Industrial Archaeology as Historical Archaeology and Cultural Anthropology

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This article aims to analyse some of the issues and recent evolutions in the definition and theorisation of industrial archaeology. The chronological boundaries of the field are first of all analysed to demonstrate that it is difficult to restrict the scope of industrial archaeology to the Industrial Revolution. The second aim of this paper is to examine the thematic boundaries of industrial archaeology using recent publications in historical archaeology. The importance of a multidisciplinary approach to the study of industrial archaeology using a variety of subjects, approaches and methods is stressed. The final aim of this paper is to define industrial archaeology as cultural anthropology, concerned with studying and explaining people at work in different settings. These ideas are illustrated using a number of case studies from Europe and Africa.

Introduction

In the 19th and early 20th century, industrial archaeology interested only scattered individuals, mostly amateur historians. In the past forty years, this subject has, in Europe and North America, grown to become a sub-discipline of archaeology with coordinated movements and policies for documenting, recording, and listing industrial archaeology. Public interest in the subject has been raised and an increasing number of books on the subject have been published (e.g. Bergeron and Maiullari-Pontois 2000; Cossons 2000; Palmer and Neaverson 1998).

Since the first book on industrial archaeology was published in England in 1963 by Kenneth Hudson, industrial archaeologists have "argued endlessly over the definition and proper field of inquiry of the subject" (Clark 1987, 169; Raistrick 1972). The term 'industrial archaeology' is the main source of disagreement. It is believed that the expression first appeared in 1896 in an article entitled "Archaeologia Industrial Portuguesa os Moinhos" by Da Sousa Viterbo in the Portuguese journal *0 Archeologo Portugues.* It was then popularised in the English speaking world by Michael Rix who used the term for the first time in 1955 in an article entitled "Industrial Archaeology" in the journal *The Amateur Historian.*

Raistrick calls this phrase a 'hybrid'. It was accepted by default and has continued to be used because "in spite of some criticisms, the appearance of an extensive literature and the involvement of large numbers of interested workers in the suggested new subject prevented any serious attempt being made to find a more logical or rational name. Thus industrial archaeology has been accepted and has passed into the everyday language of the country" (Raistrick 1972, 1). The term 'industrial archaeology' is mainly used in English-speaking countries. The term '*patrimoine industriel'* (industrial heritage) seems, for instance, to be preferred in France (see Bellhoste and Smith 1997; de Roux *et al.* 2000).

Michael Rix highlights the contradiction in terms: "archaeology is ancient and indus-

try is modern" (Rix 1967, 5). He insists that industry belongs to the past since some of its components serve as museum exhibits: "Within living memory the motor car, radio and aeroplane have been invented. Yet the 'Tin Lizzy', the crystal set and the biplane are already so out of date as to be museum exhibits... Whatever name may be attached to it, the message of industrial archaeology is still valid and urgent" (ibid. 1967, 5). For Rix, the name given to the field is not so important as its 'message' and content i.e. recording, documenting and preserving industrial monuments. This article will follow Rix's viewpoint; it will not question the denomination of the subject but will focus on critically analysing its meaning.

Is there a need for another article on the definition and theorization of industrial archaeology? As stressed by Grant, there is still a need for providing a theoretical basis for the subject: "Industrial archaeology has neglected almost all theory in some kind of mistaken belief that it could approach the material remains of industrial society with no particular methodological or explanatory framework" (Grant 1987, 118). It has to be recognized that some progress has since been made with publications such as those by Palmer and Neaverson (1998). This article hopes to give new insights in some of the issues in the theorization of industrial heritage and nourish the debate. Since the subject is somewhat vast, some aspects of the definition will, intentionally or unintentionally, be omitted.

The first part will analyse the need for precise chronological boundaries and study the relations between industrial archaeology and the Industrial Revolution. It aims to prove that industrial heritage cannot be confined to the Industrial Revolution but should be concerned with industrial monuments and landscapes from any period. The second part will analyse the need for thematic boundaries and highlight the importance of a multidisciplinary approach to the subject. The third part will seek to demonstrate that the main aspect of industrial archaeology should be the study and explanation of people at work in different settings.

Industrial Archaeology and the Industrial Revolution

Industrial archaeology, at least in Great Britain, focuses primarily on studying, recording, and preserving the remains of the Industrial Revolution, which was a unique and large-scale phenomenon (Trinder 1982, 350). A vast number of industrial sites that need to be recorded and documented date from this period, especially in Britain, birthplace of the Industrial Revolution. In this section it is intended to demonstrate that the dichotomy between Industrial Revolution and non-Industrial Revolution dissolves when studied and that it is difficult to restrict the scope of industrial archaeology to the Industrial Revolution.

How can the Industrial Revolution be defined? It can be broadly explained as a process that fundamentally transformed society and its economic organisation during the 18th and 19th centuries. Humans and animals, the traditional sources of power in the production process were replaced by water, then later by steam power, gas and electricity. The Industrial Revolution also transformed the way men and women worked by increasing specialization, coordination and the rate of production (Steam 1993, 5). One of the first evolutions was the transformation of the manufacture of cotton into a factory system with the introduction in 1771 by Richard Arkwright, of the first wa-

ter-powered spinning machine at Cromford (Derbyshire); "It twisted and wound threads by means of flyers and bobbins operating continuously" (Steam 1993, 23). Arkwright can be described as the father of the factory system, which came to dominate the manufacturing economy not only in Britain but also over much of the world for most of the next two centuries.

The Industrial Revolution can be broadly defined but it seems difficult to delimit this period precisely. As stressed by Hudson, some theorists "distinguish between the first and second stages of the Industrial Revolution, the first beginning in the 16th century and characterised by the increased use of coal and iron and by the increasing concentration of workers, first into workshops and then into factories and the second, the period of electricity, scientific method and man-made materials, which began about 1850 and is still in progress" (Hudson l963, 18).

To understand the Industrial Revolution and its remains it is necessary to grasp the significant changes that gave birth to it. To fully comprehend the factory system introduced by Arkwright, for instance, one has to study the 17th century Italian silk spinning area of Lombardy. The machines used in Italy were introduced into Derby in 1721 by Thomas and John Lombe in one of the first large-scale factories they developed. "The Lombes' factory in Derby was of unprecedented size, the throwing mill alone being five storeys high and 110 ft long and accommodating over 300 workers" (Cossons 1993, 186). Where should we start the Industrial Revolution: with the silk spinning mills of Italy or the Derby silk mills? Both should be considered more as precursors than as points of departure (Cleere 1998). Finding a precise end to the Industrial Revolution is also problematic, since many industrial forms spread gradually. Finally, the definition of the Industrial Revolution as a radical transformation of society does not stand up to a precise analysis. The England of the 1850s, for instance, still numbered as many craft as factory workers and as many urban as rural people (Steam 1993, 8).

These problems show how difficult it is to precisely define the Industrial Revolution. Some theorists do not restrict the scope of industrial archaeology to the Industrial Revolution. Buchanan (1981, 106) and Raistrick (1972, 4) stress that industrial archaeology should be concerned with industrial monuments from any period, ranging from Neolithic flint mines to Roman structures or 20th century blast-furnaces. When industrial archaeology is not restricted to the Industrial Revolution, "it becomes much easier to see industrial archaeology as the investigation of the whole history of industry through the ages" (Raistrick 1972, 10).

For Bergeron, industrial archaeology is concerned with continuous processes slowly transforming technologies and the economic organisation of society rather than revolutions and ruptures (1996, 550). Focusing on ruptures rather than on continuities leads to an emphasis on exceptional and 'first' buildings; the 'first' iron bridge for instance. Industrial archaeology is still a young and under-researched subject and it seems unwise to proclaim that any monument was the first of its kind as this can be historically inaccurate (Linsley 1980, 201). At least one iron bridge, located in Kirklees (Yorkshire) and built in the early 1770s, preceded Shropshire's famous 'first' "Ironbridge" built in fact in 1779.

Having explained the problems of restricting the chronological boundaries of industrial archaeology to the Industrial Revolution, this paper will now analyse the issues surrounding the delimitation of thematic boundaries.

Industrial Archaeology, a Multidisciplinary Subject

Dissatisfied with a definition of industrial archaeology limited to studying and recording the remains of the Industrial Revolution, some theorists have seriously questioned the place and role of the industrial archaeologist. Daumas (1980, 428) and Raistrick (1972, 8), for instance, seem to be convinced that the industrial archaeologist should offer and add something that will extend and enrich what is already done in other disciplines. This can be achieved by using as many sources of evidence as possible, contributions from a wide range of subjects (Clark 1987, 178) and a "variety of perspectives" (Funari *et al.* 1999, 8). This method has, however, only been marginally adopted. Industrial archaeology books often solely explain the historical and technical importance of the site using written records and excluding other aspects and sources of evidence (e.g. Cossons 1993).

Conversely, the study of the Ugandan salt production site of Kibiro, for instance, uses a wide variety of materials and methods to provide an in-depth and comprehensive explanation of the site from a social, economic, historical, and technological point of view (Connah 1996). The methods include the use of documentary records and ethnoarchaeological observations, together with the study of material remains and of the spatial and physical environment. Ethnoarchaeology has been used to explain the present use of the site. The salt of Kibiro is produced in a sustainable manner from scraping and leaching saline soil. Dry soil is spread on the surface of damp salt-bearing deposits. The action of the sun draws up the salty moisture which is absorbed by the dry soil and then evaporated by the sun, gradually increasing the salt content of this first layer of soil. This soil with a high salt content is then scraped and leached. "Finally the brine collected by leaching the salty soil must be boiled until the water is evaporated" (Connah 1996, 49). The study of the material remains has helped to establish a history and chronology of the salt production and to show that "people have been living at Kibiro and making salt there since early in the past millennium" (Connah 1996, 214). The documentary records have helped to establish socio-cultural comparisons with similar sites in Africa so as to highlight the originality of Kibiro. The method used there has been recorded in other parts of Africa, such as in Awe (Nigeria). The originality of Kibiro is that the dried soil, after being leached, is used over and over again.

The definition of industrial archaeology as a multidisciplinary subject using a variety of perspectives and sources has helped in the past 10 years to re-examine contested concepts such as capitalism or colonialism. The report written by Coulls on railways of outstanding universal value, for instance, insists on the importance of railways in the spread of European imperialism during the 18th century (Coulls 1999). Railway building and imperialism were, quite simply, interdependent. Railways often transformed the way in which an imperial power exploited the resources of a colony (ibid, 3). Railways provided access to regions difficult to reach by other means of transport and were a way of transporting goods and natural resources more rapidly, easily and in greater quantity. Railways were also strategically important to control regions of

the world that escaped European domination, such as the Ottoman Empire. Some railway companies in these regions were owned by European companies, such as the Berlin-Constantinople line to Baghdad (Lee 1998). This example demonstrates the importance of taking into consideration non-Western agents within industrial archaeology. This is a challenging work since a number of industrial archaeological publications still adopt a eurocentric point of view. Eurocentrism places Europe or European nations at the centre of the world (Orser 1996, 66). Focusing on the Industrial Revolution highlights the history of European societies at the expense of the rest of the world. This stresses the opposition between advanced and primitive societies and helps to construct a nation's identity, as illustrated by the following: "The monuments built during the Industrial Revolution represent the achievement of a completely new epoch when Britain, for a brief period of perhaps five generations, held the centre of the world stage as the first industrial nation, birthplace of the Industrial Revolution" (Cossons 1993, 10). Conversely, using different perspectives helps to integrate non-European elements and to develop a critical analysis of the imperialism fostered by the Industrial Revolution.

Industrial Archaeology as Cultural Anthropology

Industrial archaeology has also been criticised for concentrating primarily on the history of technologies and on the lives of great engineers or factory owners such as Telford or Arkwright without explaining the important role of manual workers (Palmer and Neaverson 1998, 6). The study of the human and social impact of the site and the effect of industrialisation on the lives of people around have often been omitted (ibid, 3). The definition of industrial archaeology given in the *Blackwell Encyclopaedia of Industrial Archaeology,* for instance, does not mention any social dimension. Industrial archaeology:

> *"encompasses the adaptive re-use of industrial buildings, the presentation of manufactured artefacts in museums, the operation of preserved railways, administrative procedures for the conservation of ancient buildings and aspects of the study of economy and history and the history of technologies. Industrial archaeology is also a systematised means of utilising structures and artefacts in enlarging our understanding of the industrial past, a branch of the discipline which has been defined as 'being concerned with the recovery, systematic description and study of material culture in the past (Clark 1978)'"* (Trinder 1982, 350).

Michael Rix's pioneering article stressed the importance of the social angle: "But at whatever level it is treated and from whatever viewpoint it is examined, the Industrial Archaeology as a human achievement must not be overlooked. Behind all its aspects are the people, the inventors, the mills owners, the engineers, the factory hands, and they must always be borne in mind" (Rix 1967, 20). Raistrick (1972, 12) echoed him by explaining that industrial archaeology must achieve "a view of man at work in varying tasks and surroundings".

Recent initiatives have highlighted the importance of the social and human aspect of industrial archaeology. The European Commission's Raphael Programme has supported the innovative collaboration by museums in four different countries (the

Landschaftsverband Rheinland Rheinisches Industriemuseum in Solingen, (Germany), the Ecomuseum Municipal do Seixal, (Portugal), the Museu del Suro de Palafrugell (Spain) and the Ecomuseum Bergslagen (Sweden) on the publication: *Cork, People are the Real History* (Centre d'Estudie i Defusio del Patrimoni Industrial 2000). It aims to record the workers' skills and vocabulary that are disappearing. It displays photographs of the diverse steps in the making of corks for bottles, from its collection as a raw material to its modeling into cylindrical form and also in the making of other products such as cigarette filters from cork paper.

Another recent study of our industrial past from a social point of view has been attempted through a series of publications entitled: *Social Approaches to an Industrial Past* (Knapp *et al.* 1998); the first in the series being devoted to mines and mining communities. It aims to analyse the social, cultural, spatial, and ideological dimensions of mining and mining communities using written sources, material culture, and ethnoarchaeological records of various cultures from around the world (Childs 1989; Killick 1998; Knapp *et al.* 1998, 1). The authors start by explaining the reasons why such a comprehensive and multidisciplinary study of mining and mining communities has up to now failed: "In the most general terms archaeologists and archaeometallurgists tend to focus on the history and technology of mining, on metallurgical technology and on the mining process overall" (Knapp *et al.* 1998, 1). Yet, they omit the social dimension. By contrast, ethnographers analyse the lives of miners and their environments without taking into account the machinery. This book aims to overcome this problem by integrating the two aspects in order to achieve a dynamic and holistic analysis of the industrial past. The method used has been to bring together theorists from diverse fields: "historical archaeologists, social historians, archaeometallurgists, and anthropologists... to consider themes of common interest... and to explain the various social aspects of mining, especially mining communities" (ibid, 3).

Palmer and Neaverson (1998) have also addressed these issues and have tried to explain the social, spatial, and ideological aspects of the lives of manual workers, the working conditions, and the relations between the workforce and the factory owners by studying all aspects of the building and the machines. Employees in the Derby Silk Mill built in 1721 by John and Thomas Lombe, for instance, had to work in a controlled and confined space dictated by the location of the machines in horizontal lines and the narrow width of the building to allow maximum light. "The workers no longer had the power to dictate their own working conditions" (Palmer and Neaverson 1998, 7). This spatial organisation made surveillance easier. By analysing the relationship between the workers and their environment, they deconstruct the system of surveillance and imprisonment that prevailed in textile factories and in community towns such as New Lanark (Strathclyde, Scotland) or Styal (Cheshire, England). They deconstruct the myth that community towns were built purely for the healthy development and well-being of the workers (ibid, 64).

The social, ideological, and spatial aspects of the workers' lives cannot be fully understood without analysing the industrial landscape surrounding the industrial site or building. As stressed by Ashmore and Knapp (1999, 229), the industrial landscape has been shaped by people's routines and processes, by their morals, and their be-

liefs. A number of recent publications have recently focused on the importance of cultural landscapes (e.g. Ashmore and Knapp 1999; Bender 1993; von Droste *et al*. 1995). In 1992 UNESCO defined three categories of cultural landscape. First come the 'clearly defined' landscapes which have been created intentionally (e.g. the gardens of Versailles in France or Blenheim Palace in England). Next are the 'organically evolved' landscapes which "began as particular socio-economic, administrative, or religious initiatives and evolved subsequently in association with and response to the natural environment" (Cleere 1995, 65). The most famous example is surely the rice terraces of the Philippine Cordilleras. Finally the 'associative cultural landscapes' which are linked with cultural traditions or religious symbolism and beliefs. Uluru-Kata Tjuta National Park (Australia), which has strong powerful religious and cultural associations for the Anangu Aboriginal people can be considered as an associative cultural landscape. Most industrial landscapes fall into the category of 'organically evolved landscapes', including the iron-making and coal-mining area of Blaenavon (South Wales), which was inscribed in December 2000 on the World Heritage List. The landscape tells the story of the long-term evolution of technologies through the studies of archaeological remains. It also gives a comprehensive explanation of the production of iron. Coal, iron ores, and limestone were exploited from 1782 around the ironworks. The intricate system of tramways, railways, canals, and warehouses used to transport these raw materials gives an illustrated explanation of the interrelation between man and its landscape and the work of the manual workers, "with all its suffering and stoicism" (Torfaen County Borough Council 1999, 33).

Conclusion

From being a young subject dedicated in the 1960s and 1970s to the study and recording of the remains of the Industrial Revolution, industrial archaeology is evolving to become a complex topic which aims to explain humans at work in different settings and environments. It is also tackling challenging, even controversial, subjects such as colonialism and imperialism, power and identity and gender history.

It has to be admitted that in many places industrial archaeology is still under-studied, under-documented and under-protected. It "has not yet reached a sufficient level of recognition for individual objects, sites or landscapes" (ICOMOS 2000, 4). Industrial archaeological sites are not yet valued as highly as more ancient monuments, as proved by the poor condition of some industrial sites of outstanding value such as the copper mines of Tonglushan (China). The recent publications and the rise in public interest might change this situation.

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