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# Transnationalizing industrial heritage valorizations in Germany and China – and addressing inherent dark sides

Leilei Li<sup>a</sup> and Dietrich Soye<sup>b</sup>

<sup>a</sup>School of Mass Communication, Shenzhen University, Shenzhen, People's Republic of China; <sup>b</sup>Institute of Geography, The University of Cologne, Cologne, Germany

## ABSTRACT

Industrial heritage valorizations are usually characterized by two pervasive trends: *Firstly*, there is an understandable, but extremely narrow, focus on national histories of industrialization, thus excluding what has always been a constitutive element of any industrialization path after the initial industrial revolution in England: transboundary flows of hardware, capital, knowledge, people or power. *Secondly*, there is an almost exclusive concentration on the individual achievements of entrepreneurs, engineers and architects in times of peace and industrial progress. Current industrial heritage valorizations only rarely adequately reflect the other side of industrialization phases or patterns, that is, their disquieting stories of war, occupation, other forms of imposed foreign influence, disasters, social unrest and the suffering of individuals or groups triggered by, or leading to, crises, failures, relocations and destruction. Taking these blind spots as its starting point, this paper explores more inclusive ways of representing industrial heritage. Based on the concept of geo-historically entangled processes of transnationalization and case studies from Germany and China, the authors argue that the industrial landscapes reflect both former and current transboundary industrialization processes representing two or more nations' painful and dissonant, but common, heritage. This should be mirrored more appropriately and consistently in industrial heritage tourism approaches and interpretation strategies.

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## Preface

On 5 July 2015, during the 39th session of the UNESCO World Heritage Commission at Bonn, Germany, the legacy of a potentially highly important industrial tourist destination complex was inscribed into the list: 23 sites mirroring the establishment of iron and steel, shipbuilding and coal mining of the Japanese Meiji industrial revolution between 1850 and 1910 (Japan World Heritage Nomination, 2014). They testify to 'what is considered to be the first successful transfer of Western industrialization to a non-Western nation' (<http://whc.unesco.org/en/list/1484>).

Thus, the political, diplomatic and media tug-of-war between Japan, Korea and China preceding the inscription was put to an end by a trade-off: During the preparatory work and, in particular, since the official nomination of the sites in 2014, Korea had formally contested the inscription, contending that the hardships of Korean forced labour at some of the sites during mid-twentieth-century periods of war and annexation should be regarded as a clear reason for exclusion. Immediately prior to the vote, Japan agreed in an official statement to develop interpretation strategies allowing an understanding of 'the full history of each site,' that is, addressing the suffering of a large number of Koreans

and others who were brought to the industrial facilities against their will, and to remember the victims (cf. the adoption of an amendment in the form of a footnote submitted by Germany to paragraph 4g, cf. WHC-15/39.COM/INF.19).

At the same time, the inscription for the first time sheds light at the global level on the fact that both transnational and dark facets mark many industrial sites all over the world, thus setting the scene for the main thrusts of the following paper as well as the necessity to develop appropriate interpretational strategies at such sites.

## Introduction

For more than two centuries, industrialization paths anywhere in the world, with the possible exception of the initial period in England, have been characterized by transboundary patterns of interaction in times of both peace and war. Yet, traditional industrial heritage approaches in Europe, North America and Asia indulge in decidedly national narratives and achievements, thus reproducing what a political geographer denounced two decades ago as the ‘territorial trap’ of international relations theory (Agnew, 1994).

Starting from these apparent blind spots in traditional heritage approaches to industrialization and industries, this paper aims to explore more inclusive and complementary ways of (re)constructing the historical industrial facts. It thereby searches for alternative ways of thinking about and (re)presenting industry, ways that do not exclude the transboundary and/or dark sides of the use of industrial resources, industrialization processes and locational decision-making. In the course of this search, this paper draws heavily on concepts, reasoning and examples from a burgeoning general geography of heritage, for instance, Graham, Ashworth, and Tunbridge (2000), Ashworth, Graham, and Tunbridge (2007) as well as on own earlier work on specifically industrial (heritage) tourism, mainly Li and Soyez (2003, 2006), Soyez (2009a, 2009b, 2013a,b) and Leung and Soyez (2009).

This paper is deliberately focused on conflict- and war-related cases, as these facets of industrial reality are under-researched and under-represented in both domestic and international industrial heritage approaches. Yet, it goes without saying that comparable, let alone less painful but still highly shameful, situations and outcomes can also affect transnationally active industrial companies in times of peace. Such issues are abundantly addressed under the heading of ‘barriers to entry’ in the international economics and economic/industrial geography literatures, that is, highlighting the difficulties resulting from differences in countries of origin and host countries respectively as regards legal systems, bureaucratic behaviour, business routines and, even more crucial, actors’ incapability to cope appropriately with cross-cultural gaps and risks (e.g. Caves, 1971; Hayter, 1981 as well as more recent textbooks such as Coe & Yeung, 2015; Dicken, 2015 or, specifically addressing international business blunders with a number of highly illustrative examples, Ricks, 2006).

Relevant examples will be referred to briefly in the following where deemed convenient. The comparative Sino-German approach will reveal both similarities and differences, and due to these countries’ embeddedness in much wider spatial contexts, this approach enables us to shed new light on both European and Asian issues in the field of heritage appreciation. These perspectives should lead to the emergence – or creation – of new heritage and tourism geographies, potentially offering new directions for landscape potential, land use and economic opportunities.

The line of reasoning is as follows: After this brief introduction, illustrative and particularly painful examples from Europe are presented in order to clarify the issues at stake. This chapter is followed by a discussion of relevant topical and conceptual approaches in social sciences at large, allowing for a better understanding of current shortcomings in industrial heritage realizations. Next, characteristic patterns and phases of China’s industrialization are outlined and the current status of industrial heritage approaches in China is explained and evaluated. A brief conclusion will wind up the paper.

## Clarifying the issues at stake: dark industrial legacies of Germany's third Reich

### *Peenemünde military test site*

In early 1992, a number of respected German institutions (both industrial and public interest R&D associations, such as DLR/*German Air and Space Agency*), as well as governmental representatives, prepared to celebrate an important anniversary for the development of space technology: the first ever launch at Peenemünde on the northeast German Baltic coast in 1942 of a missile to reach space, or more precisely with a potential maximum altitude of approximately 85 km and a horizontal reach of 190 km (for more detailed information, cf. Bode & Kaiser, 2004). Immediately before the planned event, however, international protest and pressure had become so strong that the celebration had to be cancelled (New York Times, Sept. 29, 1992). Obviously, the German organizers had totally underestimated the sensitive feelings that both site and missile touched upon outside Germany, in particular, in Great Britain and many East European countries (see below): Peenemünde was a *military test site* where both the army and air force were developing, constructing and testing the A4 rocket, later baptised V2 (*Vengeance weapon* No. 2) by Nazi propaganda. V2 missiles were mainly launched from locations in the Netherlands and France to attack London and later also Antwerp during the last months of Second World War in 1944/1945. They claimed the lives of thousands of civilians in these cities and, because of their lack of precision, brought random terror and havoc to many parts of the city centres and suburbs. And although the intended celebration at Peenemünde clearly had to be seen against a background of what Ashworth and Hartmann (2005, pp. 259–260) call *apologetic stances* (far removed from the usual strategies typical of perpetrators, i.e. *denial, concealment or blame shift*), this did not soothe the feelings of the victims.

After the devastating British air raid on Peenemünde during the night of 17/18 August 1943, the V2's multi-local production sites were increasingly placed underground, and the main assembly lines were relocated to a former mining site, called *Mittelwerk GmbH*, the factory's code name, close to the town of Nordhausen in the Harz mountains. The V1 production system developed in a similar manner and as of November 1944, the flying bomb's final assembly was also relocated to Mittelwerk's underground facilities (originally, V1's main assembly line was located at the Volkswagen plant at what became the town of Wolfsburg after the war).

While these relocations of the production facilities were going on, a concentration camp was established, called *Mittelbau-Dora*, consisting at the end of the war of more than 40 branch camps. Here, thousands of workers, mainly Prisoners of War and forced labourers, had to live and work in appallingly de-humanized conditions, leading to the death of thousands (for details cf. Mommsen & Grieger, 1996; Wagner, 2001). *Mittelbau-Dora* is now an important site of holocaust remembrance, organized and interpreted by the Buchenwald and Mittelbau-Dora Remembrance Site Foundation, but strangely enough, it is not shown on any European industrial heritage map (for more details, see <http://www.erih.net>; <http://www.dora.de>).

### *Past industrial archipelagos of tragedy and trauma*

European maps are dotted with a disturbing multitude of Holocaust sites, which represent a particularly distressing legacy of the German Third Reich in both Western and Eastern Europe (Graham et al., 2000, p. 71).

Both Death Camps and Concentration Camps were generally combined with so-called 'Work Camps' ('Arbeitslager'), and towards the end of the war, these were split up into hundreds of so-called 'branch' or 'subsidiary camps' ('Außenlager' or 'Nebenlager'), located at or close to industrial production sites (see below). Due to the almost total allied control of Germany's air space as of 1944, most of these sites (and some camps), as shown above, had to be relocated to former underground mines or storage sites, thus being converted into true, if sometimes makeshift, manufacturing sites. Increasingly, but not exclusively, under the control of SS (as was the case at *Mittelwerk*), all these sites

both in Germany and in many countries occupied by German armies, had to bear the brunt of Germany's arms production. Millions of forced labour from more than 20 European countries were cruelly exploited under completely inhuman conditions, often resulting in what German historians qualify as 'death by work' (in German: 'Tod durch Arbeit').

All this corroborates the historical fact, not sufficiently acknowledged in industrial heritage contexts, that our pasts are in foreign countries and their pasts in ours, statements especially but far from exclusively true of Europe and its recognized, potential, concealed or forgotten heritage (Soyez, 2013a).

Thus, these sites constitute a past (industrial) archipelago of transnational trauma and tragedy, not only interconnected by the same historical burden, but also in a clear 'manufacturing' sense: Many of these sites constituted transnationally interlinked elements of complex production chains and networks, particularly obvious in the case of advanced weaponry, such as the mazes of late war aircraft production or the flying bomb V1 and the missile V2 (they can be regarded, from a purely organizational point of view, as early predecessors of the sophisticated global production networks that industrial geography focuses on today, cf. Coe & Yeung, 2015; Dicken, 2015; Hayter & Patchell, 2016). Currently, the identification of the latter group of sites and its readability of arms production systems as a whole for heritage purposes are overshadowed almost to invisibility by the factual impact and emotions called for by the magnitude of losses of lives at these former places of horror.

Thus, Peenemünde and its assembly site *Mittelwerk* only represent a particularly painful, multi-faceted and visible example of sites commemorating wars and war crimes. These evoke highly controversial meanings and memories and lead to what is called in the literature a *contested heritage*.

Likening Europe's industrial landscapes to a *palimpsest*, we only have to scratch the surface to discover a deep, multi-layered history, marked by pervasive processes transcending former and current national boundaries, that is, *transnationalization* (see below), be it by means of ideas, information, knowledge, people, innovations, patents, capital or hardware. Dark memories and (potentially) contested heritages can be traced, providing examples of intrinsic dissonances, today subject to very selective politics of representation all over continental Europe. These politics only rarely expose or more fully explain the sites' histories, and, more often than not, their darker sides remain hidden, concealed, inaccessible or have simply been sanitized (cf. Li & Soyez, 2006, on this aspect of many industrial heritage sites; Foote, 2003 on America's landscapes of violence and tragedy).

While this is particularly true at most sites belonging to corporations that were involved in the arms production during the Third Reich, the most impressive contrasts between dark pasts and bright present mark the most recent developments in Germany's industrial (heritage) tourism destinations: the automotive brand worlds of Volkswagen AG (Autostadt/Wolfsburg), Daimler AG (Mercedes-Benz Museum/Stuttgart), AUDI (Audi Forum/Ingolstadt) or BMW AG (BMW World/Munich). Although their main function is marketing, they undoubtedly represent some of the most comprehensive industrial heritage realizations in Germany (cf. Soyez, 2013b, 2015): The past and the present are celebrated, but these firms' pervasive entanglements in the Third Reich and its arms production systems are mentioned in passing only, not really explained or buried in silence.

In order to find alternative ways of dealing with these deficits, the specific issues of heritage dissonances and existing approaches for dealing with them need to be conceptualized more consistently.

## Terminological and conceptual discussion

The main objective of the following discussion is to draw up a generalized tableau of current social sciences topical and conceptual environments in which industrial heritage approaches are

embedded, thus illustrating the serious deficits and the considerable lagging behind of even its most recent realizations.

### **Facets of transnationalization**

To start with, it must be emphasized that the first key term in this paper's title – transnationalization (and its derivatives) – carries two meanings, the first being descriptive, the second prescriptive: *Transnationalizing heritage* should (1) be a reminder of the fact that most industrial sites, in one way or another, came into being as a result – or under the influence – of processes and actors that transcend national boundaries, and (2) can be understood as an admonition to dissolve national categories in heritage thinking by making industrial heritage sites transnational sites of remembrance wherever appropriate.

It is particularly appropriate to conceptually embed these issues in the field of *transnationalization*. The understanding of the term varies considerably but a widely accepted basis in the international literature comprises pluri- and trans-local social, political, cultural or economic interactions and processes transcending international boundaries. In contrast to many concepts of globalization (not least in the field of economic transactions), the transnational approach also more consistently addresses transboundary flows of systems of symbols and meanings as well as boundary-crossing everyday social practices, trans-local identities, hybridities or discourse spaces that are still *firmly anchored in national states and solidly grounded geographically* (for a thorough discussion of different concepts cf. in particular Jackson, Crang, & Dwyer, 2011; Vertovec, 2009).

The second key term – dark – is understood as specifying events, objects, sites or destinations that are marked by the fact that their controversial history has left at least one party affected with strong feelings of injustice, pain or even trauma, due, for instance, to natural disaster or human-induced oppression, humiliation, violence, atrocities or death.

Taking this as a starting point, the central ideas and suggestions presented here tap into a most valuable body of literature that has recently developed in fields such as *economic, social and urban geography* (Dicken, 2015; Hayter & Patchell, 2016; Krätke, Wildner, & Lanz, 2014; Pacione, 2009; Smith, 2001; Thrift & Kitchin, 2009; Werlen, 1997), the *geography of heritage* (here, in particular, Ashworth et al., 2007; Graham et al., 2000; Macdonald, 2009; Storm, 2014), *dark tourism* in its different manifestations (Ashworth & Hartmann, 2005; Hartmann, 2013; Lennon & Foley, 2006; Logan & Reeves, 2009), transnational social sciences (Faist, Fauser & Reisenauer, 2013; Wimmer & Glick Schiller, 2002) and, finally, history, be it labelled crossed, connected, transfer or entangled history (Budde, Conrad, & Janz, 2006; Conrad, 2016; Olstein, 2015; Osterhammel & Petersson, 2009; Pernau, 2011; Werner & Zimmermann, 2006).

In the current context, we prefer the latter term: *entangled history*. Better than any other of the approaches listed above, it makes clear how transnationally active actors, be they individuals, organizations, institutions or states, are inextricably and inevitably linked to and mutually dependent on one another. Furthermore, a central idea in *entangled history* is that processes of mutual and multi-directional influences, absorption and hybridization are pervasive not only in times of peace, but – and maybe even more so – also in times of colonization and war (Frevort, 2005).

### **Heritagization: from local to global processes of remembrance**

Originally, processes (and concepts) of remembrance were mostly bound to a clearly defined locality, as mirrored by the emblematic *lieu(x) de mémoire* coined by Nora (1984 and later), a concept including, however, also tangible and intangible objects, events or symbols, collectively remembered in a national context.

Since then, François (2006), among others, has advocated strategies for transcending international boundaries by thinking about what are, or could become, European *lieux de mémoire*, the- orizing issues of transnationally *shared, split* (and contested) or *implicit* sites of remembrance (cf.



also François and Schulze, 2001; Jarausch and Lindenberger, 2011, linking such processes in conflictual European settings).

Thus, new transboundary facets have been added to traditionally discussed issues of, for example, identity and place, which can evolve in different directions over time. Particularly impressive shared heritage sites transcending European boundaries include the battlefields of First and Second World Wars, Verdun or Normandy D-day beaches, respectively, today jointly remembered by former enemies in war and their descendants (Petermann, 2007, 2011). The recently re-opened Verdun Memorial explicitly addresses the soldiers of all the countries involved as victims, thus downplaying the traditional antagonism between France (including its allies) and Germany in particular, and becoming an actively shared or quietly accepted implicit site of transnational reconciliation instead of national remembrance (<http://www.centenarynews.com/article/museum-honouring-verduns-fallen-reopens-after-125m-centenary-renovation>).

More specifically in the current context, a typical industrial heritage site in Europe displaying a comparable evolution over time is the 'Park of blast furnace no. 4' at Uckange in France, part of a former iron-producing facility established by German industrialists in annexed Lorraine at the end of the nineteenth century. For decades, it represented 'the other's' legacy, but has now become a transnationally shared tourist destination ([http://www.moselle-tourisme.com/visiter/culture-et-histoire/ficheproduit/F845149153\\_parc-du-haut-fourneau-u4-uckange.html](http://www.moselle-tourisme.com/visiter/culture-et-histoire/ficheproduit/F845149153_parc-du-haut-fourneau-u4-uckange.html)).

An impressive (heritage) fusion resulting from a transboundary, peacetime interaction between Germany and Japan is Yawata Ironworks, constructed at the turn of the nineteenth and twentieth century by the German corporation Gutehoffnungshütte (Oberhausen, Ruhr industrial area) in what is now Kitakyushu/Japan.

On the one hand, recent studies carried out in Germany at the Rhine-Westphalia Economy Archive/RWWA in Cologne testify to the fact mentioned earlier that even peacetime transboundary processes, in this case transnational technology transfer from Germany to Japan, can be marked by highly problematic and dark facets that deserve much broader research efforts (Soyez, 2014). Many details of the Yawata story, now regarded as an unusual, almost hybrid Japanese–German industrial heritage, are clearly acknowledged, valued and highlighted from a Japanese perspective as remarkable assets in the context of the recently awarded World Cultural Heritage status of the Meiji Industrial Revolution.

On the other hand, mid-twentieth-century war-time events at this site have resulted in highly contested dark facets, and the discussions and decisions around it must be regarded as a hitherto unique occurrence in transnational heritage contexts, alluded to in the introductory preface of this paper and potentially serving as an illustrative example of the most recent shift in international trends of remembering (Japan World Heritage Nomination, 2014):

This fundamental turning point (and spatial extension) has taken place with the development of concepts embracing even global or cosmopolitan sites as well as circulations of memory. They are mirrored by terms such as transnational or 'global memoryscape', representing a fusion of heritage and space at a new level, exploring the intersection between public memory and globalization processes by tapping into concepts originally developed by Appadurai (1996), Assmann and Conrad (2010), de Cesari and Rigney (2014) and Phillips and Reyes (2011).

These latter approaches offer rewarding interconnections with geography. Examples of such links include its current multi-scale, conceptions of *place* within unfolding – and (transnationally) *stretched* – geographies of identity and heritage in their historical depths and spatial extensions/ extents, or as Massey puts it (2005, p. 130, but developed as a concept from the early 1990s): an understanding of place as '... open ("a global sense of place") as woven together out of ongoing stories, as a moment within power-geometries, as a particular constellation within wider topographies of space, and as in process, as unfinished business ...'

These approaches offer a wide variety of fruitful research topics where transboundary, pluralized and multi-scale geographies, histories, identities, places, meanings and linkages intersect and are played out, as are their intrinsic dissonances. According to recent research in this field, however,

(industrial) heritage can be redefined as a *contact zone*, that is, as a place ‘where different pasts and experiences are negotiated, a site of mutual translation’ (Peckham, 2003, p. 57), an idea very close to Tunbridge and Ashworth’s (1996) earlier suggestion that contested pasts and addressing their omissions can become ‘a resource in conflict’.

The idea of intrinsic heritage dissonances with the resulting ‘mismatches’ between heritage and people in space and time can serve as an illustrative example (Graham et al., 2000, p. 24, 93). Such mismatches result mainly from the movement – in domestic as well as transnational spaces – of people, borders and spheres of influence (more rarely of the heritage object itself), bringing all parties into touch with others’ heritage and distancing them, at least partially, from their own. If a perspective from a given homeland/nation state is adopted, there are several categories with broad implications for industrial production systems, caused by specific time–space paths in state systems, such as:

- temporary occupation/annexation during, or as a result of, armed conflicts, – negotiated or imposed border shifts (more often than not after a war), – voluntary or forced migration (such as deportation) and, as a special case,
- colonization in its different forms, be it through occupation (see above) or any form of unwelcome (political, economic, social ...) influences on another country,
- de-colonization, that is, the departure of those who held colonial power, followed by the emergence of new elites and new states, possibly also of new borders.

Most of these events/processes represent extremely painful periods in a nation’s and/or individual’s lives and confront people with the depreciation or even the erasure of their traditional heritage, and the construction of a new one as well as a whole gamut of ensuing heritage dissonances, making it difficult, if not impossible, to appreciate, let alone to protect, the *other’s* heritage.

To summarize: The terminological and conceptual tableau drawn up in the foregoing has provided ample evidence for the fact that industrial heritage approaches trapped in national ‘container thinking’, more recently addressed in other social sciences as ‘methodological nationalism’ (Amelina, Nergiz, Faist, & Glick Schiller, 2011; de Cesari & Rigney, 2014; Wimmer & Glick Schiller, 2002), have to be replaced by concepts integrating processes and impacts induced by transboundary interactions in peace and war. As many, but far from all, of these are characterized by a gamut of dark events, periods and experiences, reaching from the unpleasant to the traumatic, they have also to be addressed more consistently, if necessary, in approaches mirroring a plurality of contested or contradictory narratives.

### **Widening the view to Asia**

While this paper’s first part and its findings are empirically based on a wide range of European case studies, a growing documentary basis testifies to the fact that both the thrust and the necessity of addressing transnationalism and darker facets of industrialization processes can be transferred to South and East Asia (cf. af Geijerstam, 2004; Japan World Heritage Nomination, 2014 and the introductory *PREFACE*).

The transfer of this paper’s conceptual thrust to China is, to date, both tentative and explorative, that is, it is not yet based on dedicated field studies (cf., however, Li, 2009). Nevertheless, the current documentary base in China, and in Western literature, is as broad as it is varied: The cases presented in the following are mainly taken from standard academic knowledge, mostly in the fields of economics and economic history, to a lesser extent from industrial geography. Most of the data presented here can also be found in a variety of Asian and Western internet sources, so that methodological triangulation and crosschecking are possible. More intensive field studies are planned in some of the case studies presented in the following.

Starting from the above-mentioned concept of transnationalism, the (re)search focus is on characteristic events, facts and processes in China reflecting pluri- and trans-local social, political, cultural or economic interactions that transcend international boundaries but are still firmly



embedded in nation states. The final selection, however, is mainly based on the following categories with wide-ranging implications for industrial production systems in periods of both peace and war, while being strongly influenced by historical contexts that imposed, enforced or allowed for desired and unwanted transboundary flows of people, hardware and knowledge:

- the transfer of industrial hardware, from single engines to complete industrial facilities ready for use,
- the transfer of knowledge in its most varied forms, but mostly in the form of the education of Chinese citizens abroad or by importing foreign experts
- capital transfer from abroad leading to investments, takeovers and so on.

### **China's modern industrialization from a transnational and dark perspective**

China's modern industrialization, starting from the mid-nineteenth century, was mainly a process triggered or strongly influenced by exogenous factors, as very early Chinese forms of paper, silk or iron production never led to a western-style endogenously fuelled industrial revolution. At the beginning of China's modern industrialization when China was declining and becoming a semi-colonial country in the late Qing Dynasty, two 'paths' of transnationally influenced industrialization intermingled (for a general overview, see, e.g. Spence, 1991, in particular, the chapter 'The Industrial Sector', pp. 325–333 as well as Feuerwerker, 1958): *Firstly*, domestically fuelled catching up processes, triggered by a both real and perceived lagging behind compared to Western countries, and initiated by Chinese bureaucrats such as Li Hongzhang. *Secondly*, industrialization processes started, imposed and often financed, or at least influenced, by foreign colonial powers, actually accompanied by a lot of wars and conflicts with many international implications.

After the establishment of the Peoples' Republic of China (PRC) in 1949, there are still two sub-periods of China's transnationally triggered industrialization with some dark aspects. One is the cold war period with its so-called planned economy dominated by Mao, and the other is after the opening policy triggered by Deng Xiaoping in the late 1970s.

The following three sections will offer some descriptive examples in order to illustrate the kinds of transnationalism or dark sides that are embedded in China's modern industrialization history, though – as underlined earlier – transnationalism is not automatically identical with dark periods. The first section is based on Li Hongzhang's so-called *Yang Wu Yun Dong*, or 'Self-Strengthening Movement' and its transnational industrial establishments. Since they represent national icons of the People's Republic of China, some of these are still well known today and have been controversially discussed in the context of China's industrial heritage. The second section is mainly related to war-time industrial establishments with Japanese and Russian occupation as well as colonial impacts with number of dark facets. These two periods are historically intertwined and considerably influenced the subsequent socialist industrialization. The third section introduces socialist industrialization from 1949 with transnational and dark features in both the cold war period and under the current globalization processes leading to Guangdong's world factory status since the late 1980s. These three sections and paths of industrialization demonstrate clear aspects of regionalization and transnational aspects shaping a wide variety of characteristic industrial landscapes over time in China.

### ***National industrialization characterized by transnationalism and dark sides in the mid-nineteenth and early twentieth century***

The most spectacular elements of Li Hongzhang's Westernization Movement (or *Self-Strengthening Movement*) were (1) the so-called *Machinery Bureaus* of the 1860s: Jiangnan Machine Manufacturer, now Shanghai Jiangnan Shipyard (Group) Co. Ltd., has been relocated from the original site and

partly demolished due to the space requirements of Shanghai EXPO2010, (2) Jinling Machinery Bureau, now Nanjing Chengguang Machinery Factory, now under reconstruction and will be named 1865 creative space and (3) Foochow Arsenal/Mawei Shipyard, now Mawei Shipbuilding Ltd., also in a reconversion process into a museum area. A fourth Bureau at Tianjin no longer exists.

While representing the first national factories in China, their establishment was only possible through reliance on foreign resources (e.g. imported iron ore or pig iron), foreign technology, foreign capital and foreign expertise. The first Machinery Bureau, *Jiangnan Machine Manufacturer* was built in Shanghai in 1865 in order to produce mostly military equipment (firearms, steamboats, artillery). The ironworks consisted of a facility originally located in Hongkou in Shanghai, built with American capital, and further equipped with machinery bought in the United States. China's first steamboat, baptised *Tian Ji* and later renamed *Hui Ji*, was launched here. Only in 1890 were small converters imported from England – and produced China's first batch of steel. Another typical indicator of ongoing transnationalism in this field was the establishment of a 'translation house': Here, future translators of technical books, instructions and so on were trained, and a Technical School, with the Osaka Institute of Technology in Japan serving as a model, was established to train future engineers (Xu & Huang, 1998). In 1938, the whole site was taken over and run by Japanese until 1945. It was later taken over by the Kuomintang – who eventually destroyed most of the facilities when they had to retreat from Shanghai.

The history of *Jinling Machinery Bureau*, also established by Li Hongzhang in 1865 in what is today Nanjing, is very similar. The workshop was designed and built by an English engineer, and some years later, an American born in Scotland became the director. He travelled to Europe, buying machinery in the UK, Germany and Switzerland, which then enabled the factory to produce guns and cannons designed after American and German models. In 1948, Kuomintang moved most of the equipment to Taiwan, leaving nothing but some machines and mostly empty buildings. Production resumed later in what was known as 307 Ordnance Factory, later becoming what is now the Chengguang Group.

Another famous example is the *Foochow (or Mawei) Arsenal* in what is now Fuzhou. It was also built on the orders of Li Hongzhang (together with Zuo Zongtang), then leaders of the Qing government's Self-Strengthening Movement. Production started in 1866 with imported technology, facilities and engineers from Europe, supervised by a French naval officer. Simultaneously, a renowned Naval School was built, mainly using foreign textbooks, courses and management systems. It produced under complete foreign supervision for some years until the 1870s when Chinese supervisors were able to build ships without foreign help. China's first steel warship, the *Pin Yuan*, was constructed here. The Arsenal was almost completely destroyed during the Sino-French War of 1883–1895, but was rebuilt and a few years later became the cradle of China's airplane industry (in the beginning run by Chinese engineers having graduated from MIT in the US). After it had been destroyed and reconstructed several times during the Sino-Japanese War between 1937 and 1945, the Arsenal was taken over by the State in 1949. It got a technological boost from the Osaka Shipyard in Japan after the opening policy, and now cooperates closely with shipyards in the Netherlands and Germany.

The late nineteenth-/early twentieth-century history of two more China's most famous industrial establishments, the *Kailuan Coal Mining* company in Tangshan, Hebei Province, and the *Hanyang Ironworks* in Wuhan, Hubei Province (Feuerwerker 1958; Wang, 2007; Yan, 2007), is very similar from a transnationalism point of view.

### **Industrial establishments in war-time periods from 1895 to 1949**

Dark heritage perspectives are often related to unsettled historical periods. As mentioned above, China's modern industrialization was accompanied by number of wars and colonial-like experiences (Liu, 2013). This pattern can be linked, for example, to:

- the Opium Wars of 1839–1842 and 1856–1860 and their aftermaths (in particular, Treaty of Nanjing, Treaty of Tianjin) with the period of ‘unequal treaties’, treaty ports and so on,
- the Sino-Japanese War in 1895 and the ensuing Treaty of Shimonoseki (giving Japan the privilege of building factories),
- the Yihetuan (Boxer War) and the ensuing military operations of eight Western countries (*Ba Guo Lian Jun*), including Germany, 1900/1901,
- the growing influence of Russia and Japan in northeast China in the second half of the nineteenth century, followed by the occupation of northern Manchuria by Russia and southern Manchuria by Japan,
- the Japanese annexation of northeast China with the establishment of its colony Manchukuo in 1931,
- the Sino-Japanese War of 1937–1945 (also leading to the partial re-location of many industries, in particular of the iron and steel industry, to Szechwan and Yunnan provinces by Kuomintang National government),
- the civil war 1945–1949.

Around the end of the nineteenth century, that is, after the Sino-Japanese War in 1895, Japan became the most influential foreign actor in large parts of China, especially with regard to the further development of industry. Its role continued to increase until the end of Second World War in 1945. Landmark events include the establishment of the Southern Manchuria Railway Co. in 1906. It was particularly important with regard to its role in opening up access to the resources of Northeast China for the development of an important cluster of coal mining and the iron and steel industry, thus preparing this large region to become a resource colony in the decades to come.

Important industry clusters in Northeast China, such as iron and steel works in Anshan and Benxi, coal mining in Fushun and manufacturing industry in Dalian and Shengyang developed fast (Wei, 1982), intensified after the creation of the Japanese puppet state of Manchukuo in 1931. Soon, the whole of northeast China became a raw material supply base for Japan as well as providing a huge market for Japanese manufactured products and a very important military base (Zhao, 2003, pp. 365–371). Haizhou coal mine in Fuxin, Liaoning Province, for instance, is now regarded as one of the chief symbols of China’s industrialization and listed as the first experimental city for the recent policy of reconstructing problem-ridden resource-dependent cities by the State Department of China. This coal mine was run by Japanese interests from 1931 to 1945, heavily relying on Chinese forced labour. In 1951, Fuxin coal mine was listed as one of 156 important industrial projects in the PRC and was modernized with the aid of experts from the Soviet Union – and even a Japanese specialist. Much of the modernized machinery in Haizhou coal mine came from the Soviet Union, [East?] Germany and Czechoslovakia.

The role of Russian and German knowledge and capital transfer was dwarfed by Japanese influences, but was not insignificant. After the Sino-Russian Secret Treaty signed in 1896, for example, the Russians built the 2500 kilometre-long Zhongdong railway in Northeast China connecting Russia and China with three sub-lines in the Harbin junction. There were also a lot of associated factories along the railroad, where Tsarist Russia contended with Japan for supremacy and invaded northeast China. Another similar example is Germany’s colonial industrial development in Qingdao for 17 years since 1898, although the German zone of influence was taken over by Japan in 1914.

Only a few examples could be presented in the foregoing. It is evident, however, that there are very few Chinese industrial establishments dating from the nineteenth and earlier twentieth centuries that do not demonstrate massive transnational influence, very often in several ‘layers’ and interactions between Europe, North America and Asia over time. Moreover, the turmoil of recent Chinese history has meant that most of these industrial establishments, sites and landscapes have experienced a multitude of dark events, many, even though not all, of which are linked to transnational processes.

### ***Socialist industrialization after 1949***

This third pattern mentioned above derives from Deng Xiaoping's open door policy, which created what is now called the 'factory of the world' and represented a more 'normal' industrialization path, that is, heavily influenced by Foreign Direct Investment/FDI by both overseas Chinese and mostly circum-Pacific countries. It is very similar to what has been experienced by many industrial or industrializing countries worldwide, but still with typical elements that can be characterized as dark. For example, the 156 industrial projects, which were planned to develop New China industrialization from 1953 to 1957 with the help of the former Soviet Union and some East European socialist countries, were actually either a failure or could not continue because of the political rupture between China and Russia in 1958. These specific cold war industrial projects, partly established with the help of socialist 'brother countries' in the 1950s, had to be relocated to the so-called 'Third Line' (i.e. interior sites in middle and western China) (Chen, 2003) in the 1960s in order to put them out of reach of military attacks, which were considered possible during the Sino-Russia and Vietnam War. This kind of industrial relocation has been proved a wrong decision because the Third Line industries were economically not efficient at all and had to be closed, stopped, merged or reconstructed in the later market economy period. This caused much emotional and economic hardship and dark memories for the first generation of socialist working-class people, persisting until today (Li & Wang, 2014).

Another example heavily overshadowed by dark facets is related to the period of the so-called 'great leap forward' from 1958 to 1960. Directed by the ultra-left line in the communist party of the time, and today regarded as disastrous, the whole country was engaged in all kinds of iron and steel production in order to exceed that of developed countries like UK and USA. This resulted in the production of substandard products. The specificities connected to this particular path of industrialization and failure constitute a very special example of dark facets in a domestic context, as do many of those pressures, hardships and exploitation patterns that characterize the most recent phase of China's industrialization, that is, the development of the 'factory of the world'. However, while most of the negatively affected people are part of the local workforce, the responsibilities for shortcomings of regulation and organization lie in both the national and international arenas, including not only local and foreign entrepreneurs but, in a less direct way, also international customers. Such implications are well documented, although in an extreme example, by the highly deplorable – and widely discussed – events at Taiwanese Foxconn's Shenzhen factories (series of workers' suicides allegedly caused by work pressure).

Thus, if future industrial heritage preservation strategies are to be aimed at mirroring China's industrial history in all of its most important facets, both its transnational past and its darker sides have to be represented more consciously and more consistently – just as is the case in Europe. For example, most corporations with a Japanese past are state-owned enterprises today, including iron and steel works and coal mines such as the current Benxi Iron and Steel Group. This group was actually established by the Qing government in cooperation with Japanese capitalists in 1905, but this point is not even mentioned on the Group's current website (<http://www.bxsteel.com/dongshizhang.jsp>) for the image of nationalism narrative. The following chapter contains a further discussion of the extent to which the darker facets of China's industrialization are represented at heritage sites today.

### **Industrial heritage preservation in China: current status – future enrichment**

To date, there are hardly any consistent attempts to formally protect industrial heritage in China, and it was only at the Wuxi Forum on Industrial Heritage held in 2006 that the importance of preserving this part of China's history was acknowledged for the first time by high-ranking government officials. The main reason, of course, is that most citizens, decision-makers and institutions in China are pre-occupied with rapid development and modernization. Furthermore, the predominant view is that

any remnant from China's industrialization phases, in particular those of the twentieth century and especially from the post-1978 period, are too 'young' to have any heritage value.

However, there are a few exceptions: the third National Heritage Survey of 2007 lists, for the first time, 11 industrial heritage sites, including a selection of buildings in Dasheng cotton mill in Nantong, Qingdao brewery and Shilongba hydro-electricity plant in Kunming. Furthermore, at both provincial and local levels, awareness of the specific character and potential value of old industrial remnants is clearly growing. This is also attested to by the fact that preservation issues and strategies are now being discussed at all of the historic industrial sites mentioned in the previous chapter, and plans to develop both Kailuan and Haizhou coal mines into National Mining Parks have already been made.

A critical perspective on current industrial heritage valorizations and inventories in China, however, reveals some characteristics very similar to the situation in Europe, thus confirming the main introductory theses: (1) As this paper illustrates, most officially or informally acknowledged industrial heritage sites in China testify to a decidedly transnational history of industrialization. However, almost without exception, all of these sites are embedded in distinctly national narratives, and some of them have even become national symbols; the transnational implications of their origin, function, development, destruction and reconstruction are almost never addressed explicitly, let alone emphasized as constitutive of their existence and their (potential) value. (2) Due to China's turbulent history since the start of industrialization, and because the industrialization process itself is constitutive of many of these historic turbulences and disruptions, a multitude of dark events and memories are linked with most industrial sites. Many of these are rarely addressed, mostly just ignored, sometimes consciously hidden or intentionally erased.

As was stressed above, all of these comments are also true for the current industrial heritage situation in Western countries, especially with regard to its transnational and dark implications. However, there are two aspects, that are currently very different in China, and which from a Western point of view lead to considerable problems in the process of valorizing existing potential: (1) There seems to be a largely undisputed policy of 'empty factories' (cf. Liu, 2009), that is, the heritage concept is only or mainly focused on the chief industrial architectural remnants of industry, their 'outer shell' so to say, while other tangibles and intangibles of former production facilities and systems attract hardly any attention; and, (2) any re-use strategy seems to be under the absolute imperative of profitability, resulting in the use of former industrial buildings as sites for cultural industries or their conversion into 'bar and restaurant streets' in most cases, just as has happened with Factory 798 in Beijing. In other words, neither the integrity nor the authenticity of the former industrial site nor its intrinsic industrial value is appreciated in the way that has become characteristic for most European and North American contexts.

## Conclusions

Industrialization processes all over the world, and in particular in China, can only be understood in the context of innumerable transboundary flows of machines, people, capital, ideas, innovations and so on, not only in periods of peace, but also, and sometimes even more so, in periods of war. An appropriate way of conceptualizing both these processes and their spatial impacts is the perspective of transnationalism, which highlights the boundary-transcending criss-crossing of movements, on the one hand, and the sedimentation of material layers over time, on the other, while mapping and trying to understand the seemingly inextricable (transnational) entanglement of all actors involved. Any attempt at appropriately mirroring this reality in the selection and interpretation of industrial heritage is incomplete if neither the transnational fact itself nor the darker sides of industrialization processes in both unruly and peaceful times are addressed.

Against this backdrop, we recommend the adoption of a perspective of *entangled industrial (heritage) geographies* in order to chart these still largely unknown territories both in Europe and in China, while pursuing two main objectives: (1) to explore more appropriate ways of representing

and interpreting past industrial worlds and production systems, including their transnational and dark implications, and, (2) to valorize this past in ways that allow for multiple narratives, transcending the national and not covering up but using existing intrinsic dissonances as a resource to capitalize on, with regard to culture, education, identities and the economy.

In the long run, the adoption of consistent strategies aimed at valorizing authenticity and intrinsic values could even become a much better – and more profitable – use of the existing cultural capital of former industrial sites, especially with regard to appropriate city (and regional) marketing strategies and a burgeoning domestic and international heritage tourism as well. These strategies could potentially lead to the development of transnational sites of remembrance, either shared or split but still common, pluralizing our pasts and making them understandable in increasingly transnationalizing multicultural societies.

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