

Things rust but memories last forever: creative conservation in the industrial heritage

Os objetos degradam-se mas memórias duram para sempre: conservação criativa no património industrial

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Abstract

The concept of creative conservation began to be developed in 2012 by conservators from the Polytechnic Institute of Tomar. This approach, which begins with a process of resignification of fragmented objects, those apparently without possible recovery and on the verge of being discarded, has the goal to develop actions that encourage reflective thinking on preservation and collective memory. This article explores its application in industrial heritage through two case studies: *Cartão de Ponto* project (2012), based on the conservation of a set of timecards of former workers of the Spinning Mill of Tomar, and the ongoing *POR1FIO* project, which seeks to create an educational tool from preserved objects from the Torres Novas Nacional Spinning & Weaving Co. These projects demonstrate that creative conservation approach can be a new strategy to help the local community to establish positive memories based on their industrial heritage and to manage the trauma from the de-industrialization processes.

KEYWORDS

Industrial heritage Creative conservation Preservation Community

Resumo

O conceito de conservação criativa começou a ser desenvolvido em 2012 por conservadoresrestauradores do Instituto Politécnico de Tomar. Partindo de um processo de re-significação
de objetos fragmentados, aparentemente sem recuperação e prestes a serem descartados,
procura-se desenvolver ações que culminem numa reflexão sobre a preservação e a memória
coletiva. Este artigo analisa a sua aplicação no património industrial através de dois estudos
de caso: o projeto *Cartão de Ponto* (2012), baseado na intervenção num conjunto de cartões de
ponto dos funcionários da Fábrica de Fiação de Tomar, e o projeto *PORIFIO*, em curso, que
pretende criar ferramentas de mediação cultural a partir de objetos da antiga Companhia
Nacional de Fiação e Tecidos de Torres Novas. Procura-se demonstrar que a conservação
criativa pode ser uma nova estratégia para ajudar a comunidade local a estabelecer memórias
positivas assentes no seu património industrial e a lidar com o trauma dos processos de
desindustrialização.

PALAVRAS-CHAVE

Património industrial Conservação criativa Preservação Comunidade



Introduction

Creative conservation emerges as a distinctive and innovative approach to heritage preservation, demonstrating that creativity can be an important advantage in complex and difficult decision-making processes. Its concept and main objective can be defined as follows:

Creative Conservation means that artistic creativity is intentionally applied to aid the creation of a new and innovative conservation (by)product, which might be an installation, an exhibition, a performance or an object, among many other, yet to be devised, possibilities. This new creative approach brings together original materials and an innovative interpretation that establishes new meanings for those materials fostering their sustainable preservation. [1]

This new approach concept emerged in 2012, from the investigation of conservators-restorers and researchers from the Polytechnic Institute of Tomar (IPT), in Portugal [1-4]. The research on remains of industrial heritage [3-4], has already originated other projects in this topic. This paper focuses on two projects of two hundred-year-old spinning mills.

The first project, *Cartão de Ponto* (Timecard), was developed in 2012 at IPT's laboratories of conservation and restoration and the *Real Fábrica de Fiação de Tomar* (Royal Spinning Mill of Tomar). Founded in 1789 and ceasing activity in 1993 [5-7], the *Real Fábrica de Fiação de Tomar* was once considered the largest textile company in Portugal [5], and is where timecards of the factory workers were collected and studied. The goal was to generate awareness of the degradation, enhancement and preservation of this heritage, with the ultimate goal of preserving the collective memory of past workers or what can be called the "memory of work" [8].

The other project, *PORIFIO*, is currently underway at the Center for Technology, Restoration and Enhancement of Arts (TECHN&ART) at IPT. In this case, the focus is the *Companhia Nacional de Fiação e Tecidos de Torres Novas* (CNFTTN,Torres Novas Nacional Spinning & Weaving Co., Portugal), founded in 1845 and closed after 166 years of activity, in 2011 [9-12]. The goal of this project is the preservation of what still are the "lived experiences" from several generations connected to the factory "through the conception of a heritage education tool, the «Memories Builder»" [2]. With this tool, educational activities will be carried out for children and young people [2].

Both companies, from Tomar and from Torres Novas, share some similarities and some differences in their "de-industrialization" processes. The abandonment of the industrial complexes and the job loss, due to the global condition of the post-industrial era and the technological lag in the textile industry in Portugal [13-14] are common aspects.

In Tomar's example, all the company's mobile assets were auctioned, in 1999, by judicial order. At that time, Tomar's City Council acquired all the historical objects previously collected in the archive and in the factory's "museum" [15]. Also the Council collected all the machinery corresponding to a complete production line, recognizing the cultural relevance of this heritage. In line with the 2003 recommendations of the International Committee for Conservation of the Industrial Heritage (TICCIH), in *The Nizhny Tagil Charter for The Industrial Heritage*: "Preservation of documentary records, company archives, building plans as well as sample specimens of industrial products should be encouraged" [16].

However, abandonment and successive attacks of vandalism put this heritage at risk (Figure 1). Therefore, Tomar's City Council was forced, in 2003, to remove the assets from the factory in an attempt to safeguard them. Although thousands of objects were collected including archives, technical drawings, photographs, fabric samples, yarn samples, product labels and many others, many objects were left behind. The buildings, which at the end of the twentieth century were in a good state of conservation, are now in a state of ruin, after several years of abandonment and successive acts of vandalism.





Figure 1. Historical archive of Tomar's Spinning Mill, in 2003, after being vandalized.

In Torres Novas the buildings do not have a significant architectural value, but considering the building complex, it becomes unique. Not only for its location along the river and valley but also by the evolution of materials used and construction techniques throughout the time [17]. In 2016, five years after closing down, the damage was already noticeable, with occasional vegetation invasion, destruction of some roofs, water infiltrations from the absence of windows and some acts of vandalism. Part of this damage was caused by the removal of equipment and machinery [17]. In 2022 the municipality acquired the factory's building.

The closing of these two factories, especially in these cities so reliant on the textile industry, left the population extremely vulnerable. In fact, the deindustrialization processes had a great impact on the lives of the local community. These generally lengthy processes are challenging, not only because of their economic and social implications but also, because of the necessary "cultural-trauma management" that deindustrialization undoubtedly brings to the scene [18].

In both cases, what can be seen is a generalized lack of broad public engagement with this industrial heritage. This lack, as Paz Benito del Pozo and Pablo Alonso González mentioned regarding industrial heritage in Spain [19], may be the result of a vision more concerned with the use of this heritage as "a future-oriented economic resource, neglecting emotional and popular potential for the generation of new identities and connections with the past".

This paper aims to analyse how the approach of creative conservation can be an innovative and disruptive tool for these cases. Being aware that not all material remains can be saved for the future, this article wishes to contribute to a new approach to the conservation of industrial heritage and simultaneously to the well-being of local communities. The article helps to



understand how creative conservation and industrial heritage could be interpreted and be a positive influence on the population's/community's experiences, memories and emotions.

Methodology

The application of the creative conservation approach starts with the preservation of the heritage at risk. There are a few risks, like dissociation, demolition or theft of assets or structures. Deactivated industrial complexes, which play a significant role in the development of these communities, are vulnerable to this type of risk. They are a testimony and major influence of social and economic impact in the recent past and are very present in the communities' memory, giving them meaning [20]. They are usually associated with traumatic closure processes, without classification or heritage recognition and without a preservation plan. These spaces are very vulnerable to the speculative market and the risk of loss is significant.

Based on these assumptions, the approach (Figure 2) follows these steps: 1) Identification of the conservation problem; 2) Study and research, the objects are collected, selected, diagnosed, and analysed their importance and significance to the community, trough surveys, interviews, and/or others; 3) Identification and definition of the creative conservation options; 4) the intervention, that can be both a traditional and creative conservation intervention, or just a creative one. With the creative conservation approach the intention is create awareness of the heritage at risk through the use of these "symbolic" assets by developing installations, performances, exhibitions, informal education activities, or others, among the communities [2].

In this context of industrial heritage at risk, this approach was applied in the two cases of the spinning mills described above. Although the context of each one is distinct, both approaches are similar regarding the use of the creative conservation approach. In both cases, the dissemination actions are focused on the community, seeking to recover and stimulate the memories of the activity of these places.

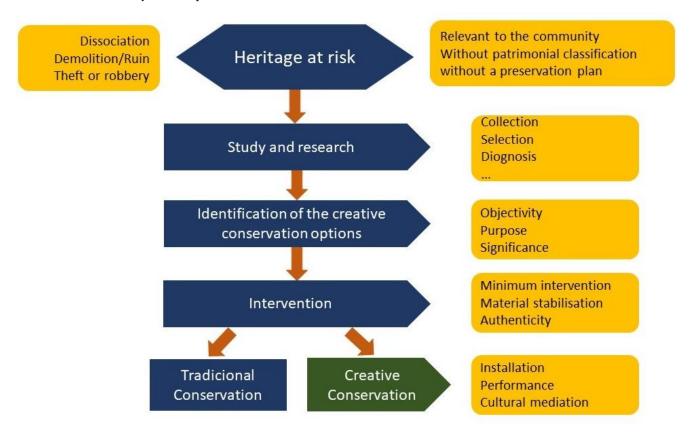


Figure 2. Diagram of the creative conservation methodology.



Results

"Cartão de ponto" (Timecard) – Evocation of collective memory from the Spinning Mill in Tomar

This project began with the collection of around 1500 timecards that were part of the factory workers' historical archive. Left abandoned for several years, this archive was in very poor condition, with little able to be rescued by the City Council in 2003. This project allowed the preservation of this set of historical documents that otherwise would have disappeared.

The timecards were made of small, coloured cardboard cards measuring approximately $22 \text{ cm} \times 9 \text{ cm}$ (Figure 3). The colour of the cards was different each year. Information gathered through timecards helps in determining a key part of the history of an organization since each card contains relevant information about a particular worker: name, identification number, job position and working hours [2].

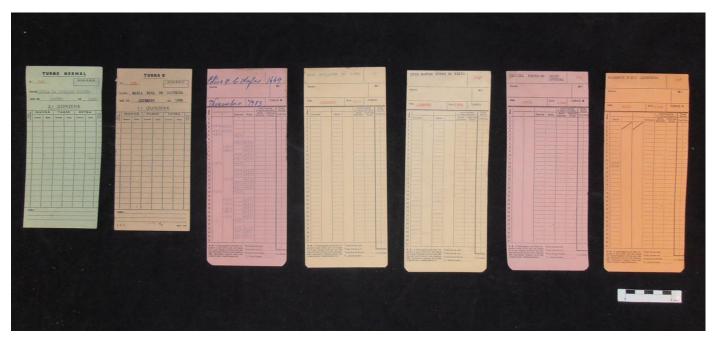


Figure 3. Some examples of timecards selected for intervention.

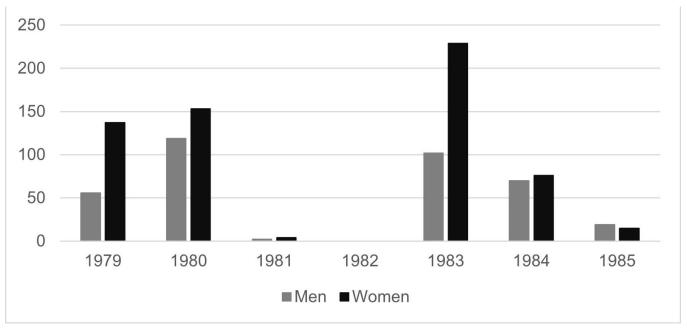


Figure 4. The number of timecards, collected and recorded during the project, with data between 1979 and 1985, divided according to gender.



For this reason, the next step was the recording and inventorying of the intrinsic data contained in the cards. A data sheet was created to record data from 982 cards, dated between 1979 and 1985. This constitutes a support base for future research work oriented towards the memory of work at the Spinning Mill of Tomar. From this data it will be possible to carry out anthropological research, augmented by the collection of testimonies of workers' experiences and life stories, to recreate a journey through the daily life of industrial hustle and bustle [21].

The analyses of information contained in the timecards made it possible to characterize the employees who worked at the factory in that period. For example, of the total number of cards, 368 (37 %) correspond to men and 614 (63 %) to women. This confirms previous knowledge of the great importance of women's work in the textile industry [22]. The graph below (Figure 4) shows the number of timecards collected and registered, by year, and according to gender.

Besides the recording of the contextual data from each timecard, the materials were identified and their condition was assessed. This stage allowed the definition of the best approach for the conservation process. The cleaning and stabilization of each card were essential to allow a better perception/interpretation and contribute to its preservation and exhibition. The cleaning process consisted of dry-cleaning using brushes and rubbers. The individual encapsulation bags were designed to accommodate the size of the cards and the manner of exhibition. A polyester film (Melinex) was used to make the bags for each card. This allowed the creation of the installation and the conditions for their future preservation (Figure 5).

After finalizing the conservation process, the goal was to present the result to the local community. The creative and innovative aspect of this approach was revealed with the use of timecards in an installation with the title: Cartão de Ponto – A unidade de trabalho: Evocação da memória coletiva da Fábrica da Fiação de Tomar (Timecard – a work unit: Evoking the collective memory of the Tomar Spinning Factory) (Figure 6). The exhibition was on display at the Complexo Industrial da Levada, in Tomar, during the event Há trabalhos na Fábrica (There are works at the Factory), between April 30 and May 12, 2014 [23].

The installation consisted of a "curtain" of timecards, suspended, and interconnected. The cards' distribution was random. The only criterion followed was the colour of the cards, according to the creative scheme conceived. The aim was to remove from the exhibition any pre-established interpretive proposal. Being suspended and protected in polyester bags allowed the manipulation of the timecards by visitors. In this way, an interaction was achieved between the installation and the visitors, including former factory workers. The timecards were stored at IPT after the exhibition and are now available for public consultation.

This project contributes to rescuing part of the collective and personal memory that materializes in the preservation of these assets. Each card, which identifies a worker, becomes a tribute to the anonymous group of men and women who, generation after generation, contributed to developing an important activity in the city.





 $\textbf{Figure 5}. \ Conservation \ of the \ time cards: a) \ dry \ cleaning \ using \ a \ brush; b) \ execution \ of the \ encapsulation \ bags.$





Figure 6. The installation "Timecard – a work unit: Evoking the collective memory of the Tomar Spinning Factory".

"POR1FIO"

In the *PORIFIO* project, currently under development, the main goal with the application of the creative conservation approach is to perform an activity to enhance the heritage within the community. This activity is founded on the study of the old factory (CNFTTN) and the estate still existing in the municipality of Torres Novas. Considering the state of conservation of the building, the lack of a safeguard plan for the assets and the poor perception of the social impact and valorisation of this heritage by the community, this project was conceived as *PORIFIO - The creative conservation of industrial heritage in the construction of the social memory of Torres Novas*.

The first step was to understand the factory's history and which objects were available for informal education activities in the community. It was not possible to develop any activity in the building, given its state of conservation. The assets collected at the factory, namely the documentation, technical drawings, photographs, and other similar documents are on deposit at the Municipal Library, with some of them still being digitized and catalogued. Only a small part of the objects is available, in storage next to the machines. It was only based on this collection that the project could be built. This set is composed of machines and small objects, such as spinning cones, spools, yarn shuttles, and fabric samples, among others. These materials are stored in an old sports pavilion without any preservation plan and without conditions to slow their degradation. Taking these aspects into account, a first selection of objects was made (Figure 7) that could be used in informal education sessions in the community.

During the initial tasks of the project there was also the opportunity, not initially planned, to understand the social impact of the factory on the local community after its closure. A survey was developed to understand what meaning the community still preserves about the factory [24] and how it could be relevant to the project development.







 $\textbf{Figure 7.} \ \ \text{Selection of objects from the CNFTTN factory: a) selection for the "memories builder"; b) process of selection of objects. \\$

Following the approach of creative conservation, after the collection of the objects, they were duly documented and are currently in the process of intervention. The approach will be identical to the previous project, consisting of the cleaning of superficial deposits that, in most cases will be sufficient to allow their use. These are objects that were still in the machines themselves at the moment of their collection or in boxes without any reference (Figure 8). The most sensitive materials are yarns and paper elements, such as labels, which are very dry and fragile. After cleaning and stabilization, it will be possible to determine which items can be handled during the informal education sessions.







Figure 8. Objects from the CNFTTN factory: a) in the boxes; b) in the machines.

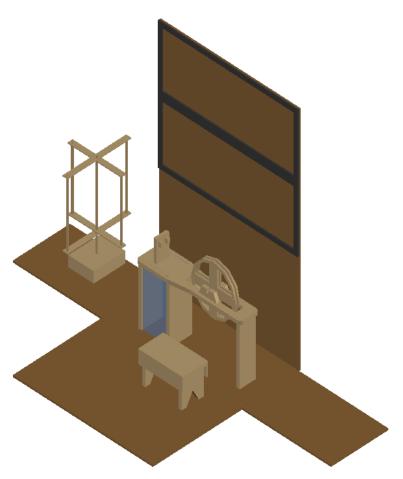


Figure 9. The prototype of the "Memories Builder".

For these informal education sessions, it was decided to select the school community as the target audience, specifically those born after the factory's closure. In this way, the need to create memories became the central motivation for interaction with the public. In order to realize this interaction, it was decided to make use of the affordances of the "Memories builder" (Figure 9). It is a box that carries the selected objects, as well as a small apparatus to spin a yarn that each participant can successively add. The box can be disassembled when it is not needed. The idea that this is expected to induce in the public is exactly that of adding memories of the factory and the relevance of preserving this heritage [25]. Still being finalised, it is expected that the "Memories builder" will be both a tool for the storage and display of the assets as well as a symbolic tool for the preservation of the intangible legacy of the factory.



Discussion of results

The two cases presented are very different, although there are many similarities regarding the conservation of their buildings and objects. Firstly, in both cases, the materials' remains are dissociated, poorly recorded, and in a continuous degradation process. Secondly, there is no preservation strategy for this industrial heritage. There is already a reduction of value and authenticity at both sites, due to the removal of the machinery, components and subsidiary elements which form part of the whole. Also, it is urgent to preserve these heritage sites, as they are in a state of abandonment and imminent demolition. Thirdly, since both factories closed relatively recently, many active memories are present in local communities that have not yet been called upon to be part of the solution.

The two projects developed using the creativity present in the methodology contributed to the greater objective of preserving the collective memory that this industrial heritage evokes. The objects preserved in both projects can be interpreted as "traces". Deprived of their original functions, and far from the safety of a museum, these objects were collected from a heap of ruins or in a forgotten building. For Marc Guillaume, a "trace" is fundamentally what a person leaves behind, irreversibly, and in particular after death [26]. Therefore, conserving traces is always, for this author, a choice, individual or collective, based on the prevailing system of beliefs and values. Collecting these objects, in both cases, was dependent on that subjective system of values. However, it is believed that the choice was oriented towards the possibility of these objects: the timecards, on the one hand, and the selected objects of the CNFTTN, on the other, function as what Marc Guillaume calls "suture objects" [26]. This is particularly important to cultural-trauma management due to the de-industrialization processes, mentioned earlier. More important than the materiality of the objects is their ability to record and fix a narrative in a lasting and incontestable way, and from this narrative, it is possible to activate memories, develop the ritual of remembrance and grieve for the loss.

The selection of objects is therefore a fundamental phase in creative conservation projects. This can be particularly challenging in the case of industrial heritage where the scope of heritage is vast [18]. On the other hand, the current society's voracity for constant updating poses the problem of what to save for the future [27]. Can we keep it all? It is known that this would not be possible or sustainable. As Françoise Choay [28] mentions, however, the collection of objects is a means of defense against loss, in a quest for an illusory permanence. Thus, in these projects, the collection and conservation of objects or remains are not understood as ends in themselves, but rather as part of an approach that has broader objectives.

Through these two projects, it was possible to establish a better connection between partners in the region and to innovate in the area of industrial heritage. The application of the creative conservation approach promoted engagement with the community, enhancing the reflection on the values and meaning of heritage through its use [2, 23-25].

Conclusions

Creative conservation used in the context of industrial heritage requires not only the use of traditional conservation methods, but also semiotic research to recognize the significance of material elements that can have a greater effectiveness in subsequent communication activities. There is also a need for an interdisciplinary approach. In addition to the analysis of the materials, other areas must be considered, such as the anthropological and social spheres. The connection with the community plays a fundamental role in these projects. It was found to be desirable for creative conservation projects, in contexts of de-industrialization, to start from an inquiry into the community's positioning in relation to its industrial heritage and its memories. Only in this way is it possible to define creative conservation strategies that truly consolidate the interdependent relationship between industrial heritage and the community.



However, benefits always emerge from the creative conservation methodology: a set of objects on the verge of being discarded are conserved and the opportunity for the creation of positive memories involving industrial heritage and reflective thinking on their preservation is created.

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REFERENCES

- 1. Triães, R.; Nogueira, A.; Chasqueira, Â., ms., 'The power of creativity in nurturing sustainable development', in *Proceedings 20th ICOM-CC Triennial Conference*, València, Spain (2023).
- 2. Triães, R., 'Área de ação prioritária conservação e segurança: Projeto Conservação criativa: uma metodologia alternativa para a interpretação e conservação da memória', *Nova Augusta* **32** (2020) 301-309.
- 3. Loureiro, L.; Triães, R.; Falcão, C, 'Educational tools for involving higher degree students within the project Creative Conservation', New Trends and Issues Proceedings on Humanities and Social Sciences 2(7) (2016) 32-40, https://doi.org/10.18844/gjhss.v2i7.1177 (accessed 2023-01-20).
- 4. Triães, R.; Falcão, C.; Loureiro, L., 'Conservação criativa. Edifícios e vestígios Projecto-ensaio sobre espaços pós-industriais', in *Edifícios e vestígios Buildings & remnants*, ed. I. Moreira, Imprensa Nacional Casa da Moeda, Lisboa (2013) 217-232.
- 5. Francisco, M., O património industrial do rio Nabão: contributo para a salvaguarda da antiga Fábrica de Fiação de Tomar, Master dissertation, Department of Architecture, Universidade do Porto, Porto (2021).
- 6. Guimarães, M. S., História de uma Fábrica. A Real Fábrica de Fiação de Thomar. Junta Distrital de Santarém, Santarém (1976).
- 7. Custódio, J.; Santos, L., A Real Fábrica de Fiação de Tomar e a 1.ª geração europeia e americana de fábricas hidráulicas, Coimbra Editora, Coimbra (1990).
- 8. Castilho, J. J., 'The memory of work and the future of industrial heritage: new issues five years later', Forum Qualitative Sozialforschung / Forum: Qualitative Social Research 12(3) (2011), http://nbn-resolving.de/urn:nbn:de:0114-fqs110333 (accessed 2023-01-19).
- Bicho, J. R., A Fábrica Grande. Subsídios para a história da Companhia de Torres Novas, Câmara Municipal de Torres Novas, Torres Novas
 (1997).
- 10. Rocha, F. C., 'Companhia Nacional de Fiação e tecidos de Torres, 150 anos de atividade', Nova Augusta 9 (1995) 29-44.
- 11. Oliveira, F., Torres Novas industrial 1784-1999, Câmara Municipal de Torres Novas, Torres Novas (2005).
- 12. Rocha, F. C., Para a história do movimento operário em Torres Novas. Durante a Monarquia e a I República (1862-1926), Câmara Municipal de Torres Novas, Torres Novas (2009).
- 13. Freeman, C.; Louçã, F., Ciclos e crises no capitalismo global das revoluções industriais à revolução da informação, Edições Afrontamento, Porto (2003).
- 14. Nogueira, P. M. R., *A ciência e a indústria têxtil e do vestuário. Uma abordagem historiográfica ao setor em Guimarães*, PhD dissertation, Universidade de Coimbra and Universidade de Aveiro, Coimbra e Aveiro (2020).
- 15. Ferraz, A.; Faria J., 'Museus em Tomar no século das intenções', Boletim Cultural da Câmara Municipal de Tomar 24 (2005) 150-160.
- 16. 'The Nizhny Tagil charter for the industrial heritage', in *The International Committee for the Conservation of the Industrial Heritage* (2003), https://ticcih.org/about/charter/ (accessed 2023-01-19).
- 17. Correia, M., Reabilitação da antiga fábrica da Companhia Nacional de Fiação e Tecidos de Torres Novas, Master dissertation, Departament of Architecture, Universidade de Coimbra, Coimbra (2016).
- 18. Wicke, C., 'Introduction: industrial heritage and regional identities', in *Industrial heritage and regional identities*, eds. C. Wicke, S. Berger and J. Golombek, Routledge, London (2018) 1-12, https://doi.org/10.4324/9781315281179 (accessed 2023-01-19).
- 19. Benito del Pozo, P.; Alonso González, P., 'Industrial heritage and place identity in Spain: from monuments to landscapes', *The Geographical Review* 102(4) (2012) 446-464, https://doi.org/10.1111/j.1931-0846.2012.00169.x.
- 20. Muños Viñas, S., Teoría contemporánea de la Restauración, Editorial Síntesis, Madrid (2003).
- 21. Tavares, C. G.; Leite, R., 'O projeto Picar o Ponto: Memórias orais de operários da Fábrica Robinson', *Midas Museus e Estudos Interdisciplinares* **3** (2014), https://doi.org/10.4000/midas.531 (accessed 2023-01-19).
- 22. Nogueira, P. R., 'Mulheres de fábrica: história da feminização da indústria têxtil em Guimarães', *Boletim de Trabalhos Históricos* **19** (2020) 47-127, https://www.amap.pt/r/article/bth-2020-3 (accessed 2023-01-19).
- 23. Há Trabalhos na Fábrica Tomar, https://trabalhosnafabrica.wordpress.com/ (accessed 2023-01-19).
- 24. Chasqueira, Â.; Triães, R.; Barbosa, R., 'How to preserve industrial heritage the memory and significance', in (In)tangible heritage(s):a conference on design, culture and technology past, present, and future, ed. H. Griffin, AMPS Proceedings Series 29.1, University of Kent, Canterbury (2022) 479-487, https://amps-research.com/wp-content/uploads/2023/04/Amps-Proceedings-Series_29.1.pdf.



- 25. Chasqueira, Â.; Ferraz, Â.; Triães, R., "Memories builder': A contribution to the sustainable preservation of industrial heritage', in *Actas del IX Seminario Tensión sostenible El patrimonio en la transición energética*, Aula de Formación: Gestión e Intervención en el Patrimonio Arquitectónico e Industrial, Madrid (2022) 95-112, http://gipai.aq.upm.es/index.php/actas-del-ix-seminario-tension-sostenible/.
- 26. Guillaume, M., A política do património, Translated by J. Caspurro, Campo das Letras, Porto (2003).
- 27. Folgado, D., 'Património industrial. Que memória?', in *Conservar Para Quê*, 8ª Mesa-redonda de Primavera, coord. V. O. Jorge, FLUP, DCTP, CEAUC, Porto e Coimbra (2005) 355-366.
- 28. Choay, F., Alegoria do património, Translated by T. Castro, Edições 70, Lisboa (2008).

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