilová

Typesetting: Ivo Sumec

Print: Printo, spol. s. r. o., Gen. Sochora 1379/6,
708 00 Ostrava-Poruba

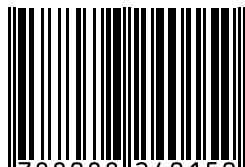
Ostrava 2019

ISBN 978-80-88240-15-0 (National Heritage Institute)

ISBN 978-80-87896-80-8 (Technical Museum in Brno)



ISBN 978-80-88240-15-0



9 788088 240150