International Conference of Industrial Heritage (Day 1)
10:00 a.m. – 6:00 p.m., Monday, July 14, 2014
Hotel Okura Tokyo

(Moderator) Thank you very much for waiting. We would like now to begin the International Conference of Industrial Heritage. First, I would like to call upon President of National Congress of Industrial Heritage, Mr. Jujiro Yagi to declare the opening of the International Conference of Industrial Heritage.

Opening Ceremony

(Yagi) I now declare open the International Conference of Industrial Heritage. Through active and candid presentations and discussion of all who are participating in this conference, I do hope that this conference will contribute to the management and conservation of world industrial heritage.

(Moderator) Thank you very much. Now I would now like to introduce myself. I will serve as the master of ceremonies, Noriko Takahashi. Now, representing the Government of Japan, I would like to call upon the Minister of Regional Revitalization, Yoshitaka Shindo, to give us an opening statement.

(Shindo) Good morning ladies and gentlemen. Thank you for your introduction. I am in charge of revitalization of the regions, and this ministry is overseeing this industrial heritage. My name is Yoshitaka Shindo. I am so happy to see that this conference is being held with such a great turnout. I hope that this conference would be a real national congress.

And I would like to take this opportunity to pay respect for all the people who have been working very hard on this, and also, Mr. Patrick Martin, the Head of the International Committee for the conservation of the industrial heritage. And also, I would like to pay a great respect to Lord Neil Cossons, the former English heritage. Thank you very much for coming and enjoying with us.

At the beginning of July, I visited the UK, Holland, Czech, Turkey, and Israel. I have been visiting the series of the countries there. As a minister of the Internal Affairs and Communications, I have been visiting these countries for the matter of communications and broadcasting. But at first, I visited Liverpool and then I took a train from Liverpool to Manchester. The railroad utilized a steam engine for the first time in the world. And also, I visited the world's first wet dock. I was very much impressed with the origin of the industrial revolution and also the reliability and also greatness of the United Kingdom that produced all of this wonderful heritage. In the Czech Republic, I also visited the great sites of history.

In Turkey and in Israel, the 2000 years old site is normal. And, when they call old, it is 3000 year old culture. And after that I visited Turkey. I was very much taken. The Hittite to Hellenism that they went through a series of civilizations; the Byzantine, and Ottoman. Turkey is relatively new. So, 3000 year old, 4000 year olds are old there.

Currently, Japanese excavations teams are currently working there and they discovered the ironware and trying to prove that ironware existed 4000 years ago. At this moment, in Turkey, 10,000 years ago,

they already had cities and they are planning to prove that. Each city had their own industry, their own culture, and that is why, people gathered there.

The wonderful history of human beings was discovered all of these works. It is wonderful to see the great evolution of the human beings and also civilization. I pay a great respect to the cities and also the countries that had these origins. Not just that, but also great potential of these countries.

Now, we are recommending the series of sites in the Japan's Meiji Industrial Revolution. Japan, as a first non-western country, went through the industrial revolution. We are appealing to the world that we have a great value of our industrial heritage. At the same time we have a great potential in the area of industry. This is really the remnant of what we have achieved in the past. First of all, we must demonstrate this to the Japanese Nation, and at the same time, we will talk to the worldwide audience, and that really contribute to the reliability of Japan. And I think the meaning of the industrial heritage is that. I must really reinforce our energy into the recommendation of this industrial heritage.

I am so happy to see so many people who joined us here to open this conference. Hopefully we will be putting more effort in recommending these series of sites. We will ask you to continuously support us. There are many private companies who have been supporting us. As the Government of Japan, I would like to say that these sites are really representing the nature and also the culture of Japanese people and also Japan. With cooperation with you all here in this room that hope to achieve great nominations. And I am sure that this conference will be a great success. I really would like to say thank you for joining us again.

(Moderator) Minister Shindo, thank you so much. Representing the co-organizer of this national conference, I would like to call upon the Chairman of the National Congress of Industrial Heritage, Mr. Takashi Imai, to give us an opening statement.

(Imai) Thank you very much for the kind introduction. I am Imai. I would like to congratulate everyone on the opening of this international conference where we receive prestigious experts from different countries to share with us their knowledge on industrial heritage. In June, in Qatar, the World Heritage Committee Session was held to inscribe the Tomioka Silk Mill and related sites. I would like to take this moment to express your support for the inscription of Tomioka Silk Mill.

For the next session of the World Heritage Committee to be held in Germany, we, Japan have nominated the modern industrial heritage site in Kyushu and Yamaguchi for inscription. It is desirable for us to hand down the footsteps of our industry to future generations. Therefore, I would like to express my heartfelt gratitude and pay respect to the effort made towards preserving industrial heritage.

There is no need to say that Japan is an industrial nation. Foreigners in the Meiji period began Asia's very first industrial revolution in the late 19th century to the beginning of the 20th century laying the ground of industrialization of Japan. This project demonstrates the process of key industries in Japan's Meiji period, mainly heavy industry, that were built and served as the basis for our current industrialization. Along with all of the people who are gathered here today, I too want to support the nomination of the Japanese Government to inscribe Japan's modern industrial sites.

Japan's industrialization began 100 years after James Watt's invention of the steam engine. The US East India fleets arrived in Uraga, that arouse a sense of crisis in Japan, and the need to protect our

coasts. To fight off Commodore Perry's 'Black Ships', the then Shogunate of Japan set up a navy, English language school, and steel mill in Nagasaki as well as marine engine repair factories in Uraga and Yokosuka. Amidst the blessing of peace, Japan was so far lagging behind in terms of its science and technological development, but in late in Edo period, feudal clans began building reverberatory furnaces in order to forge powerful cannons. But then, they only failed.

From the isolated Japan, young men from Chōshū and Satsuma clans broke the national ban and sailed off to the British Empire. They had the aspiration to modernize Japan. When they returned back to Japan, they became key players to realize the Meiji restoration in their pursuit of building the industrialized nation here in Japan. Thus, they laid the foundation of today's Japanese economy. I did spend much of my career in the steel industry. Now, this industry in 1858 succeeded in introducing the charcoal blast furnace in Kamaishi for the very first time in the deep mountains of the Tohoku district. While, in the United States, the era of steel prosperity was about to begin. Later on, in the leadership of Meiji government, the government-run Kamaishi steel mill invited British engineers to attempt to make steel, but to no avail. Eventually, this mill was sold to a private person, Chobe Tanaka in 1894. Now, the Tanaka Steel Mill in Kamaishi, after 48 failed attempts, finally succeeded in producing pig iron for the 49th time in 1894. Then, it later developed into Nippon Steel and Sumitomo Metal.

Steel is really the mother of our industry and the foundation of modernization. Fifty years after the end of Edo period, one of the young men who sailed off to Great Britain helped build the Yawata Mill and Chikuho coalmine which is integrated iron and steel plan.

Japan's industrialization would have never been possible without predecessors' painful efforts and series of challenges. Meiji philosopher Yukichi Fukuzawa stated that iron is really the lump of civilization. The steel-making history of Japan is really the story of Japan's modernization and its history. Now, 100 years past, the repaired plants built of steel reinforced frames with the German GHH logo engraved on top that is still up and running. For this amazing fact, I can only feel thankful and grateful.

For ship-building, one of the nominated sites is the Mitsubishi Heavy Industries Nagasaki Shipyard. That has now been nominated. It is still in operation. It is not a degrading property. Before the arrival of 'Black Ships', feudal domains could only make, say, 500 single-masted sail vessels, maybe 1000 at most. There was a complete lack of naval power back then. But, near 40 years later, Japan built Lloyd's Register Joyo-maru, an international class vessel of 6000 tons. When Mitsubishi Third Dock was opened, Nagasaki Shipyard became the largest in the Orient.

Besides steelmaking, what is critical for industrial revolution is the steam engine and coal to ensure an electricity supply. Mitsubishi in Takashima and its neighboring island, Gunkanjima island in Miike operated by Mitsui introduced the cutting-edge machinery in the Meiji period from the western world to perfect modern mining and distribution systems. Today, all the coal mines are closed, but in 1908 the port was opened. Later, at this port area, a coal-chemical industry complex emerged. It is still in operation and is still contributing to Japan's current industries. All of these properties are living that we try to inscribe as World Heritage. We support the inscription as they will preserve the footsteps of our forerunners' efforts to modernize Japan. It would also be a new hope for us to try to build the future of Japan.

Today we are honored to have many experts from different countries across the world to share our knowledge on conservation of industrial heritage. I am very, very grateful to have this opportunity. Therefore, I believe that this international conference is very significant and important. I would like to ask for your cooperation. With this, I would like to close my briefing. Thank you.

(Moderator) Thank you very much. Now, let us invite one of the organizing agencies and the head of the cultural affairs and commissioner of the cultural affairs, Mr. Aoyagi, please.

(Aoyagi) Before I begin, let me congratulate the opening of the International Conference of Industrial Heritage attended by a large number of guests both from Japan and overseas. I also would like to pay respect to the participants who have been working actively on the conservation and the utilization of cultural assets.

The Tomioka Silk Mill was registered as World Heritage at the last month's UNESCO World Heritage Committee held at Doha, Qatar. This is the 18th World Heritage in Japan and the 14th as cultural heritage site. As an industrial heritage, it is the second after Iwami Silver Mine inscribed in 2007. The global strategy adopted by the UNESCO World Heritage Committee in 1994 stipulated active protection of industrial heritage. Four years before that, the cultural affairs agency started its research on modernization heritage and added its project of modern ruins in 1996, with local autonomies and municipalities working on conservation activities by designating and also registration of the sites.

As President Imai said, especially in Europe, France, and the United States, the industrial revolutions started in 1800s and in Japan, 1867 is the full-fledged starting of the modern industrial revolution. A little over 10 years ago, Admiral Perry visited Japan. His letter to the government of United States said that we brought the steam engine boat, then that will overwhelm Japanese people, so they will approve whatever we request to. So, in original, over five steam engine warships were planned to use. However, only two of the boats were steam engines. As Admiral Perry expected, the Japanese nations were really appalled by the advancement of the technology and the science in the western world. Also, the Japanese had to open up the port for the whale industry for the western countries.

Since that time, during the Meiji Era, Japan started taking in all the knowledge that had been accumulated in Europe over 100 years. The young UK engineer Dr. Henry Dyer wrote in his letter saying that the University of Tokyo (there was only one university in Japan, so he wrote '*the* university'), and after that, the University of Kyoto was created. At that time, that university became University of Tokyo. That university started the engineering department.

In Europe, there is no engineering department. Most of them were polytechnic departments. So, Dr. Dyer came to Japan, and after that he went back to Europe saying that there is an engineering department in the university in Japan and they are bringing up the specialists at the university level. And he warned that we should be careful of the advancement of the science and technology in Japan. Around the time, Japan put so much energy into the modernization. And at the time of visit of Admiral Perry, right after the beginning of the Meiji era, Japanese built steam engine boats. It is tremendously rare for a nation to build up science and technology knowledge so quickly, and that really proves the industrial heritage of this time. And I hope that in this conference that many people will

rediscover some of the facts of the importance of the cultural and also industrial heritage. The Cultural Affairs Agency will do its best to support the inscription of this project to the world industrial heritage.

(Moderator) Thank you very much, Mr. Aoyagi. Representing co-organizer, I would like to call upon the coordinator of the Kyushu-Yamaguchi Consortium, the Governor of Kagoshima Prefecture, Mr. Yuichiro Ito to give us an opening remark as well. Coordinator of the consortium, Mr. Ito, please.

(Ito) Thank you for the introduction, the Governor of Kagoshima, my name is Ito. As one of the co-organizers, I would like to just briefly make a greeting remark.

We are very happy to receive so many guests from different countries to this International Conference of Industrial Heritage. It gives me great pleasure.

As was introduced earlier, it has been 10 years since I became the Governor of Kagoshima, and this project started 8 years ago. Stuart Smith is a pioneer in this area. When he came to visit Kagoshima, he posed the question of why Japan is the only country where it succeeded in industrialization among all the Asian countries. Trying to find that answer is an interesting attempt. We had Kanaya Paper Mill and manufacturing plants. And also, post Meiji restoration, modernization by importing technologies from overseas. They are really the ground of today's industrialization. This you cannot find in any other country than Japan. There were interesting stories I was able to listen to since I became the Governor of this Kagoshima. The Meiji Restoration actually started in Kagoshima-Satsuma clan. Therefore, I found this project quite intriguing and interesting. A group of properties that really symbolize the Meiji Revolution is completely covered by the project.

It has been many years since we started this project. We have many different assets that actually encompass multiple prefectures. Our consortium is made of eight prefectures and eleven cities where you find these properties that are recommended today. All of these municipal governments made great efforts. Many of these properties represent heavy industries. As Mr. Imai already mentioned, many of these assets are still operating. They are living properties. In the process of trying to incorporate these operating properties into recommended sites, we actually have support from Minister Shindo. Under his leadership, the office helped us to come up with a map in which we were able to incorporate living properties.

Because of the values of our assets, there is no need for me to express. All of these projects were led by municipal governments with substantial help and cooperation from the national government. Therefore, this is a cooperative project between local governments and the national government.

What we need to do going forward for this modern industrial site in Kyushu and Yamaguchi is definitely to have these sites inscribed in next year's session of the World Heritage Committee. There will be site visits. To prepare for site visits, all of the relevant prefectures and cities will cooperate to be better prepared to receive visitors. Those who are here today, I believe, are all interested parties. I would like to ask for your support to realize the inscription of the modern industrial site in Kyushu and Yamaguchi in next year's session of World Heritage Committee.

All of you who are here today, and experts from different countries and past, Stuart Smith, I would like to take this moment to express my heartfelt gratitude and, once again, ask for your further support

for our efforts. Thank you so much.

(Moderator) Thank you so much. Now, the Minister for Regional Revitalization Mr. Shindo, and also Commissioner of Cultural Affairs Mr. Aoyagi, must leave the room for their other public purposes. Thank you for their presence.

This past January, the nomination letter was submitted regarding this site to UNESCO. Now, the modern industrialization heritage in Kyushu-Yamaguchi, this letter will be explained by the coordinator of the Kyushu-Yamaguchi Consortium. Ms. Koko Kato, please.

(Kato) Everyone is giving wonderful greetings in Japanese, but I would like to give my greetings in English. Before I show the DVD, I would like to give the outline of my talk and why these Japan's Meiji industrial revolution sites are now being pursued in the new course of the frameworks.

At the outset of my presentation, I would like to express my deep appreciation to all of you coming from overseas to participate in this National Congress of Industrial Heritage. Thank you very much. Welcome to Japan. My fellow TICCIH members, taking this opportunity, I would also like to thank Stuart Smith. He was the Secretary General of TICCIH. He came over to Japan, I think, more than 15 years ago as the former president of the Iron Bridge Museum. He inspired me to start working on this project. Without his passion and dedication to the sites of Japan's Meiji industrial revolution, this project would not have not happened.

He died before he received a nomination document. He had been looking forward to participating in this Congress in Japan. He passed away last April. He has unfinished business here in Japan. I would like to complete his will. We would all like to achieve this mission to inscribe this nomination to UNESCO World Heritage with all of your support together. Thank you.

Japan is an industrial nation. Technology is the soul of our nation. Japan has achieved rapid industrialization that was founded on key industrial sectors in shipbuilding, iron, steel, and coalmining from the mid-19th century to the beginning of 20th century. The successful transfer of industrial revolution from the West to Japan at the time was a phenomenon; at that time unique in the history. First time it has happened in Japan, nowhere else in the West, with Japan directing and maintaining the control on its own terms.

In mid-19th century, Japan was a highly organized feudal society governed by clans under Tokugawa isolationist policy for two centuries. Any attempt to leave the country was strictly forbidden. The Shogunate regulated the free production of arms and weapons, trade, commerce, contact with foreigners, and Christianity. When Admiral Perry came over to Japan in 1853, it shook the whole nation. The Shogunate responded to Admiral Perry and encouraged the clans to build cannons and build steam boats. That is the beginning of the Samurai clan's encounter with science and technology. The initial phase was trial and error of experimentation in shipbuilding and iron-making mostly based on western textbook and copying the example of western ships. This was not so successful due to a lack of science and technology. After the opening of the nation, this is followed by more successful importation of the technology and expertise to operate it.

After the Meiji restoration, by the late Meiji period, full-blown industrialization was achieved with newly acquired domestic expertise and more active adoption and adaptation of western technology.

Samurai became businessmen, clans became companies, and when Yawata started production of steel and opened the booths of various steel products at the London in exhibition in 1910, Japan was marked as an industrial nation. This rapid industrialization was achieved in just a little over 50 years without being colonized and on Japan's own terms.

The nominated properties are a series of 23 component parts in eight areas. The sites are a single ensemble of industrial heritage sites that testify to the first successful transfer of industrialization from the west to a non-western nation. In the process of selecting all those component parts of the property, an international committee led by Sir Neil Cossons spent many years (maybe six years or seven years) of hot debate of what should be included in this component part.

After the process of committee's decisions, we were torn apart because if we follow the existing route of the cultural property law, we would have to exclude and drop some of the very important sites. So, we made a decision to change the governmental system through administrative reform. And looking at operational guideline of the World Heritage 40, and following that operation guideline we opened the gate to private sectors and all the government ministry to participate in heritage protection as a partnership without compromising the OUV value. Looking at the operational guideline of 110, we decided to introduce every possible traditional protection legal system mechanism to apply for the protection of the OUV depending on the characteristics of attributes and ownership. We also won the tax system, tax reform, new tax incentives, property tax reductions, for living industrial heritage owned by private sectors.

Now, the cabinet ministry is in charge of this nomination, and with all the government agencies participated, all the private sectors who own the living heritage also participated under cabinet secretariat umbrella under the newly devised strategic management framework. Each site owner prepared a conservation management plan with a management policy to respect ICOMOS-TICCHI principle for the first time in Japan.

We also set up the organizations of National Congress of Industrial Heritage. This private organization is funded by private sectors, government sectors, public sectors, and with communities, to open the floor of the discussions with sharing the views with international members to think about challenging conservation issues of industrial heritage. We welcome your contribution all the time. We have already submitted nomination documents to UNESCO. However, conservation work just started. We are now currently preparing the resources and funding for the conservational work, for extensive research work, to solve, to give the solutions for challenging conservation issues.

I am confident that we, with all your support, all the TICCIH members, the ICOMOS now here, prominent experts, with all your support, I am confident that we can overcome any challenging conservation issues. With your support, we can climb any mountain. With your support, we can give answers to all of the challenging conservation issues. We are now preparing also an interpretation program and then also educational program following the synergy with the interpretation program. There are mountains of work in preparing and then we are on the way to solve all the issues right now.

Are we ready for the nomination? Yes, we are. Can we protect outstanding universal value? Yes, we can. So, ladies and gentlemen, now I would like to present a DVD of the sites of Japan's Meiji industrial revolution. Thank you.

<Video Playback>

(Moderator) It was a very clear, wonderful, and very easy to understand DVD. I am very much impressed. This concludes the opening ceremony itself, but we will invite the keynote speakers soon.

Now, the first speaker is going to talk about the American steel industry, Conservation of American Iron and Steel Heritage: Past and Prospect, Mr. Patrick Martin. Mr. Patrick Martin is serving as a Professor of Archaeology at Michigan University. At the same time, he is the president of TICCIH and also he is serving as the Secretary General of the American Industrial Archaeology. He has been very active in the various fields of the world for the aspect of the industrial heritage. Now, the floor is yours.

Keynote Addresses

Iron and Steel Heritage Conservation in the United States

Patrick Martin (Department of Social Sciences, Michigan Technological University, United States)

Thank you very much for your attention. I want to thank the sponsors for this opportunity, both to address this audience, and to visit a number of these very important sites in this past week. I am very much impressed with the progress that you have made. Since we are a little tight on time, I am going to launch right away.

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2-3

Since the establishment of the Virginia Colony at Jamestown in the beginning of the 17thcentury, the production of iron and steel in America has been a central element of the economy and of the culture of our nation. The new land, despite its abundance of natural resources, remained dependent upon Great Britain for some decades when it came to both the technology and the production of iron and steel. But a fundamental desire was evident from the beginning that Americans must find the means to overcome this dependence and overcome they did.

From simple furnaces and bloomeries in places such as Falling Creek in the Virginia Piedmont to Saugus in Massachusetts, the early colonists sought to establish self-sufficient iron production. With technical expertise derived from England and other places in Europe, they tackled new and unfamiliar iron ores as they expanded inland from the East Coast. Over the decades, their experience and investments grew in tandem with the exposure of extensive additional deposits of raw material, and American Iron became a global provider and contender in scale and value.

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The story of American Iron and Steel is central to the narrative of the American nation. The physical remnants of that story are powerful reminders of the events and trends that shaped a history with global reach and influence. Since iron and steel production became such large-scale undertakings, requiring massive mining operations for ore and fuel, enormous mills for production, communities to

support large work forces, and transportation networks to move materials and products, it is necessary to employ a landscape-scale view to understand, appreciate, and manage these important loci of production.

The cultural landscape perspective, therefore, is an appropriate frame for exploring American Iron and Steel as an element of heritage for preservation and interpretation. As an archaeologist myself, I adopt a decidedly materialist linear view of the history and future of iron and steel landscapes, not delving into postmodern rhetoric that is best left to others. I will not attempt a comprehensive historical narrative today, either. There are a variety of published works that do a much better job. Rather, I will attempt to describe for you the current state of iron and steel heritage landscapes in the United States, with some examples of both good practices and some less than good outcomes. In the end, I will tell a tale that has some sad and depressing components, along with some encouraging and positive elements as well.

#4-5

The 17th century roots of American Iron are characterized by small scale operations at a place called Falling Creek in Virginia by 1621, with a larger furnace built at Saugus in Massachusetts in the 1640s. Scattered small forges and bloomeries served the needs of local consumption, but industrial scale operations were not successful until the next century due to technical shortcomings and the availability of cheap British and Swedish iron.

During the 18th century, a new adaption known as the iron plantation in the Mid-Atlantic region, where complexes included blast furnaces, extensive woodlands for fuel, and communities for housing and food production, were combined into commercial enterprises. Meanwhile, numerous furnaces were built in the Hudson Highlands of New York and New Jersey, as well as many furnaces in Pennsylvania, the leading producers of the era, near to the extensive iron deposits. In the Northeast, iron makers took advantage of abundant wood for fuel and water for power, with dozens of furnaces built in Massachusetts, Connecticut, and Rhode Island. Before the century ended, America was the third largest producer of iron in the world.

In the 19th century, both Pennsylvania and the New York/New Jersey region benefited extensively from the shift to coal as fuel, the opening of vast coal fields, and the expansion of canal and railroad networks for transportation of raw materials and products to market. New furnaces in Ohio and Kentucky were shipping pig iron to rolling mills to make railroad rail, and the Pittsburgh region began its significant growth in the second half of the 19th century. Extensive new iron deposits came to light in the Lake Superior basin of Michigan and in Minnesota, providing ore both for local production as well as furnishing material for growing complexes at lower Great Lakes port cities such as Chicago, Cleveland, and Buffalo. Some new fields developed in the South as well in places like Alabama and Tennessee especially.

The addition of many puddling furnaces allowed an increase in production of wrought iron, consumed in quantity by rolling mills making merchant iron in sheets, plates, and bars. During the second half of the 19th century, the new production techniques of the Siemens open hearth and Bessemer converter provided impetus to great expansion for both domestic and international markets. American experiments with this pneumatic steelmaking came close to fruition, with some production

near Detroit in 1864, and a Bessemer converter in operation in Troy, New York by 1865.

By the early 1880s, several steelmakers were using American pig iron to produce steel, especially for use in railroad rails, and production levels were increasing rapidly. The 20th century adoption of steel and its near-universal application across all types of manufacturing construction resulted in massive expansion of facilities, here the Republic Steel in Cleveland, Ohio. The industry is characterized by integrated steel plants, with furnaces, coke ovens, rolling mills, and foundries connected to ore and coal by railroads. Andrew Carnegie, centered in Pittsburgh, produced profits exceeding US$40 million per year by the turn of the century, when he sold out to the new US Steel. With plants scattered across the Eastern US, US Steel was arguably the world's first $1 billion year company, with steel output accounting for 30% of world production.

The American steel industry blossomed during the early decades of the 20th century, stimulated by the global conflicts of two world wars. Productivity peaked in the post-war years, but soon after began to spiral down as problems with competition, costs, and management combined to end the boom years. The failure of big steel in America left the physical and social infrastructure that had fueled the boom in jeopardy, with major producers struggling to survive and renew into the 1980s, only to succumb to forces beyond their control.

It is these 20th century giants that left the most significant physical footprints, as well as social, cultural, and economic impacts. Yet, as we will see, they do not necessarily represent the dominant heritage component of American Iron and Steel landscapes today. As is often the case with industrial expansion, when facilities expand, they destroy earlier workings, cannibalizing themselves in the process. Therefore, the rapid growth of American Iron and Steel often spelled the death knell to historical establishments.

However, the concomitant expansion of industrial frontiers and the relatively broad geographic scope of the American experience compared to other countries meant that redundant structures and whole landscapes were sometimes simply abandoned and preserved by neglect. In the case of iron and steel, many early furnaces dot the rural landscape, and sometimes even are found in urban areas in varying states of preservation. In fact, I suspect that the masonry blast furnace is the single most common iron-related artifact in America today. Often combined with charcoal and lime kilns, many times with a dam for producing water power, these iconic structures and complexes are the most widespread and visible remnants of America's Iron Age.

#6

Spread quite widely, even into areas where iron-making experiments did not prove so successful, preserved and ruined furnaces can be found from coast to coast by the hundreds in the eastern half of the country, but even in the dry southwest and places such as Utah and the moister environments of Oregon. Some examples from my own experience in archaeological practices are the charcoal furnaces at Fayette, on the Lake Michigan shores of the Garden Peninsula dating 1867 to 1891 shown here.

#7

There was also the smaller Bay Furnace on the Lake Superior shore east of Marquette, 1869 to 1877. Both of these sites are preserved within campgrounds; in one case within a state park, in another in a

national forest. Now, the large scale complexes that characterize American Steel in the 20th century have mostly fallen to the scrapper's torch and have been recycled. I will mention only a few preserved examples today notable for their inclusion in heritage preservation schemes.

#9-10

Of particular interest are Bethlehem's home plant in Bethlehem, Pennsylvania. the Carnegie/US Steel Homestead Works near Pittsburgh, and the Sloss Furnace complex in Birmingham, Alabama. Bethlehem was the second largest of the 20th century steel producers, growing out of a significant 19th century base, with a focus on military production of armor plate for warships and large-caliber naval guns. While ordnance continued to be a major component of Bethlehem's product base throughout their history, the large and long I-beams they manufactured for the construction industry also distinguished Bethlehem and sustained profitability into the age of skyscrapers.

Bethlehem grew not only in the home plant, but also through acquisition and construction in other localities such as Sparrow's Point in Baltimore, Maryland, and the Lackawanna plant near Buffalo, New York, as well as shipyards on both coasts. Bethlehem prospered until a 1959 strike that effectively crippled the firm, along with growing international competition. Despite a series of attempts at rejuvenation, the home plant closed in 1995, and the company declared bankruptcy in 2001.

Meanwhile, Bethlehem Steel explored a variety of options for reuse of the site, among the most ambitious being an agreement with the Smithsonian Institution for a long-term loan of artifacts from the Centennial Exhibition of 1876 to form the core of a new National Museum of Industrial History, seen here in their website. This effort was organized within a plan called Bethlehem Works, a visionary concept that included not only museum and cultural venues, but also university buildings, recreational areas, and continuation of commercial activities such as a multi-modal transportation facility.

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The US Environmental Protection Agency established plans for remediation of the 1800 acre brownfield site, and initial funding flowed from the State of Pennsylvania to plan these important community and economic development projects. Local citizens' groups, such as one known as 'Save our Steel' expressed concern about the plans and mobilized to influence the outcomes. This image of a tattoo on a young woman's back is somehow indicative of the depth of feeling on this matter. As plans stalled and shifted during the early years of the decade, various players from the region and beyond voiced opinions in favor of heritage conservation, instead of the economic development motivations that they saw as driving most plans. Meanwhile, new investors acquired the site and quickly brought in partners from the gambling industry to secure one of Pennsylvania's newly-approved gaming permits.

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The new casino and hotel complex that was opened in 2009 on about 120 acres that includes much of the industrial core, based on a reported $800 million dollar investment. In 2009, construction also began on a new complex, not in rehabilitated existing buildings adjacent to the iconic steel stacks of the blast furnace, but to house arts and cultural organizations and host events from music to farmer's markets. Just as an aside, this is the remaining element known as steel stacks. These are the new art

structures built in amongst the original productive structures.

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The National Museum of Industrial History has yet to open on its 10 acre site. After exterior renovations to one historic building, there was promise for a ground-floor opening in 2013, but that has not happened. Fundraising efforts continue, with $17 million of the $29 million estimated cost raised to this date, and $19 million expended. This year the long-time museum director resigned in the wake of a Grand Jury investigation of fraud and mismanagement. The complex relationship with the community has with these plans is fueled by the income generated by casino operation, and the activity generated by events in the Steel Stacks and ArtsQuest spaces seen here. To say that opinions vary widely about these results is a massive understatement, and we wait with bated breath to see what will happen next.

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Meanwhile, Carnegie Steel, followed by US Steel, anchored an extensive array of industrial facilities focused on coal and steel as well as glass, copper, brass, and other products along 150 miles of riverfront in western Pennsylvania. Centered on Pittsburgh, where the confluence of the Monongahela and the Allegheny form the beginning of the Ohio River, this natural transportation context links the rich iron, coal, and timber resources of the region with national and global markets.

Carnegie's works began in 1875 in an area where iron foundries were already well established, and he acquired the Homestead Works in 1888. The embrace of open-hearth steelmaking facilitated the rapid growth of the company by the turn of the century with successor US Steel ranking as the largest producer. While there were dozens of other steel makers in the region, Homestead had particular significance for several reasons. It was a very large and successful plant, occupying more than 500 acres on both banks of the Monongahela.

It boasted some of the largest capacity equipment in the industry, but it was also famously the site of one of America's bloodiest labor conflicts. In 1892, following a strike and a lockout, an open battle broke out between members of the Amalgamated Association of Iron and Steel Workers and the Carnegie Steel Company, represented by armed agents of the Pinkerton Detective Agency. Seven workers and three Pinkertons were killed, the militia was called in, and the union ultimately was broken. This single event is widely recognized in the annals of US labor history.

##

As was the case with other American steel producers, US Steel succumbed to the complex pressures of international competition and management problems, closing Homestead in 1986, along with most of the other productive facilities in the region. A taskforce concerned with heritage preservation was formed immediately in conjunction with a state and federal documentation project and a plan for a national park. America's Industrial Heritage Project, as it was called, was an ambitious effort to identify and record the physical heritage of American industrialization as it was expressed in the southwestern counties of Pennsylvania.

Fueled by both local interest and political clout, the Historic American Engineering Record

organized and managed multiple projects to record mining, milling, transportation, and community resources in this rich industrial region. They enjoyed investment and partnership with a number of state and federal agencies and institutions. Out of that, the Steel Industry Heritage Corporation was founded in 1990 to work for formal designation of a heritage area, which was established in 1996 by an Act of Congress as the Rivers of Steel National Heritage Area.

The Steel Industry Heritage Corporation is the managing body of Rivers of Steel, working diligently to "conserve, interpret, promote, and develop the industrial and cultural heritage of steel and related industrial resources" within an extensive eight county area. Rivers of Steel serves as a focal point for a wide range of organizations and initiatives.

##

Early on, they identified the Homestead Works as a prime and significant site for preservation, and gained substantial support from communities and government. But they have faced serious obstacles. Note here, the Homestead Works in 1965 and Homestead today, which is a shopping a mall. The scrap value of the large site was too much for the owners to ignore, so the plant was demolished. A subsequent developer saw further value in the riverfront real estate, so today The Waterfront at Homestead (the name of the mall) houses over 70 shops and entertainment venues preserving only minimal elements of the Homestead Works.

##

And you note this single cluster of smokestacks here in the midst of what was a 500 acre property. The Waterfront has adopted the line of large smokestacks left from the mill as their logo, but the stacks stand like disembodied columns on one edge of the property. Rivers of Steel managed to negotiate preservation of one standing building in the opposite end of the property, the Pump House, which was associated with the Battle of Homestead. Rivers of Steel also owns the Bost Building, a structure where the union headquarters was located a few blocks from the site.

In 2005, Rivers of Steel convinced Allegheny County to acquire the remnant furnaces of the Carrie Furnace portion of the Homestead Works located across the river from the main works to accompany the Hot Metal Bridge, a transport link from furnace to mill. The recent receipt of a $500,000 stabilization grant is coupled with a very active volunteer program that promises to secure the furnaces while a piece of federal legislation works through Congress to declare this a part of the National Park system. This is not a foregone conclusion. Stay tuned.

##

The Sloss Furnaces are an example in the south of post-Civil War expansion of iron production that brought two new blast furnaces to Birmingham, Alabama in 1880. Operated until 1971, the complex underwent a series of expansions and modernizations that allowed profitable and extensive production. As was common especially in the South, Sloss was a highly-segregated workplace and community, with African American laborers largely relegated to the lower-skilled and lower-paid jobs. This social dimension of the site's history is explored in the current interpretive programs at the site, along with the economic and technological aspects of the place.

When Sloss ceased production, it seemed doomed to demolition until a local citizen's group raised community consciousness and generated a bond issue that allowed the city to acquire and stabilize the site by 1977. Documentation by the Historic American Engineering Record confirmed the site's significance and it was designated a National Historic Landmark in 2000. Sloss is now a part of the city's park system and a non-profit foundation with two large furnaces and 40-some other structures, not only interpreting the steel history of the site and the community, but also serving as a cultural center for community events.

Sloss has been innovative in conservation but also creative in making appropriate adaptive uses of the site, hosting a national Conference of Cast Iron Art as well as regular metal arts workshops and numerous music events in the large casting sheds that flank the blast furnaces.

##

Sloss is really the only relatively-intact big iron and steel site preserved and interpreted in the US today with a focus on heritage conservation. This is something of an enigma to heritage professionals both here and abroad. Why are not there equivalents to Völklingen and the Emscher Park in Germany? Why are there no World Heritage Iron and Steel sites in the USA or any US Industrial Heritage sites on the list, for that matter? These questions recur in conferences and classrooms and private discussions. Why are not there any examples like the European root of industrial heritage in the US or the famous iron bridge on the Severn?

We can turn to simplistic cultural or economic explanations, such as the overwhelming drive of progress and excessive expense of conservation. Of course, these explanations have some validity, but they are not totally satisfying. What is it about an America during the last few decades that has made us fail to appreciate industrial heritage sites, particularly those related to iron and steel, while our friends and our neighbors abroad have done a better job of it? In recent conversations, some common themes arise. Even in the eyes of the preservation-friendly public, industrial sites present significant problems; they are too big, they are too complex. Smaller and simpler masonry furnaces are much more easily managed and maintained. They are often nasty, even dangerous. This point is regularly overstated, but clearly an element of reality in the public eye.

##

See, for example, this recent book, *Polluted and Dangerous*, and its descriptive acronym applied to industrial heritage sites: HI-TOADS (High-Impact Temporarily Obsolete Abandoned Derelict Sites). This abandoned derelict Site is the Youngstown Steel Works. They are seen as inflexible with large spaces that are only good for certain kinds of adaptive uses, not easily modified

However, Sloss puts the lie to that conclusion with its casting sheds in use many days of the year for all sorts of events. They are expensive with ongoing maintenance and repair costs out of scale with the budgets of small groups and governments, hence only supported or supportable by big governments or by big corporations. They are often the locus of negative emotions, regarding loss of jobs and economic base following closures and environmental degradation. In fact, these troubling histories are often the most powerful element of the stories, bringing out elements of labor and immigration history as well as technological and industrial themes.

##

So, what can be done? What can we do to make a success of heritage management? Our National Park Service Heritage Documentation Programs have done a wonderful job over the decades, with projects on hundreds of sites including some of those I have just shown you, establishing high standards of professional practice, providing public access to drawings, photos, and text through the Library of Congress. Other groups and individuals are also doing remarkable work to record tangible resources before they disappear.

##

A handsome recent publication by Joseph Elliott reproduces photos that he shot over the last several years of operation at Bethlehem's home plant. *The Steel: Photographs of the Bethlehem Steel Plant* has just been released. Elliott gained his original access as part of a HAER team, but carried his work beyond the formal documentation.

##

Another photographer, Benjamin Halpern, has just embarked on a project to photographically document a group of steel mills on the Ohio River downstream from Pittsburgh. Mills and facilities at Mingo Junction in Ohio and Weirton in West Virginia have been closed in recent years, and Halpern's group has gained access for documentation before demolition.

##

These sites take on some particular interest because at least one, if not more, are targeted for some a new type of reuse after demolition, in the context of the new resource boom of natural gas production through hydraulic fracturing, or fracking. This effort is supported by significant voluntary effort, but also through a series of small grants to support public exhibitions in the region.

##

Another source of hope for preservation is the National Heritage Area program administered through the National Park Service – a partnership program that links federal, state, and local entities in heritage conservation efforts. Since 1984, 49 areas have been named, including several that have strong industrial heritage themes, among them Rivers of Steel and the Erie Canal. They are to advance the national park idea without necessarily becoming parks. They embrace the landscape perspective, with broad and inclusive boundaries, and encourage collaboration and cooperation such as we are seeing here in Kyushu–Yamaguchi.

Education must be at the core of any preservation action. While regeneration can be limited in scope to economic activity, we hope that cultural regeneration will naturally involve where education is a central mission. We face a postmodern public, most of whom have little if any direct personal experience with industry, much less the production of iron and steel. Broadening the educational experience can be accomplished on conserved sites and in museums through outreach to schools. Some recent efforts for education in the US include the publication of proceedings from a conference

held by the National Trust for Historic Preservation in their *Forum Journal*. Access to this publication is free through the TICCIH website. I am also proud to promote the recent publication of *Industrial Heritage Re-tooled* by TICCIH. Stimulated by discussions at the aforementioned conference, this book takes a global look at key best practices of industrial heritage conservation.

##

I am happy also to say that we have attracted additional support from an American foundation with interests in historic preservation. The Kaplan Fund supported the conference that generated these publications. We have recently engaged in a comprehensive national inventory of industrial heritage sites, building on work done by others.

##

In conclusion, I hope that the transgressive thrill-seeking of urban exploration is not the only way to satisfy public curiosity about these places that are so important and so evocative of a lost past. The work of national and international organizations is our main hope for making progress in the future; hope that we are not forced to rely on sculpture gardens with a few scattered bits of industrial heritage to represent this important element of our past. While the smoky massive complexes of big steel with thousands of workers and their communities are a thing of the past in America, we do not have to turn our backs and forget them. Through the efforts of motivated individuals, communities, and institutions, there remains some hope for heritage conservation. We can clearly learn from our Japanese colleagues, with the recent inscription of the Tomioka Silk Mill, and the impressive support of World Heritage nomination for the Kyushu-Yamaguchi sites. Perhaps, when next I visit, I will have some better news about heritage conservation of iron and steel in America. Thank you.

(Moderator) Thank you very much, sir. Thank you so much. Let us move on to the next keynote presentation, which is titled 'The Industrial Heritage: Issues of Intrinsic Value and Authenticity.' Sir Neil Cossons is the speaker. Sir Cossons is the first director of the Iron Bridge Gorge Museum Trust. He also served as the director of National Museum of Science and Industry and a chairman of English Heritage. He has served in many more important positions. He also helped the Liverpool Maritime Mercantile City and Pontcysyllte Aqueduct and Canal to be inscribed as world heritage. For the modern industrial heritage site in Kyushu and Yamaguchi, he has headed the experts committee to inscribe these sites. He is really the authority of industrial heritage. Sir Cossons, please.

The Industrial Heritage: Issues of Intrinsic Value and Authenticity
Neil Cossons (Chair, Kyushu Yamaguchi Expert Advisory Committee)

I repeat the comments made by my colleague Patrick Martin when he opened his address. It is a great pleasure, high honor, and a rare privilege to be invited here to speak at the opening of this important, and I think unique, national congress on industrial heritage. Perhaps I could also repeat the comments of Governor Ito and Koko Kato in paying tribute to my colleague Stuart Smith who sadly died early this year. At least he had the pleasure of knowing that the nomination for the Kyushu-

Yamaguchi project had been deposited with UNESCO.

##

What I want to reflect on today is how we understand terms like 'originality', 'authenticity', and 'integrity' and, as a result, view history through those objects and places that we choose to take forward into the future as a part of a shared past. In particular, I would like to view this in the context of some celebrated historic objects and a number of industrial sites and especially some of those that form the serial nomination of Japan's Meiji Industrial Revolution, recently submitted to UNESCO.

##

I hope to demonstrate that terms like 'original', 'genuine', 'authentic', and 'integrity', for example, have widely different connotations in different contexts and perhaps in different continents, and that we need to be aware of this in the language we use and the meanings and values we ascribe to historic places and objects. We need to be aware too that the public has its own assumptions about the past, sometimes based upon other and quite different interpretations of these words.

##

Now, this is not of course a new debate. It pervades the whole history of our approach to preserving the past and forms the basis for an evolving philosophy in, for example, the Venice Charter of 1964, the Burra Charter of 1979, and the Nara Document on Authenticity of 1994. The trajectory that characterizes these endorsements and our wider thinking is the increasing and progressive recognition of the cultural diversities and contexts that lie at the heart of what we now see as the authenticity and integrity of those places and objects we wish to protect, and thus color the way we recognize and designate them and afford them legislative and physical protection.

##

And, in accepting an increasingly relativistic approach, we may be marginalizing the concept of originality that forms such an important part of the philosophies that energized John Ruskin, William Morris, and the Pre-Raphaelite brotherhood and led in 1877 to the founding of the Society for the Protection of Ancient Buildings. For them, the importance of what they saw as the 'original' fabric was immutable and that tradition lies at the heart of much of today's building preservation traditions.

Now, if we take these steps away from that 19th century precision, those 19th century values, do that consciously and knowingly, and apply conservation philosophies based firmly on clearly stated philosophies set out in properly developed conservation plans, we can advance a legitimate framework for protecting historic places and objects for the future.

##

Two other elements, often neglected, need to be taken into account. The first is intention. What is our intention when we seek to preserve a place or an object? This is not always defined and it is very easily overlooked. Understanding and defining intention and building that into conservation planning is crucial. We have had some examples, I think, in Professor Martin's address just now, of where

perhaps intention has become confused in the way in which the future of these historic iron and steel sites has been approached. That is by no means unique. Bearing in mind that, for many industrial structures also, adaptive re-use is the only route for their long term retention, then it is particularly important that we work out what our intentions are when we approach these historic places. How do we reconcile the historic value, the originality, the voices of the past with the needs of today and tomorrow?

We need to recognize as well that the public has expectations, and thus a role in this debate, a more sophisticated view than many heritage professionals might recognize, and a deep belief in originality as being central to the notion of authenticity. Let me begin with a few well-known objects.

##

HMS Victory was Admiral Nelson's flagship at the Battle of Trafalgar in 1805. She was then some 40 years old having been launched at Chatham in 1765 and commissioned in 1778, and had had already a number of major refits. She is preserved today in Portsmouth Dockyard as an iconic symbol of the nation's history. Nobody questions that. But what it is that we actually see and revere is open to some question.

Various efforts have been made over the years to determine how much of the HMS Victory that we see today was actually at Trafalgar on that fateful day in October 1805. Consensus seems to suggest something between 5% and 7%. What we value and venerate is a multi-layered palimpsest of history in which 'unbroken continuity', rather than original fabric, forms the essential thread between then and now. Victory is not unique of course in this respect.

##

We might say the same of Admiral Togo's flagship at the Battle of Tsushima in May 1905. Mikasa, preserved at Yokosuka, is embedded up to her waterline in concrete. Despite having suffered a disastrous magazine explosion in September 1905 at Sasebo after which she sank, Mikasa was raised, re-commissioned, went back into service, survived calls for her destruction following the Washington Naval Conference of 1922, and after being partly dismantled in the late 1940s, was eventually restored and opened to the public in 1961.

##

On the other hand, the USS Constitution, 'Old Ironsides', preserved in the Charlestown Navy Yard, Boston, is the oldest ship in commission still afloat, and from time to time, as you see here, goes to sea. In this respect, unlike Victory or Mikasa, she has to be kept seaworthy to an extent.

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And the capability of meeting this intention governs the nature of the conservation and management work carried out on her. Intent thus needs to be taken into account when we debate preservation.

##

In these ships, we cannot find a great deal that, in terms of original fabric, offers us indisputable material, archaeological, or historical evidence of the past.

By contrast, the wreck of the Mary Rose that sank off Portsmouth on July 1545 provides a penetrating and vivid picture into a precise moment in time, through an extraordinary wealth of impeccably preserved artifacts, into the lives of the ordinary sailors who formed her crew and offers detail of ship construction available only through the evidence contained in the historic hull structure. It is the power of originality and the insight this provides; the shock of the old, as well as the circumstances of her loss that make Mary Rose such an important and dramatic document. And I use the word 'document' carefully and precisely in this respect.

##

In the same context is the cargo of the river boat Arabia lost in the Missouri River after striking a submerged log on the 5th of September 1856. She went down in minutes with no loss of life, but with the loss of some 200 tons of frontier merchandise destined for ports further upstream.

Arabia became a total loss, one of the 200 or so vessels recorded as having sunk in the Missouri between Kansas City and St Louis in the succeeding 40 years. The wreck soon became covered in silt, and with the changing course of the river, was not rediscovered until 1987 when proton magnetometer surveys located the ship in a field well away from the present course of the river. Excavation brought to light Arabia's cargo, now on display in a specially built museum in Kansas City. It offers, again, a dramatic insight into the opening up of the mid-west, not only in its quantity but most vividly in the sheer ordinariness of the things recovered.

Here, we can see the manufactured goods that made the West in all their prolific detail; manufactured goods from the East Coast of the United States, pottery from England, glass from Belgium, Cognac from France. Its abundance and the precision that accompanies the closed archaeological site of a well-preserved and recorded wreck offers us the uniquely vivid picture as no record or cargo manifest possibly could. The shock of the old is in its power to speak to us directly.

##

Now, let me give you a contrasting example, which in this case became the subject of legal judgment. This is Bentley Old Number One. Bentley cars came first, second, third, and fourth in the celebrated 24-hour endurance race at Le Mans in France in 1929, the winner being what came to be called Bentley Old Number One, this car. Earlier in1929, the car had won the Double 12 race at Brooklands. It had also been in a fairly severe accident. It had also, in 1932, been involved in a race at Brooklands in which it suffered a catastrophic and fatal crash coming off the top of the embankment at 120 miles an hour, killing Clive Dunfee, its driver, and disappearing into the woodland to the left. But, the wreck was taken, rebuilt with a closed coupe body used extensively for touring in the United States for a further 15 years and then went into storage, was rebuilt again for a further career, and eventually came back to England where it was rebuilt to its 1929 condition.

By then, it contained very few of the actual components that formed the 1929 car. In the 1980s, it came on the market and its value was then put at £3.2 million (about US$5.5 million or ¥560 million). Soon afterwards, the new owner sued the vendor as he believed the car he had bought was not the

original. The judgment went against him, three factors being taken into account; physical originality, historical continuity, and the owner's intent.

##

In the judgment in the high court in 1990, Mr. Justice Otton concluded: "I am satisfied that the car, which was the subject of the contract for sale on the 7th of April is the Bentley known as Old Number One. The car can properly be referred to as Old Number One. The name has been used to describe a particular racing Bentley in a succession of forms from its first registration, its first appearance in the Double12 race at Brooklands, and successive races at Le Mans, Brooklands, and other locations until it crashed and thereafter when it was rebuilt in 1932.

I find that it continued to be known as, and was properly called Old Number One, until its reappearance in the United Kingdom in December 1988 and its recent purchase. I also find that the plaintiff has faithfully, sympathetically, and accurately restored it to its last known racing form, that is the condition it was in in Brooklands in 1932 when it crashed. There has been no break in its historic continuity from that time when it first emerged from the racing shop in 1929 until today." 'Completely original' is a term which cannot easily be applied any more than 'nearly original' or 'almost original'. These have no meanings in the context of this car. It could properly only justify the description of original if it had remained in its 1929 state.

Now, in the interest of time, I will not read you the whole of Judge Otton's judgment, which is a fascinating legal interpretation of meanings like 'original', 'authentic', and similar terms because he finds this car, that you see on the screen here sufficient in its authenticity to justify it being sold as Bentley Old Number One. Can it be said that the car can properly be described as authentic? That description requires some careful consideration. But he gives it that consideration, and he says this car never actually disappeared, so that the results of all the labors can justifiably be described as authentic. At any one stage in its evolution it has indubitably retained its characteristics. Any new parts were assimilated into the whole at such a rate and over a period of time that they never caused the car to lose its identity, which included the fact that it won the Le Mans race in two successive years. In summary then, the expression Old Number One is the famous name in history of this vintage Bentley racing car.

##

It is justifiably applied to the car, which in a succession of forms raced at Le Mans. No car extinct or extant can claim that name other than this one. Now, needless to say, this ruling was greeted with enthusiasm by the vintage motoring press, reflecting the widely held views of those with an interest in historic vehicles. Their interest (their intention) derives in the main not from an historic artifact as a source of evidence and information or an archaeological or museum piece, so much as the continuing original function of the object, that is, a car that can be run and perhaps reflect something of its past in its present performance. What the judge described as the owner's intent forms an essential part of its lineage.

The newspapers regarded the judgment as a victory for common sense, which should cause us some worry. While Classic Car Weekly noted, without any irony, and perhaps without a full understanding of the subtleties of the judgment, that the judge's verdict has brought for the old-car movement a ruling

that must surely bring peace of mind to all those enthusiasts whose cars are genuine but do not have fully documented or even documentable histories.

##

Motoring author Michael Hay said, "A motor car is not a painting or a piece of antique furniture, but a functional piece of machinery to be driven and enjoyed and then repaired when it breaks, and driven again. The obsession in certain quarters with a serial matching numbers is to lose the sense of what a motor car is and risk consigning them to mothballs and museums." Now, this judgment takes a view on authenticity, which on the face of it, accords only marginally with what many with an interest in the evidential value of a historic place or object might find acceptable. For a picture or a piece of sculpture where authenticity is seen as the pure expression of the artist's hand in brush strokes, color, and comparison with other works from the same creative genius, the acceptable definition would be much more demanding. The expressive authenticity of the work, coupled with an impeccable provenance that can be rigorously traced, forms the pedigree upon which at least some of our value of great art rests.

It is crucial to monetary worth, in the case of a picture, just as much as the authenticity of Bentley Old Number One in its context is to it being worth US$5.5 million. But, the context in which we appreciate it is also part of its authenticity, too. We can look at a great work of art and understand that it is genuine. We can look at this car and see in its working, a full appreciation of its qualities, of its authenticity, depending on it being run, on the sight, sounds, and smells of it in its natural milieu.

##

Authenticity is a requirement for inscription upon the UNESCO World Heritage List. Over the years, our understanding of the term has evolved. Our current view of the nature and scope of the meaning of authenticity was both challenged, debated, and redefined here in Japan. It was set out in the Nara Document on Authenticity published in 1994. In it, authenticity can be expressed through form and design. It can be expressed through materials and substance, use and function, traditions and techniques, location and setting, spirit and feeling, and other internal and external factors.

##

It was a debate prompted by the circumstances under which wooden temples in Japan have been maintained over the years and over many generations involving periodic dismantling to replace deteriorated fabric and then rebuilding using the original construction technology. Here authenticity derived from tradition based upon an unbroken thread of continuity. That thread is kept intact by craftsmen and passed on from generation to generation. The Nara concept of progressive continuities, recognizing the legitimacy of layered authenticity, evoking successive adaptations over time, has been repeatedly reaffirmed since that date.

Authenticity, then, is a cultural concept; in practice, never absolute, always relative. The recognition of cultural landscapes under the World Heritage Convention also raised further questions on the issue of authenticity. As in historic cities, the ongoing dynamic processes of change in places of living heritage collide with some of the more traditional definitions and criteria for authenticity. The

confrontation between one set of values, the outstanding universal value criteria, and the desire for dynamic change in, for example, Liverpool, a World Heritage city inscribed in 2004, with a fragile economy and an overwhelming pressure to generate jobs at almost any price, is an issue and an issue which is yet to be resolved. As a result, Liverpool is on the World Heritage Endangered List, awaiting some reconciliation of the voices, the values of the past, with the needs of the present and the future.

##

St. Pancras Station on the other hand, listed grade one in 1960s and thought to have no possible future, still less as a railway station, has been a spectacular example of adaptive reuse where a new use and a very clear intention came together to produce an exceptional result. What we have here is, what was at that time, the largest roof span in the world when it was opened in 1968. And, it was an inspired decision to take this almost derelict railway station and convert it into the terminus for the Eurostar trains that connect London with Brussels and Paris.

The basic concept for restoring this station was to go to the original drawings from the architect and the engineer who built it. So, in the re-slating of the roof, it was to the original slate quarries that they went. And, the slates were cut to the same specification as William Barlow had desired in 1868. In the renovation of the undercroft, all the facilities for a modern railway station could be provided in an area, which was designed originally for the storage of beer in barrels before its distribution to London pubs, without compromising the value of the historic structure.

##

And in the case of the original entrance doors which had long disappeared, it was to Barlow's drawings that the architect and the craftsmen went to replicate precisely in every detail what was the original intention of 1868. Here we see a clear intention to reuse St. Pancras Station and an obsession with preserving what was there in its authentic detail and replacing what was not there by recourse to the original drawings of the architect and the engineer.

##

So, when we start (and Patrick Martin just now alluded to exactly the same issue) when we start to apply our desires to see the past speak to the future through industrial sites, we are engaged in an entirely different scale and nature of enterprise. Scale in terms of massive structures; structures which do not and cannot have any adaptive reuse in the commonly accepted sense of that term. But they can be preserved and preserved for history's sake, and that means that they need to be able to speak to us. In that sense, something of their qualities of authenticity and originality needs to be protected.

##

Now, if we look at these sites, and I will choose only two or three examples now before concluding, that form part of the current serial nomination under the title of 'Sites of Japan's Meiji Industrial Revolution', we come to an interesting case in point; a wide variety of typologies, each with its own qualities, not only of outstanding universal value, but of various flavors of authenticity. And let me just then at this point suggest that historic industrial structures and buildings bring with them the very

dilemmas that I have mentioned in terms of scale, but also need careful analysis to determine the extent to which originality is potently and visibly there in them.

##

Here we have the office building of the Yawata Steel Works, essentially a European style of building with Japanese design characteristics as part of its charm and interest. It is well-documented. It is in relatively sound condition. And it involves the construction materials with which we have been familiar in historic preservation circles for more than 200 years: stone, brick, and tiles; conventional building materials with which we are familiar, and for which there is a well-developed opportunity and a well-developed philosophy for preservation. The office building, then, at Yawata can form a building for the future, can be adaptively reused, can have all of the qualities of reversibility built into the way in which it is cared for.

##

However, when we consider its context, we have, I believe, an additional quality that adds real value to it. It is not just a building standing in isolation. It lies at the heart of a working steel works. That gives it a quality beyond the ordinary, and I suggest adds a particular element of value to our understanding of it and its original function. That is, I think, one of the peculiar and, I think, possibly quite exceptional qualities that attach to these sites within the Kyushu-Yamaguchi nomination.

##

The Kosuge slip in Nagasaki is substantially original. You saw it illustrated in the video a little earlier. It came from Aberdeen in Scotland. If it existed anywhere in Europe, it would have the highest possible category of protection. What makes it exceptional is the fact that, despite the years, it is substantially what came from Scotland 100-odd years ago, 150 years ago, and is still there in the place in which it was installed and in the historic context in which it had meaning. It also has a supporters' club who are enthusiastic that it should become part of a world heritage inscription.

##

I will finish with the spectacular crane across the water in the Mitsubishi Yard. Here is a working crane in a working shipyard in the ownership of the corporation, or its successor body, which built it something over 100 years ago. We had a lot of debate when we were talking about these working sites and operational sites in contemplating the assemblage that would form the basis for this nomination. A lot of the debate centered around whether we can really accept working operational sites for world heritage inscription, and a lot of people said, "No."

I take exactly the opposite view because it seems to me that the great quality you have here is an object with a high degree of originality in the best possible hands. If the Mitsubishi Corporation becomes the partner, which they wished to become, in ensuring the long-term survival as an inscribed world heritage property within this serial nomination. What better organization could look after it? It is an organization that knows and uses the crane. It understands its technology and it has the resources (technical and financial) to be able to look after it in a manner that it is difficult to imagine any

other organization could. We only have to look at the examples (Patrick Martin referred to them just now) of a site which ceases to have a use, from which the owner has fled as a result of bankruptcy or changes in technology, to realize how sensitive and open to loss and destruction they can be.

##

I shall finish by suggesting to you that one of the qualities of authenticity is context and use, whether it is Old Bentley Number One and the sights and sounds and smells that attach to it, or the swinging jib of this great crane in the harbor in Nagasaki. My final and concluding point then would be (supposing I can find the page) that there are particular qualities to do with value and authenticity. We need to know our intentions very clearly. What is it we wish to do? Why do we wish to do it? Once we have answers to those questions, we can work out and debate the 'how'.

What I see here in Japan is an innovative and extraordinary step forward in the way in which we can contemplate world heritage for an industrial nomination. I know I speak on behalf of all of those of us who have been involved with colleagues here in Japan over recent years, we wish you well with your nomination, thank you.

(Moderator) Thank you very much, sir. Ladies and gentlemen thank you for listening. This closes the keynote addresses.

Session 1: Iron and Steel Industry Conservation Challenge of Iron and Steel Industry
Chairperson: Rolf Hoehmann (Head of Bureau for Industrial Archeology, Germany)

(Hoehmann) Because we are running out of time, I would like to start this session very early. I hope everyone is seated. I first must introduce myself. My name is Rolf Hoehmann, I am head of Bureau of Industrial Archeology in Darmstadt, in Germany. For 30 years I am researching in the field of industrial archeology and industrial heritage. One of my main objects was the history of iron and steel, and was engaged in the research of some very well-known blast furnaces sites like Völklingen and Duisburg and so on. That might be the reason why I am chairing this session.

I have the honor to introduce some people who will give some comments on the conservation of this iron and steel industrial heritage. I had no instructions from the organizers, so I will just work from scratch, so I must improvise a bit, so please, if something goes wrong, say it loud and clearly to me.

The first lecture will be about the 'Modernization of Iron Making in Japan as a Late-comer in the World History;' I suppose it means 'world industrial history'. The lecturer is Mr. Munetsugu Matsuo, and he is coming from the Cabinet Secretariat Industrial Project team. Please, Mr. Matsuo, start with your lecture.

Modernization of Iron Making in Japan as a Late-comer in the World History
Munetsugu Matsuo (Cabinet Secretariat Industrial PT, Japan)

Thank you very much ladies and gentlemen. I will speak in Japanese.

#1

This is the title of my presentation. What I would like to emphasize is, within here, the word 'Late-comer'.

This is the word I emphasized, which is the focal point of this talk, 'Late comer.' There are three parts in my speech. The Japanese steel and iron making industry, who are the people who contributed to the development of the steel industry? Thirty years ago, the United Nation's University published a book on the Japanese experience. The steel industry is given emphasis in that book published by the UN University, so I would like to explain the content as well, and what happened 30 years later.

I am an engineer as my background. The word 'important thing' is appropriate technology. Appropriate technology is important, and then even the late-comers can enjoy the fruit of industrialization and development with the appropriate technology. That is the gist of my talk.

#2

In 1857 or 1858, at Kamaishi, Japan. Currently, at Kamaishi, there is a mine, and Mr. Takato Oshima was the leading figure there. For the first time molten iron was created, so that the structure of steel design now became possible in Japan.

#3

Between 1850 to 1910 is the period that I would like to cover today. This is the Japanese steel industry, its production volume, and historical increase over the years, up and down. *Tatara* was a traditional technology, and Kamaishi was born in 1894. Kamaishi production surpassed the *tatara* production level, and in 1901, Yawata Steel Works was built, so there was rapid progress and development after that.

#4

There are two memorial years. One, 1857, is important year for the history, because in Kamaishi, iron production became possible. In 1857 memorial stamp was printed. It was a coincidence, but it was 'steel' was still in the USA. They also printed an American stamp, commemorating that occasion, because in 1857, Japan and US both created stamps. Japan focused upon only iron, and the US on steel, so there was a big difference. 100 years' worth of history or technological progress difference was observed as of 1857.

Another year, in 1901, because that is the year when the Yawata Works was built, in 1901. US Steel was born in 1901 as well. The details: in the handout, the last page shows the historical chart, so please look at the history of iron and steel covering this period; Japan versus western nations.

#5

Markedly, the Japanese steel industry enjoyed progress development. From the westerner's standpoint, it may be regarded as the Enigma of Japan, as shown here. Why? Japan, in the area of industrialization, achieved such a success. This has been an enigma. To illustrate this mystery, it is very important theme, so that has to be explained.

#6

Then, if that explanation can be done fully and clearly, I think this industrial heritage value could be added, because in 2009, Kyushu and Yamaguchi, as the word heritage, was listed in the tentative list. This is a newspaper article on that. At that time, Governor Aso then of Fukuoka Prefecture said that as I said, the same thing is quoted by him. Why did Japan achieved the industrial revolution so quickly and caught up with the other countries? That is a worthwhile research theme for the world, so that was pointed out by Governor Aso as well. The industrial revolution was kicked off then. The major theme for this work we are engaging now I think rests here, and we would like to illustrate that point.

#7

This is a word praised by the current emperor, Akihito when he was the crown prince. He wrote this article in the US magazine *Science*, as shown here. In the Meiji Emperor era, you see the vigorous spirits in energy. It was so important. He said that we admire this vigorous spirit in energy of those days. This gentlemen called Yamao Yozo, he created Kobu Daigakkō, the industrial university, which is the predecessor to current engineering department at Tokyo University.

#8

Yozo Yamao was maybe the inspiration or figure to build the engineering department, and he invited Dr. Henry Dyer. He was the Principal at Imperial College of Engineering of Kobu Daigakkō. After he retired from that school, he went back to the UK. Mr. Dyer wrote the book entitled "Dai Nippon, The Britain of the East." What did he wrote in his book? He said that "The secret of the Japan's development, which have taken place is to be found in the fact that the Japanese have a high degree of personal and national honor." That was the message that he left in that book. He praised Japan in that sense. I will give you the details later, but honor and pride were important inherent factors, and Dr. Dyer observed that when he was in Japan.

#9

Another important thing is, of course, Emeritus Professor of MIT, the Professor Cyril Stanley Smith. Dr. Smith is a great predecessor, senior professor in that field. He has admired the great excellence of the Japanese traditional sword. One unfortunate thing he said is that "It is based upon the *takumi* (skill) tacit knowledge, which was not grounded or backed by the scientific evidence, which was something that he sort of regretted. That is the word quoted from him. We call it 'tacit knowledge', or *waza* or *takumi* knowledge.

#10

It has to evolve to be more scientifically-backed knowledge. In that sense, Japanese science, to supplement that, the major contribution was made by this person called Mr. Curt Adolph Netto and Professor Adolf Ledebur. Professor Netto was a professor of Tokyo University in the department of metallurgy, and professor Ledebur invited Japanese students to Germany and taught them at the Bergakademie in Freiberg and taught the Japanese students about the steel industry and technology.

The students who learned there became the forefathers, pioneers, to develop the Japanese steel industry.

#11

Up there that shows the Emperor Meiji has decorated him with the imperial award one year before Yawata Works was built. Professor Ledebur actually taught our predecessors, Japanese pioneers in our field. The company called Gutehoffnungshütte, the predecessor who helped to build the Yawata, and that company was introduced by Professor Ledebur.

Another Professor, Curt Adolph Netto, was at the Tokyo University. Actually, he gave lectures to Japanese students, taught Japanese students directly. This book, document, it is called the Metallurgy Book of Professor Netto. I have this book as well, but this book was later published in Japan because he taught metallurgy in a very systematic way to the Japanese students. For the first time, Japanese *takumi* masters found the way to evolve to be scientifically backed, the science or scientists.

Professor Netto liked the Japan as shown in this photo.

#12

As I said, one of the students included Professor Noro, Kageyoshi Noro, and Mr. Watanabe as well. Other students and disciples are shown in pink colors, Mr. Imaizumi, Mr. Hattori, Mr. Komura, they all learned there and graduated from there. Mr. Noro later became advisor to Kamaishi, because the blast furnaces were built by Oshima, and then the industrial department of ministry built the blast furnace, but they failed. The Tanaka Works actually rebuilt it. Professor Noro was invited as an adviser to Tanaka in Kamaishi.

#13

Later, Mr. Kyutaro Yokoyama was the chief, the engineer, manager, there. His original design was too large, so he revised it to make it smaller. It is the same size as Oshima's furnace. With that small scale furnace, for the first time, they built this economically feasible operation. Kamaishi was revived.

#14

Let me show you this design chart or profiles of blast furnaces in Kamaishi. As you can see, from left, you see the original UK design, imported furnace. But, Yokoyama revised it to make it smaller and actual operation started in sort of a commercially feasible way. The foreign furnace was revised by Professor Noro, and they successfully used the coke for the first time in Japan.

In 1881, you see that there is just no curve there, and the shape is not perfect, optimal, because you put iron ore, and then you heat it, and then it will expand, so it get stuck in this original design. It is a matter of course, the weakness of this original design, which was revised and improved. Now coke can be used, and then they can have a better design. Later on, the design further evolved and Kamaishi Works was really advanced as well through progressive improvement.

#15

On the other hand, Yawata also did try the similar thing in 1901. On the 5th of the February, they first kindled the furnace, and then starting operation, 18th of the November schedule, the furnace did

not really start operation. They had to suspend the operation. Finally, as late as 1904, on the 23rd of July, for the first time, the furnace was re-kindled. In other words, the Japanese steel industry started here in 1904. Thanks to Professor Noro, he made all kinds of device improvements to this design, and was improved further to this better shape; better design.

#16

Like I said earlier, the UN University has sponsored to publish this book in turn of the Japanese experience in technology, and there are stories on the iron and steel industry. What is emphasized is this word 'transfer' and 'self-reliance' in iron and steel technology. The word 'self-reliance' is key word as well. Let me think of it and let me repeat to use this word later.

#17

What was the experience that Japanese people had, lessons experienced as well? Let me just focus on important areas.

#18

The first point: indigenous technology was given emphasis. Why did Professor Oshima succeed? They used the water mill in Kamaishi. The water mill was a traditional technology in Japan, there was a tradition of using water fills in Kagoshima. They had a huge iron ore, which was difficult to be moved, so they had have powerful waterwheel to move as a power source. A bellow was also used.

It was indigenous one, improved up the Dutch textbook design and these Japanese bellows are different. What is important is, in the blast furnace, the gas permeability is a key thing and that was noteworthy.

#19

This is another one shown in the old picture and textbook. To achieve this development, Japanese education was an important underlying factor. The education system was very important foundation or infrastructure we had in Japan to enable the Shokasonjuku, a private school is included in the candidate list for this registration ascription that is to demonstrate Japan.

#20

In Japan, the education has been emphasized for a long time as a backdrop. UNESCO now is promoting the world heritage, but the other important message or the activity is education for all. In Japan, we call it the World Terakoya Movement. This is a very important movement that we have to adhere to and emphasize in the future.

#21

The iron and steel industry is not just based up on one blast furnace or the other furnace or whatever, it has to have all the different technology as a system like administration offices, R&D facilities, and facilities for water, engineering, repair shops, and so on. As a total, as a system, I think Yawata was served as a very important heritage.

#22

I would like now to talk about appropriate technology. Let me give you maybe an analogy or an example. The Nippon Steel Corporation now, when it was Nippon Steel Corporation as a predecessor, they built the Malayawata Steel in Malaysia through collaboration, and a keyword or important word was appropriate technology.

#23

Specifically, in Malaysia, to develop the iron and steel industry, they had to use initially coal and so on, and the charcoal. But, there are lots of plants, so they have the raw material for the charcoal making, and so that they used the small furnace. Annually, only 60,000 ton of the scale. It was a tiny furnace for the steel making, and they succeeded in that. The keyword that is appropriate technology was there.

#24

There are different definitions to describe what appropriate technology is. It is a difficult concept. In one word: endogenous development. The gist of it is that that has to be suitable for your country, for the recipient side.

#25

Another example is the Tomioka Silk mill that has been registered. Tomioka Silk Mill also had appropriate technology. It is a similar analogy to the steel work, even though it is a silk industry. Yokosuka was another works. Seven years ahead of time, they built that too. Yokosuka arsenal and then there was the Yokohama iron mill. Before building large size mill, they had a smaller scale in Yokohama, and then built a larger version later. What has been built in Yokohama that is water tank, which has been brought to Tomioka. That technology was applied to the water tank. For the silk making, they need a lot of water, so the water tank technology was applied to Tomioka as well, originally from Yokohama and Yokosuka.

Another important thing for Tomioka Silk Mill is that, for the silk thread production, the technology was accumulated there, so they needed to have the silk reeling technology as well. That is a very unique technique developed in Japan suitable for Japanese environment and climate, so that the proper silk can be produced for Japan. Another important thing is that Japanese female workers are tiny, so that the facility has to be suitable to the Japanese workers body size, not just bringing the French-sized machine. They have revised and built the machine suitable for the size of Japanese female workers.

#26

Japan has been a late-comer, but why Japan succeeded to develop its industry, the conclusion is here. Modern technology was readily accepted in Japan. We have the background infrastructure to accept it. There was a spirit of so called endogenous development to enable this nurturing of technology. In addition to technology, I think spiritual background, self-reliance spirit was there in Japan. Yukichi Fukuzawa emphasized this self-reliance. Japanese people have that sprit. Professor Dyer said that the Japanese people really had pride, and he said there was important attribute of Japanese and that we

can find a similar thing here in spirit.

#27

You know the former UN leader, Dr. Hammarskjold. He was Secretary-General of the UN long time ago. He has left the Hammarskjold Fund, and the Hammarskjold Foundation is his legacy. They published a report. It talks about development on progress. There are different ways to achieve it, endogenous; and self-reliant one. Probably, Japan pursued the development through the self-reliance in an endogenous way.

#29

Another message that the UN University has published this book on Japanese experience. We initially tried to have the large scale in Kamaishi and Yawata. We can just laugh at that initial effort because the people there did their best at that time. We have to understand the background and circumstances of that time that those engineers and pioneers were in. That is my message. Thank you very much for your attention.

(Hoehmann) Thank you very much Mr. Matsuo for this Japanese site and how to explain the transfer from technologies to Japan, and what Japan did with these experiences and how the reception is today of this development. I also thank you; you have been very much in time, 25 minutes. I remind this to all the other speakers so that we have at least some minutes for discussion or for further questions on the specific contributions. Is there any question about this? I am quite happy about the time and questions. We have enough time, because next speaker is Norbert Tempel, and he usually takes 5 minutes more. I have known him for a very long time, so I am quite happy that he can start very early and give a short introduction.

In Germany, we have 13 blast furnaces in total being designated as cultural heritage, and most of them are quite large, as you might see in the examples coming on. Since about 1990, so we could collect some experience for the conservation of these very large industrial structures, which were never meant to be a monument exposed to outside elements. They were always hot when they were running, and were reconstructed every 10 to 15 years. It is quite a task to keep blast furnaces being conserved as monuments.

He will refer only to two of these examples, and these are Völklingen site, which is a world heritage site for many years, and also to another site for which he was responsible in conserving in the museum in Hattiingen. Please, Norbert, start your lecture.

Safeguarding Blast Furnaces as Heritage Sites: Experiences and Recommendations from Hattiingen and Völklingen Ironworks in Germany

Norbert Tempel (LWL-Industriemuseum, TICCIH Germany, Germany)

Thank you. It is an honor to take part in this conference and I would like to talk about 'Safeguarding 20th Century Iron Works as Heritage Sites.' I will talk about some experiences and recommendations from Völklingen and Hattiingen Iron Works in Germany.

#1

In the picture, you see artificial lightning of the Duisburg plant, others try to do so as well. It is always good to gain compliance and to make marketing, but it cannot replace preservation measures and that is what I am talking about.

#2

Just in my preview, first I would like to talk about the both heritage sites, Völklingen and Hattiingen, then some thoughts about strategies of safeguarding, and I would like to conclude with three examples for conservation measures on these two sites.

#3

This is a map about the European industrial revolution in the 19th Century. In Western Europe, and the 19th and 20th centuries, centers of heavy industry developed on the basis of hard coal mining basins such as like the Ruhr District, the Saar, Lorraine, Luxembourg region, Wallonia (now Belgium) and Upper Silesia from Prussia and now Poland. As a result of several steel crises from the 1970s onwards, the steel industry was concentrated on only a few profit making locations. Dozens of steel mills were closed down. Some isolated blast furnaces are kept as monuments, as Rolf told you. But the single monument disconnected from its historic peripherals cannot tell the whole story, I believe.

#4

Therefore, in my paper, I concentrate on two more or less complete heritage iron works in Germany. First, the Völklinger Hütte world heritage site. Here you have a view from the 1950s as a first impression.

#5-6

The next slide is showing it like it is looking today. The Völklingen Ironworks was inscribed in the world heritage list in 1994. Now, I would like to cite an excerpt from the justification. "The Völklingen Ironworks is a unique monument to the technological history and industrial culture of the 19th and early 20th Century. It provides an unusually complete illustration of a large plant pig iron production process, which is of major historical interest.

As far as is known, no other historical blast furnace complex has survived, which demonstrates the entire process of pig iron production in the same way with the same degree of authenticity and completeness and underlined by such a series of technological milestones in innovative engineering. The Völklingen Ironworks monument is able to illustrate the industrial history of the 19th Century in general, and also transnational, Saar, Lorraine, Luxembourg industrial region at the heart of Europe in particular. The plant, which has survived in Völklingen, embodies a world of industrial work and production, which has disappeared elsewhere in the wake of subsequent technological development and continues modernization."

#7

The Völklingen Ironworks is to be preserved as an industrial museum. A survey of the site used as a museum, all of areas of the iron industry from the ore banker to the coking plant, number five, I believe here, from the suspended conveyer system, blast furnace complex, dry gas purification plant, blowing engine hall to the historical rolling mill engine can be experienced directly.

#8

Here you see a map showing with the red line, the boroughs of the world heritage, you see it is inside a greater industrial area belonging to the Saarstahl steel producing plant, which is now a producing plant, and we hope so will be in the future, but this causes some problems.

#9

Some more impressions you see on the right pictures, the dry gas purification plant and the reconstruction. In the left corner are the blowing molds of the furnace, and upper left, the water tower, which will become the entrance of the museum, and will give some space for exhibitions.

#10

On the last picture, showing the blower engine hall, you see, it is now used for some expositions. It is darkened, it is not the real impression you had during its working time. These are some problems. They are the monument officers and ICOMOS is talking about.

To sum up, the reasons for the outstanding universal value of the Völklingen Ironworks lie in its unique completeness and originality. Technological milestones like the dry gas purification plant, which were the first of its kind on such a large scale, the suspended conveyer system, the largest of its kind, and the pioneering sintering plant are all integral parts of a complex 19th and 20th Century pig iron production works, which is concentrated into a particularly small area of only six hectare. The criteria two and four of the convention concerning the Protection of the World Cultural Heritage are thus met. Criterion two, technological innovations; criterion four, outstanding example of an integrated pig iron production plant of the type which dominated this industry and in the 19th and early 20th centuries.

#11

Now, we are moving forward to the Henrichshütte Hattingen site. The Henrichshütte Ironworks were founded in 1854 in the Ruhr valley near Hattingen. The enterprise developed into a vertical company owing all mines, blast furnaces, steel mill, foundry, forges and manufacturing workshops. What you see is a furnace number three, which is on the left-hand side.

#12-13

At its peak in 1944 in the Second World War, 9000 German workers and 2500 slave laborers were employed on the site. The blast furnace plant closed in 1987, the steel mill five years later. Furnace number two was sold and translocated to China. You see a view of the Henrichshütte Ironworks museum today, it is part of the Westphalian Museum of Industry, which own eight sites altogether. The Ironworks was listed as a technical monument and became part of the Westphalian Museum of Industry in 1989.

#14-15

Some more impressions. The casting bay of the blast furnace. You can visit the blower engine halls that is now the space for a forthcoming museum of iron industry in the future, and The Bessemer Works.

#16

There are as well the premises of 1879, Bessemer Steelworks, presumably, the only one left in Europe. Here you see in the pictures, a reconstruction of the machinery deduced from vestige found in the building and from written sources, an example for the importance of research work both academic and archeological onside. It was only in use for three years and it was translocated to another factory of the same company, but the building remained.

#17

There is a special device on site, the Second World War air raid shelter, especially dedicated to the officers of the Ironworks and their families, excavated by slave workers from the rock at the slopes of the Ruhr valley.

#18

There had been underground factories for the production of weapons, but they had been closed shortly after the war, and we could not realize to reopen them so far. Devices like these are very important to the significance of a site. The Henrichshütte is part of the Ruhr Industrial Landscape application for world heritage.

##

Second part; now some thoughts about strategies of safeguarding of ironworks. How to safeguard ironworks as a heritage site? To maintain, repair, and realign an iron producing plant in heavy industrial operation, or to preserve an ironworks as industrial heritage, are two very different challenges. To care for this use ironworks mostly with a small budget is a really big venture. Therefore, you have to develop a new realistic strategy.

Conserving a large industrial structure like this means a lifetime's work. I would argue to follow a strategy of continuous inspection and maintenance, then to think of a comprehensive and complete restoration in one go.

To this end, action plans oriented towards a gradual conservation of monuments are needed. The first step to create a good conservation plan is to understand the significance of the site and the way in which that significance is embodied in the place itself, its fabric, setting, use, associations, meanings, records, related places, and related objects.

#19

I have to explain this picture, this is the Völklingen Power Station, the first one, heavily damaged now, without a roof, most engine scrapped, but with close connections to the blast furnaces. You have

to ask, what is significant, how to preserve, how to use in the future?

#20

The assessment of the significance of a site and its elements has to be followed by the definition of goals for the preservation process. It turned out to be important to fix a goal at a very early moment of the process. First of all, one has to decide carefully which period of the site should guide the specification of concept. Goals may be named ruin, but you have to take care for ruin as well, you cannot leave it over to the weathering.

Old glory, mostly used when people are using and repairing old-timer cars, or realistic, the final productive period, and that is the main thing we do in Germany. We try to get the last final productive period. Depending on the remains on the site, this may be a mix of these different goals.

I would recommend a threefold strategy. On the lowest level, the basis must be the frequent inspection and enduring maintenance of the whole side. The challenge is to safeguard the monument and managing the risk. By conducting preventive preservation measures, you have to guarantee the stability, the structural safety of the buildings, structures, and large production devices, thus avoiding a breakdown or collapse of a building or a part of it.

#21

You have to guarantee the road safety. That means you have the obligation to safeguard all people from the risk of being injured when working at the site and visitors when walking around or taking part and guided tours. Then you have this discreet restoration projects of buildings or objects perhaps for reuse, or when you have heavy damage, you cannot only maintain these buildings, you have to take bigger conservation measures.

The third level is giving safe access; giving visitors access to the monument site in the early stages of redevelopment by safe pathways is a crucial factor for public and political acceptance, making the ironwork's paths, floors, stairs, runways and platforms suitable for visitors should be a central goal of the strategy. All measures should try to retain the wear and tear appearance of the industrial buildings.

The unity and the authenticity of the site must be kept.

#22

Here are some examples for preventive measures as a reaction to dangerous conditions. As you see, the stair on the left corner of the picture. You can fasten, you can board up, you can install safety nets, but I will not go too far into this topic.

#23

Now, my part three : I will conclude with three best practice examples which show creative new approaches to the remediation of industrial buildings. My first example is just a simple engineering structure, and I will talk about the rehabilitation of the vapor discharge tower.

#24

The Hattiingen Ironworks was casting (not only but from time to time) casting pig iron by using a

casting machine looking like this. In the picture, the machine is the last one in working order in Germany in Duisburg.

#25

To dissipate the emerging steam and the dust from the process, the discharge tower had been erected toward the upper engine platform of the casting machine. Perhaps you see the – it is no use. I cannot explain it on the map.

#26

I give you a survey of the construction. This is a discharge tower and on the middle level, you have an engine platform. As you see, there has been some asbestos panels on the platform.

#27

Both structures were heavily damaged, the asbestos panels of the tower showed brittle cracks and failures and had to be changed for security and environment reasons anyway. It was not possible to keep the material. The unavoidable replacement of the panels provided the chance to a far reaching rehabilitation of the steel structure, including a new coating as well, and new panels of the same shape.

#28

That is how it is looking after the repair.

#29

Let us say now you can sit in the beer garden, and you recognize and have your drink safe and sound. But that is not all..

#30

The material of the platform girders were fatigued, originating in bad steel material of the 1930s and heavy corrosion attacks; you see it in the picture. Strengthening the damaged girders of the engine platform turned out to be far more complicated.

#31-32

From material analysis, we knew about the risk of a sudden failure, but we wanted to keep these girders. Instead of replacing these large dimension steel girders, we decided to build up an additional load bearing structure. You see it in the next picture marked in red. The old girders have been stabilized by this additional structure, so the original could be left in place. In a photo, finally, the whole structure has been corrosion protected in two different colors to indicate the difference between the old and the new structure. The red arrow is showing the new support structure. You see over this, around this, the older structure.

#33

My second example is the Völklingen coal storing tower. It is a picture of the coke oven batteries,

and number one is the tower I am talking about. The coal tower is an elevated steel structure, 19 meter tall and approximately 10 meters in diameter. It was used to store fine grain coal. By 1942, it had been retired and subsequently served only as a structural support for redirecting a conveyer belt. You see number four and three.

The tower built in 1897 has a high value as a monument because it is one of the oldest components of the Völklingen coking plant. Its most prominent features are its style of construction and its former role in the production process.

#34

The coal tower has been in very poor general repair. Securing the structure became urgently necessary. The goals of the renovation included the preservation of its corroded appearance through corrosion protection according to German technical rules.

#35

This is constitutional for this very special solution. It was decided to color the new and newly corrosion protected surfaces of the coal tower such that the impression of a rusty ruin remained. Literally, let us paint a ruin. Perhaps, the monument officers liked this way to react. It is a possibility.

#36

You see on the right picture, the void and the holes that are left. They did not repair the steel from outside. This so called 'window into history,' only cleaned and protected with was serves as so called primary documentation. The stability of the structure was assured through scaffolding on the inside. The measures were planned by my colleague, Kornelius Götz.

#37

Now let us review today, and you can decide whether that is the right way. There are other methods to avoid a new appearance of new coated steel surfaces.

#38

It is to apply an additional rust coating on top of the industrial standard coating system, not in the picture, which was recently developed by a German company. Or you may apply a polyurethane-based transparent coating shown in the picture to a rusty surface. We made some experience, some good, some not so good with this method.

#39

The third and last example is what I called 'smart repair for concrete,' a very new approach to the refurbishment of industrial concrete surfaces has been developed recently by a German colleague Martin Sauder for the Völklingen site. Unlike industrial scale procedures when renewing concrete surfaces, mostly using sprayed concrete, this method is compatible to monuments. That is why I call it 'smart repair for concrete.'

#40-41

There is shown example for a heavily damaged concrete pillar. That is how it looks and we have to react to this. The idea behind this smart repair method is not working over the damaged surface as a whole, but repairing it in small sections. Void by void, on the spot, thereby conserving the surface structure and rebuilding it only when necessary. The object in my example – I believe it is not the right picture, no.

#42-43

The object in my example is a raw material bunker, the measurements being 60 to 80 meters. Step 1: the re-profiling of a hole in the concrete is carried out in three main steps. Previously, the concrete reinforcement has to be de-rusted and coated, marked in red. Then a special mixture of materials, not an industrial ready mix, the characteristics being near to the original concrete mixture, is filled in using wooden sheeting of the same shape as the original. That is important.

You will get a surface very similar to the untouched surroundings and you will as well get ridges, a kind of volitional imperfection which is a characteristic feature of many industrial surfaces.

#44

Now the pictures appear. That is a same part of the bunker before and after treatment. That is the same point in the picture, the green dot you see, that is the edge of the structure before and after doing the work. Additional colored staining may bring it more in line with the surroundings. The result is perfect, in my opinion, because it is not too perfect.

#45

Here you see the result. In the upper left corner, you see one of this spots after repair. You can see in the large picture larger parts of it after staining.

##

My conclusion is very short. Every single monument needs an appropriate strategy of preservation. We should learn about best practice examples from all parts of the world, and I am sure you will find your own way. Thank you for your attention.

(Hoehmann) I think you know, but it was exactly 25 minutes. I am glad. There is some time left for further questions or starting the discussion, so are there any questions about this lecture?

(Tempel) I brought with me some leaflets of the Henrichshütte Ironworks. If you are interested, come to me and I can give it to you.

(Hoehmann) Shun, please.

(Q1) Thank you very much. In Hattiingen, you used transparent paint, but I heard it was a failure, am I correct? The transparent painting, Hattiingen was a mistake, not successful?

(Tempel)　Really, it is depending on the weathering, on the conditions.　First, we used the wrong first layer, it was not UV *stable ([セッション 1 英]00:55:41)*, so it is was a failure of thinking because it normally was used in combination with colored layers, and so the sun got through and disturbed the first layer, but we solved this problem.　When it is not open to the sun, as well to a heavy weathering, then you can realize this method.　It was about 15 years ago, and we have large regions that had worked very well.　It is not the only method you have to think about where to apply it.　Thank you.

(Q1)　Well, back then, as you rightly said, towards the top layer where there was an exposure to UV, transparent paint did not work.　From what I heard, the paint with the brownish color, which is very close to the color of rust, was used.　Was it what you wanted to convey to us, the change of the paint color to brownish?

(Tempel)　No, it is not a change, it is another system.　This brown color, when it is weathered, it will get a rusty surface; rusty impression, and under this you have a perfect industrial system of three or four layers.　On top, you have this (you said brown), this rusty color, there was iron in it, and so it is rusting by itself, dependent on the exposure to humidity.　It is a little bit fake, but when you are working on only certain spots, you do not have to show this is new, this is old, this is new, so you can do a little bit of artist painting with this for some parts of the structure.　You have to decide in cooperation with the monument officers.　This is working very well.　It is not polyurethane.　It is two different systems.　It would be another paper of half an hour to talk about this.

(Hoehmann)　*Shunzuka ([セッション 1 英]00:58:17)*, you know these objects too well, so we have to go there again so we can have further studies, maybe next year.

(Tempel)　You are invited.

(Q1)　Thank you.

(Hoehmann)　You are invited as you are invited every year to Germany.

(Tempel)　And everybody else as well.

(Q2)　In the North Rhine-Westphalian and Völklingen is in Saarland, Bundesländ, EU at three different levels, from which level did the money come?　The decision on how to preserve the site, from which level does this instruction come?

(Tempel)　This is coming from the federal state.　They have their own monument officers of North Rhine-Westphalia.　You have two parts, Rhineland and Westphalia, and they have their consultants and their communal level.　Saarland is very small, so you have only the one expert actual workers on the Saarland level.　No communal officers are integrated into this.

But, you have only very little monument officers and you have a lot to do, so most of these decisions and preparations you do by yourself. I am included in this, and then perhaps two time a year, you show them what you are intended to do and they will more or less agree. In the Saarland, actual workers are more involved in this.

The money is coming in Völklingen mostly from the state, from Berlin, and a little part from this very poor little Saarland. In North Rhine-Westphalia, we got an 80% gift from the government for many years, but now it is closed. We have only our own authority has to care for it with only €600,000 a year. It is a very small budget.

(Hoehmann) I think there is no other question, so we go on with the next lecture. It is also coming from Germany. The title is 'Transnational Technology Transfer with Particular Focus on German Technology Transfer to Imperial Steel Works and Yawata'. The lecturer is Professor Dietrich Soyez, he is a geographer, and he has just retired as professor from the University of Cologne. Mr. Soyez has many connections to southeastern states and has many collaborations with the universities in the Southeast Asia. Please, Mr. Soyez.

Transnational Technology Transfer with Particular Focus on German Technology Transfer to Imperial Steel Works, Japan

Dietrich Soyez (University of Cologne, Germany)

Mr. Chairman, distinguished guests, ladies and gentlemen, first of all, I want to say a heart filled thank you for the kind invitation to come here and attend this conference and give a paper, and the privilege to closely follow the project of Japan's Meiji industrial revolution Kyushu and Yamaguchi and related areas.

Your intentions and your strategies not only fill sensitive topical gaps at the international level, but complement still underrepresented heritage types. Once successful, the project will increase the number of industrial world heritage sites in Asia. It will mirror the thinking beyond the one site approaches, still so typical in the heritage field, as you address not a site, but if you think of Yawata, a number of sites representing a former industrial production system. This means also that they are not just related because they belong to the same group of objects or sites, they depended functionally on each other. Finally, your project clearly transcends what geographers call the 'territorial trap,' which means that you venture into a consistent transnational approach.

My presentation, however, will not focus on the complete industrial production system, but on its main element, originally named Imperial Japanese Iron and Steel Works. I will just use Yawata in the following. To give you an early warning, I will not present an empirical study proper. My presentation is empirically influenced, but it is not an empirical study. Instead, I want to make a plea for an unusual perspective with the potential to complement current approaches in industrial heritage.

#2

You see the outline here. After this introduction, I want to say a few words on my conceptual approach. As I said, I want to make a plea to open another perspective, and this perspective is barriers

to performance. In the third chapter I want to link Japan with Germany, briefly talking about technological hindrances, logistical nightmares, and communication barriers. Fourth, I want to briefly address transnationally informed interpretation strategies. There is a famous saying by Tilden in a book on heritage interpretation, which is not instruction, but a provocation. I will talk a little bit about that. Finally, a brief conclusion.

#3

Yawata is a result of a technology transfer. That means a geographical relocation of a technology to a setting where it was not previously known. Contrary to what it seems to be, this is not the unilateral process from one country to another, but it is influenced by both its country of origin and its country of destination. Yawata was constructed, as you all know, at the end of the 19th and the beginning of the 20th century by one of the most important actors in the industrialization of Germany, the Gutehoffnungshütte, Good Hope Iron Works, in what later became the City of Oberhausen in the Rurh industrial area. This is a company dating back to the mid-18th Century. From the beginning, Yawata is a result of a close interaction between Gutehoffnungshütte GHH and Yawata here in Japan.

There are quite spectacular remnants. To the left, the GHH Gasometer Oberhausen, a gas container that has become very famous tourist destination in Germany because it has been used now for many years as a major exhibition site with many visitors every year.

To the right, you see the Higashida memorial site with the blast furnace number one, which is not an original vestige, but, anyway it symbolizes this first step and this first blast furnace constructed by Gutehoffnungshütte and its Japanese partners.

#4

There are more remnants. These two can be considered as relatives, siblings, even far away from each other. To the left, the GHH Central Warehouse, now the depot of the Rhineland Industrial Museum; and to the right, the first head office here of Yawata, which we have seen a couple of times already.

Due to numerous acquisitions, mergers and restructuring processes with and within other corporations, both companies ceased to exist in a legal sense in 1970 and 1985 respectively. But they are clear historic continuities until today, which could be used for innovative interpretations strategies. Both of the names of Yawata and GHH are now used almost exclusively with regard to the legacies of the historic sites only in both Kitakyushu and Oberhausen respectively.

#5

Just to remind you of some important elements of our case study's underlying issues (and some of them have already been mentioned) it is embedded in the Japanese-German relationships during the Meiji restoration period. We have to underline the significance of Bergakademie, Freiberg; now Freiberg Technical University in Germany, and the key actors have been mentioned. Also Alfred Ledebur, Professor, iron and steel science, and Oshima Michitaro, who was a student and later became very important at the Yawata site.

GHH, and this I want to stress also, is itself a site of the processes of technology transfers, because

there were many influences from England and Belgium when this iron works became operational. The specific broad production range of GHH was a decisive factor and the decision-making of the Japanese actors.

What has to be emphasized also, is that GHH has not built the Yawata Iron Works. GHH was the general contractor employing many German and also foreign firms distributed all over Germany, which has a certain influence on what later became a problem.

The appreciation of industrial heritage as inclusive and illustrative part of our society's cultural heritage has grown considerably during the last few decades, both at the national and the international levels. Despite this progress and strong commitment of international actors such as TICCIH and ICOMOS, characteristic deficits remained to be addressed more consistently in many sites.

One of the most surprising ones is that a more systematic appreciation of cross-border linkages and facets in the industrial heritage field is only at its beginning, in particular in our interpretation approaches. Many of us know who deal with industrialization processes, but it is inherently transnational, but it is not always mentioned in the way it deserves. The result is a persistent entrenchment in national contexts, very often leading to a clear neglect or even exclusion and concealment of transboundary aspects. In particular, museum and heritage strategies also fulfill clear function of nation building.

#6

Let us emphasize again: the industrialization process is hardly conceivable nor understandable without boundary crossing processes. This involves people, ideas, patents, capital, unfortunately, even armies. All these processes I call 'transnationalization processes'.

In other words, our industrial past is in other countries and their industrial past is in ours. Such a perspective not only offers new ways of understanding more appropriately former historical context and our common path of development. After all, the history of industrialization in Asia, Africa and Latin America must be regarded as an integrated and inseparable web of processes in Europe and North America. Yawata can be used as a wonderful paradigm for this kind of issue.

Technology transfer, however, is not only about machinery or tools. It is also about organizational ways of doing things and about logistics. This I will address in a few minutes. Technology transfer, which is mainly regarded as the relocation of machines and tools, as well as formal and tacit knowledge linked to the application, is an inherent process in almost any approach to industrialization. More often than not, it is even at the core of it.

The following are only the transfer across national boundaries is addressed, and I focus on the Germany-Japan relationships, but one could extend this to many other countries, as many of you certainly know.

Such a transfer, mostly in form of a geographical relocation of technology to a setting where it was not known before, is associated with the host of uncertainties and risks.

#7

Here, in this context, I also wanted to address the issue that technology transfer is not only about machinery and about organization of logistics, it is also about people. It is heavily influenced not only

by historical context but also by cultural and intercultural specificities.

#8

Now, my objectives. With this presentation, I want to add views and information from Germany to the Japanese perspective. It is empirically based and informed, but mostly with the intention to show the value of a slightly different approach.

Secondly, I want to complement traditional narratives as to industrial heritage by not joining usual stories about courageous entrepreneurs, innovative engineers, and creative architects. They exist and they are important, but, instead, I want to look into normal day-to-day interaction patterns and personal idiosyncrasies resulting in a different perspective on another reality or even more realities of technology transfer than we normally are used to looking at.

Finally, I want to very briefly develop ideas about how we could interpret transnational industrial heritage, again, with the example of the Yawata-GHH linkages.

My knowledge base is the GHH archives now located at the RWWA Foundation in the Rhineland-Westphalia Economic Archives, now in Cologne. The GHH Archive is 1.2 shelve kilometers of documents. Yawata Iron Works is about three shelve meters. There is enough to study.

#9

Now, let us come to the conceptual approach. Barriers to performance: the main uncertainties and risks with any technology transfer are linked to the fact that both the donor or entrant and the receiver, or adopter, are unfamiliar with a host of facets of the contextual settings they meet, or are exposed to, such as natural, historical, social or political conditions of the countries involved, or their direct counterparts attitudes and ways of doing.

As Jeremy puts it, I quote, "…differences in language, customs, values, and religious beliefs have been and remained of the greatest importance in limiting or liberating possibilities for the adoption of or modification of important new technologies." Such barriers to adoption on the receiver's side, widely known from disciplines such as ethnography or anthropology, are paralleled by so called barriers to entry on the donor's side. This later concept was originally developed in economics, among others with regard to foreign direct investment, FDI, and later more generally as regards to the theory of the international firm. I want to combine these aspects and call these barriers to performance. Two facets here, and I want to make three comments here.

##

First, I summarize 'barriers to entry' and 'barriers to adoption' and the term 'barriers to performance,' which means the inability of actors and institutions to achieve self-appointed goals as fast or as smoothly as expected, mainly because they are caused by their embeddedness in specific different, natural, and cultural contexts.

Second, barriers to performance are also inherently spatial as they are linked to specific regions and spatially bound nature, cultures, and historical contexts. They can also result in special processes and structural changes that impact on the regions involved both with regard to tangible and intangible factors, and both with positive and negative results.

Third, the study of 'barriers to performance' is not just an academic exercise. It will provide, if it is done properly, real life stories that have the potential to fascinate all those later visiting our sites, or those who are not born heritage enthusiasts. After all, we want to reach out, we want to reach people, not only experts. Now, how do these issues look like on the basis of the documentation available in Germany?

##

Altogether, the first four years from 1897 to 1901 were heavily marked by the problems of the entrant, the GHH and partners. The first years after the startup, however, became the most critical time for the adopter, only coming to an end around 1910, and the full production goals of the originally planned phase one were reached at Yawata Iron Works.

To state it clearly from the beginning, and it was already alluded to, both the construction and the startup periods were marked by an almost uninterrupted struggle with all kind of problems and even recurrent failures. Certain aspects of this fact are stressed in the Japanese literature, in particular, regarding technical issues. When I talk about Japanese literature, I mean those in English. But there are also numerous documents in the GHH archives in Cologne, and here they go far beyond pure technology issues.

The following problems were typical for all important elements and processes of the endeavor, and they can be categorized in the following fields: communication between Germany and Japan, transport and delivery; second, workforce and work organization; third, technology problems; fourth, raw material; fifth, finances; finally, intercultural communication problems.

The documentation available represents a huge potential for complementing the Japanese narrative on what happened there by German one, partly overlapping, but in many other facets mirroring other types of realities that have the potential to make future interpretation approaches really transnational, including different ways of seeing the same reality.

#11

Let us have a look at some of this empirical evidence. First, organizational challenges, beyond practical communication problems. GHH had to coordinate the German contractors, many of them outside the Ruhr industrial area; a huge job we can hardly overestimate the difficulties linked to this, which transcends from the archives material.

Checking the aptness of Japanese input materials for using German technology; for example, with regard to coal, Japanese coal was studied by coking plant experts in Germany and how they characterize these types of coal.

Negotiating costs and cost overruns with Japanese and German actors, a very important field of problems. Coping with plant and unexpected technical changes during the construction period, and with technological failures. We can continue in forming, educating, training, and coaching Japanese students, work-study sojourners and engineers, but without giving away technical secrets.

#11

This is something that is documented very well in the GHH archives where, recurrently, this is

discussed if a certain Japanese engineer may enter the facility of one of the subcontractors and how could their secrets be guarded. Dealing with transport damages and insurance issues. Files, enormous files, just dealing with this kind of problem.

Another thing that was very problematic was coping with recurrent interactions and interventions of Japanese decision makers directly contracting subcontractors. That means, for example, Oshima Michitaro contacted because he thought it would be faster, a subcontractor, without informing GHH headquarters, and then only indirectly GHH headquarters, realized, "Oh gosh! What is going on there? This is contrary to what we have concluded," and so on.

There are very interesting documents showing the kind of problems caused by this kind of what we say is almost a normal interaction pattern, but it was a problematic one. Negotiating costs and cost overruns with Japanese and German actors, and last but not least, how to supervise, how to instruct German technicians and fitters in Japan, which had a trend, of course, to develop their own ways of doing things and which were not very well integrated either, one has to say.

#12

Finally, there is a human factor. There are characters, very strong characters and personal idiosyncrasies. First, in the German group, engineers and technicians at Yawata. Then, in the Japanese work force (this is a topic that should be studied in Japan) with regard to day to day, but also to emergency interaction.

There were intercultural barriers and conflicts, not only language problems, but ways of dealing with each other, or ways of dealing with the problems were very different sometimes, and gave conflicts. Work ethics are discussed in the documents available at the archive.

The Japanese perspective on some of these problems is very well documented in publications written by our colleagues from Kyushu, Shimazu.

Then we have the German perspective on the problems that the Japanese thought were caused by the Germans. You may remember the name Gustav Toppe, who was the German manager of Yawata during the first years, and Hartmann Schmelzer, who was the German Rolling Mill engineer. They were both fired after Yawata was almost completed in 1901. They were both fired, and then they got jobs again in Germany. Then they started to report on what they did in Japan and how it worked in Japan, and how they thought all this was organized. There are very interesting perspectives which show us the existence of different realities.

Now, it is obvious and known from other comparable situations, that the close interaction between engineers, architects, technicians, and so on from different far away countries result in hybrid legacies; both assemblages and fusions on both sides. For example, regarding the variety of intangible elements as to languages, mindsets, attitude, ways of doing, and so on.

Last but not least, problematic aspects. To detect, the document interprets that such complex issues would require an important joint Japanese-German research endeavor and cannot be discussed here. A more systematic analysis of the world for information available in GHH archives is desirable.

To sum up, what transcends from these documents (thousands of pages of documents which I have scanned) is it was a logistical nightmare which we can hardly imagine today with today's communication measures. But it is all inspiring that they succeeded; both sides succeeded; that it was done. That is

just awe-inspiring and that would give wonderful stories for interpretation approaches.

#13

Now, let us come to this provocative quote, "Not instruction but provocation". How can we design transnationally informed interpretation strategies, showing different realities? Well, I think we need narratives with the down-to-earth approach describing documenting and explaining technical organization and logistical problems of the planning, construction, and early period.

#14

What I would like to see in the future are reestablishing links between Yawata and the Ruhr area, and may be other partners of the original endeavor. This could be a 21st century strategy.

#15

All this is fascinating, and all this, I think, should lead to that future interpretation strategies should not only include the spectacular and impressive facets, but also the less shining aspects of technology transfer. The transnational history story of Yawata can be used for transnational heritage strategies with an international reach far beyond Japan and Asia. Thank you so much.

(Hoehmann) Thank you, Dietrich, for this aspect. We heard it from the Japanese side already in our tour, but also today, in the first lecture. It gives me the belief that we need much more scientific research in this field. As we have already heard, there is ample of material that could be studied in this field, at least in Germany, and in Japan, too. We are still in good time, so if there are any questions, please let me know. No questions?

We start with the last lecture by Mr. Tadahiro Inazumi. He is member of the Japan Iron and Steel Association and the fellow of Japan Federation of Engineering Societies. As I learned, he worked for Nippon Steel, and is an expert on blast furnaces, so he is right to do a lecture about 'Bakumatsu Reverberatory Furnace Technology in World Iron and Steel'. Mr. Inazumi, please.

Bakumatsu Reverberatory Furnace Technology in World Iron and Steel Industry

Tadahiro Inazumi (Member of Japan Iron and Steel Association/Fellow of Japan Federation of Engineering Societies)

Thank you very much for the kind introduction. My name is Inazumi. It is my great pleasure to speak in front of such an august audience. Today I would like to talk about the reverberatory furnace at the end of the Tokugawa Shogunate period. That furnace was one of the first technological transfers of western technology which led to the industrial revolution in the Meiji era after Edo.

#2

This is what I would like to cover today. First, how the technology transfer took place based on the Dutch engineering book that got translated into Japanese. Domestic materials and traditional craftsmanship were used. This furnace was built on a self-reliant manner in Japan. After a series of

failures, at long last cast-iron cannons were made, but when it was test-fired, the barrel ruptured, and they realized the cause was the use of the domestically produced iron.

As a solution, they realized the need to convert the material to the blast furnace pig iron, and then they built the blast furnace and operated it and succeeded in improving the rupture problems. However, the timing was too late and the cannon production was behind the times at that time and it ended. Therefore, the cannon production by the reverberatory furnace failed. However, the blast furnace continued to evolve through the next generation. That is the gist of my presentation.

At the very end of my presentation, I would like to share my thoughts about the necessary conditions for successful technology transfer through these examples. Let me start.

#3

During the Edo period there was this national seclusion policy, so more than 200 years of war free period ensued, the Japan was a peaceful country which did not require weaponry. However, just because of that, Japan was not well versed in the situation outside Japan at that time. Towards the end of the Tokugawa Shogunate, the western ships visited Japan often times to press Japan for opening its borders, and then, at that time, the western weaponry was changed from the bronze cannon to the cast-iron cannons, which were cheaper and it was possible to mass-produce them. As an emergency response, Japan tried to increase the production of the bronze cannons for coastal defense and also tries to develop the cast-iron cannon which was effective in the Opium War.

#4

There used to be 1000 cannons at the end of the Tokugawa Shogunate.

#5

This is the example of the Nagasaki battery here. Let me just give you a blowup of the battery sites. The square part is the battery and there is only the stone wall that remained.

#6

To build cast-iron cannons at home required a technical book of the west, and about 1850, the technical book on the cannon was translated into Japanese. They were available through the scholars of Dutch studies.

Then it became the textbook for the cast-iron cannons going forward. The title of the book was the casting method at cannon foundry at Luik. In 1826, this book was written by Major General, Ulrich Hyuguenin. After he retired from the foundry, he wrote this book. Back in 1850, in Europe, there was this rapid innovation of the cannon technologies. Back then, this textbook already was 20 or 30 years behind the times. However, this Hyuguenin's book was not a simple engineering book, it described the iron properties differences and the blast furnace iron making methods. It came as an unexpected good fortune for Japan.

#7

This is a traditional *koshiki* furnace, traditional melting furnace. According to the Hyuguenin's

textbook, or the book, a large melting furnace was necessary for cannon making, and *koshiki* furnaces were not enough because of its limited melting capacity. They realized that the reverberatory furnace was necessary.

#8

This is the original drawing of the reverberatory furnace by Hyuguenin and copied at the time of translation.

#9

This is their working drawing based on that original drawing.

#10

Based on the Hyuguenin's book, with the domestic materials and the craftsmanship, Japan started building reverberatory furnaces in many places. First, the Saga domain in 1850 built the reverberatory furnace. In 1853 the Satsuma domain followed; 1854, Mito domain remained, and after that various places all over Japan.

#11

One of the typical representative sites of reverberatory furnaces, at this moment, Nirayama has this designated historic site, and it was almost completely restored. Other furnaces followed Hyuguenin's drawings or had the similar structures, but also some of them have the unique attempts or changes, and one of the example is the reverberatory furnace at Hagi. Only the chimney part remains today. Now, the reverberatory furnace in Saga domain only has the relic left.

#12

This is the drawing of the reverberatory furnace factory on the left. That is the furnace. On the right is the *koshiki* furnace, the traditional melting furnace of Japan. Using this *koshiki* furnace, not only iron, but bronze cannons must have been made.

#13

According to Hyuguenin's book, as material, blast furnace pig iron should be used. But the pig iron of blast furnace is different from the pig iron of the *tatara* furnace. *Tatara* furnace pig iron is called *zuku*. Let me just discuss *zuku* to you; the molten pig iron from *tatara* furnace. Let me just talk about *tatara* furnace here.

The *tatara* furnace produces solid lump iron and molten pig iron *zuku*. Part of the *zuku* was used for pots and pans, and most of them were decarburized for knife iron to be used in agriculture, forestry, and buildings, and natural steel in bloom or the lump irons were used for swords. At the end of the 19th Century, the Japanese domestic iron output was about 20,000 tons, which was equivalent to the charcoal blast furnace protection of England in the 19th Century.

Iron sand was used. Iron sand was from a beneficiated igneous rock. The concentration of the iron was several percentage points only, and the charcoal was from biomass wood material with forest

recycling features. This iron making was environmental friendly, and the production was sustainable based on local production for local consumption.

#14

This is the construction of *tatara* furnace.

#15

The furnace is built and after one run it was destroyed. This is the charging of iron sand by *murage*, a meister.

#16

Here, at the bottom, *zuku* is coming out. This is the material for cannons.

#17

After the run, the furnace was demolished, and you can see where they tried to take out the lump iron. The lump iron contains the natural steel and *zuku*. Using *zuku*, pig iron, cannons were cast, and finally the boring machine was used to bore holes for cannons.

#18

This is the original drawing of Hyuguenin, and this is the manufacturing or production drawing based on that. The gears were made of woodwork.

#19

Actual cast iron cannons, 25 pound cannon of Saga domain, this is the sketch of that furnace. Saga domain completed the reverberatory furnace in a short period of time. In the beginning, they could not melt *zuku*. After the eighth run, the iron was completely soft, and even after they started producing cannons, when they test-fired them the barrel ruptured. On the fifth trial, they succeeded for the first time. It took several years for them to come to the success.

It was not only in Japan. According to Hyuguenin's book, in the western world, there were similar failure cases, and the cause was the insufficient melting temperature of the furnace and the poor quality of iron material. Japanese engineers consulted merchant ship captains of the Netherlands and they gradually improved the performance.

#20

According to the inspection record that started in 1854, the ruptures of the cannon was reduced to one case. The midsize 24 to 36 pound cannons were ready for shipment. However, the large scale cannons like 80 pounds and 150 pounds, that was the original idea, however, and they could not produce them. In their places, bronze cannons were made, so 50% bronze cannons, and the remaining 50 were iron cannons.

Just as Hyuguenin's textbook said, it was difficult to produce rupture-free cannons, be it in the west or in Japan. When we evaluate the technology back then, from that viewpoint, Saga domain was closing

to the level of 1820 technological level of the west.

As you can see here, the number of cannons produced increased. The cannons became bigger, and the Shogunate placed orders, large quantities of orders with the Saga domain. As you can see at the bottom, in 1859, 150 pounds, three such large cannons were offered to the Shogunate.

#21

The cause for the rupture of the barrels using *zuku*; how did they improve on that? But there was no record to describe that at Saga domain. At this moment, historians and archeologists, metallurgists are testing for demonstrations and test to reproduce that improvement.

The silicon and carbon on the vertical axis here, I, II, III, are roman numerals. The metal structure differs. Number II is the graphite cast iron, very strong, but number I is the white cast iron. It is hard and brittle. As you can see, using *zuku*, it seems that the white cast iron is produced. That means that the cannon will be brittle. Then, using charcoal furnace and coking furnace, the carbon content and silicon content increases and that would make it easier to produce cannons.

The melting point or temperature, up until 4% of carbon, the melting temperature declined, which gives good fluidity. That is the interpretation of the current metallurgists. Therefore, according to the *tatara* furnace, the pre-modern iron production, it was difficult to make strong iron.

At the end of the Tokugawa Shogunate, this is what happened. They did not understand the cast iron and *zuku* iron, pig iron. In the west, in the Middle East, in the pre-modern time, they could only produce such brittle iron. But it seems to me that, at the end of the Tokugawa Shogunate, Japan was experimenting, but based on the metallurgical laws, they could not avoid the problems of the brittle iron.

#22

The Saga domain tried to improve on the property. The reason being, as I said earlier, there was no record left to show that improvement. But from the drawing, what we can interpret is that, for the improvements, there should be a rise in the melting temperature, and high carbon, high silicon pig iron must have been used. However, we need to study more on what actually they did at that Saga domain. We have not been able to clarify that completely.

#23

Now, after Saga, the Satsuma domain built the reverberatory furnace in 1853. At the same time they built a blast furnace. The objective of building such blast furnace is to solve this barrel rupture of the cannons using *zuku*. However, the blast furnace was not quite successful in operation, and using *zuku*, they had difficulty in producing cannons. Cast iron cannons were limited in number, and they were mainly producing bronze cannons for the defense of the local bay area.

The Mito domain's reverberatory furnace, based on Saga domain and Satsuma domain's experiences, they resorted to the experts from outside like, from Satsuma domain and Takatou Oshima. They tried to make the cast iron cannon using *zuku*, but they realized there was a limit of using *zuku*. According to Takatou Oshima's proposal, they tried to build a blast furnace in Kamaishi.

Inclusive of the Nirayama reverberatory furnace, the reverberatory furnaces of Saga domain and beyond showed that they had difficulty in producing cast iron cannons using *zuku* without ruptures.

They understood that blast furnace pig iron is necessary.

#24

Takatou Oshima understood the difference between *zuku* and the blast furnace pig iron proposed by Hyuguenin, and he became the leader of technological innovation of the iron making. He became the opinion leader.

According to the petition by Takatou Oshima, to Nanbu domain, he wrote about using the magnetite or that the blast furnace should be used. He just created this concrete image of converting from *zuku* to blast furnace pig iron, and this became a guideline for the building of the blast furnace.

#25

This is the cross-section of the blast furnace of Hyuguenin's book.

#26

Based on that, Takatou Oshima's team drew the working drawing of Kamaishi reverberatory furnace.

#27

This is the mockup, or diorama. This is now the designated historic site that Kamaishi Hashino blast furnace. In Kamaishi in 1857, according to the old calendar, in the new calendar, 1857, there was this cannon made, and then because of the blast furnace, the result was better than the time of using *zuku*, but there was this political purge at the Mito domain, and so the supply of the pig iron was suspended.

#28

From 1850, Japanese people put so much effort in producing cannons. However, at the time of the Commodore Perry's visit to Japan, it was already obsolete in the west. In the 1860s, there were the Armstrong Guns used in the Kagoshima bombardment and Shimonoseki bombardment, and there was this technological gap between Japan and the west. Even if there was no political purge in 1858, and even if the Kamaishi could produce enough pig iron for the cannon production, Japan could not have countered effectively against the west. All of the domains understood this.

Therefore, this boom of building reverberatory furnace ended after 20 years or so. After that, the steel cannon started to be produced. Therefore, the cast iron cannons' production started to dwindle.

In melting the metal, the technology of the reverberatory furnace evolved into an open hearth furnace. At the end of the Tokugawa Shogunate, Japan's efforts of the reverberatory furnace can be a very valuable historical industrial heritage.

#29

Now, what happened to the blast furnace? Ohashi was the first place for blast furnace by Takatou Oshima. After the success in Ohashi, Hashino and other similar blast furnaces were started to be built in Sendai as well with success.

#30

Based on this success, as Mr. Matsuo said at the outset, the government-run Kamaishi steel mill was planned and was built here. Takatou Oshima was involved in the construction of that steel mill. However, his plan was turned down and it was introduced in an offset manner, but it did not succeed. This is the western design offset.

#31

This is the same with the Hashino's blast furnace. This is Takatou's design of blast furnace. They tried again with this Takatou's idea, and they succeeded. Finally, a coke blast furnace was succeeded, and that led to Yawata Iron Works.

#32

My conclusion: Japanese reverberatory furnaces and blast furnaces independently developed through the translated book and was the original source of the industrial revolution in Meiji. It built a foundation for modern industry. The utility of Hyuguenin's book was not so much on the reverberatory furnace technology itself, but the fact that it just indicated the importance of the blast furnace technology. The technological content was just before the initial stage of the industrial revolution, so it was a transitional period from the manual industry to mechanical industry. It was within the understandable reach of the craftsmanship mentality of Japan, so Japan really understood this very well. Hyuguenin's book was a good textbook for Japan to understand the industrial revolution.

Now, when the advanced technology is to be transferred, what are the contributing factors? There were many restrictions, under the Shogunate domain system, and there was a success because there was this project team consisting of samurai warriors and artisans using one textbook. They learned together. Transcending the boundaries of domains, engineers were involved in the common national projects, and have the empathy, and shared feelings for the advanced technology. That led to the human resource development which would promote the industrial revolution in Meiji.

The consensus on the necessity of the technological innovation was the universal rule to change society.

#33

Thank you very much.

(Hoehmann) Thank you very much. I would not like to endanger our desperately needed coffee break, so I ask you if you have any question, please refer to Mr. Inazumi directly.

Please allow me two last sentences. This session is called 'Iron and Steel Industry'. Again, this is my experience, I heard only information, and so only monuments of the iron industry. This is a very dark hole in the conservation of monuments of the iron and steel industry that we have a very small number of real steel production plants. Maybe the reason is many people mix it up; iron and steel, while all the experts know that these are two different processes.

At the beginning, we had a lecture about Japan being a late-comer in the use of iron and steel, but Japan, in reality, is the first-comer in the question of preserving a modern industrial blast furnace site.

This is Yawata of course, and it was a model for many of us in Europe and in the Americas. We could always say there is one blast furnace already conserved as a monument, and that is in Japan. We are very grateful that there was some company that was very early conserving their last blast furnaces. Although, this is only from the year 1962, but it is very important for us.

Thank you Japan for this first try to have blast furnaces conserved. Thank you very much.

Session 2: Shipbuilding
Chairperson: Iain Stuart (JCIS Consultants, Australia)

(Stuart) Good afternoon, ladies and gentlemen. Welcome to this session on shipbuilding. As we have heard earlier in the introduction, shipbuilding was an important part of the whole industrialization project, and we have brought together some papers that discuss shipbuilding and its heritage in both Japan and around the world. I would like you all to welcome all of our distinguished speakers including myself, Mr. Brian Newman, Mr. Hiromitsu Kitagawa, and Mr. Kiyoshi Yokokawa. I will call up on Brian to lead off the proceedings. Welcome, Brian Newman.

The Nagasaki Giant Cantilever Crane and Scottish Shipbuilding Technology and Conservation Challenge
Brian Newman (Newcastle University, United Kingdom)

Thank you for that brief introduction, Iain. I have to say that I am delighted to be here in Japan today with such an august audience

I am talking about the subject which I feel very strongly, and in the time allowed we can only very, very lightly engage in the subject. What I will be presenting today will be a superficial sweep over the origin of fitting-out cranes generally, and then some matters relating to the Nagasaki crane.

First of all, of course, you can see my credentials on screen. I would also like to add to what Koko, in her brilliant presentation this morning, said about Stuart. I did not know Stuart well over a long period of time, but I did spend a delightful week touring the sites in Kyushu in March of last year and found him to be a wonderful travelling companion, a *great bon d'envoi ([セッション 2 英]00:02:09)*, a wit, and, of course, one that also add to that the huge contribution he has made to getting the bid to where it is today. Of course, in earlier times, the contribution he made to industrial heritage in England, especially in the context of the Iron Bridge Gorge Museum, of which he was one of the real founders, of this more structured approach to industrial heritage.

#2

I think this needs very little comment from me, but it is supporting evidence when I have said about these cranes, about how very, very rare they are as structures. I will leave you to read through that at your leisure.

When I read this work of W. H. Atherton called *Hoisting Machinery* when I was about 11 years old, it sparked an interest in me, which I thought would be easily quenched by visiting the local library. Unfortunately, the local library, or even the national libraries in England had very, very little on these

structures, and it took more than 40 years of dedicated research in primary archives to be able to entangle the story of the evolution, the genesis of these cranes and these structures, and exactly how many they were. Anyone wanting to follow my tracks will have a very, very difficult job indeed, because some of the sources are obscure in the extreme.

#3

Here is the subject of the presentation today looking splendid in its new coat of paint, which was applied from about March/April at 2013. It was built in 1909, still fully in working order, probably authentic to the extent that as Lord Cossons mentioned this morning about authenticity.

To the naked eye, apart from one exception, it is authentic. I know lots of bearings and wires and other parts that are not visible to the naked eye will have been changed over the operational life of the crane. However, essentially, it is exactly what Applebys delivered in 1909. It is a magnificent testament to the design and construction of the crane, and to the quality of the maintenance that Mitsubishi has afforded it ever since.

#4

We move on to the subject of fitting-out.

#5

One might puzzle at this. Early forms of fitting out cranes were evolved to lift the very high components. Now, one might think, well, this is a logical thing in the age of steam when boilers, and engines, and guns, and warships were very heavy indivisible loads. However, in the days of the sailing ships, the Royal Navy used obsolete warships, removed the sails and rigging and mounted a timber crane on, and they called these 'Sheerhulks'. These were used to lift masts on to other ailing ships; very large masts and also the guns onboard the vessels. They would be towed around the naval dockyards in England. They were not a lot of them, but it was an early form of a fitting-out crane.

When steam power came along, the Sheerlegs crane was evolved, which is a very simple structural arrangement generally up to about 80 tons. In fact, the Nagasaki crane of 1909 replaced an earlier British Sheerlegs crane built by a firm called Day, Summers of Southampton because the Sheerlegs crane was made obsolete by the Nagasaki crane. Rather, this slewing crane (slewing means that the crane can revolve in a horizontal plane) was a solution to the problem of lifting heavy loads aboard ships.

Finally, at the bottom left hand, the Fairbairn crane was result of really the first mathematical approach to structural design by William Fairbairn, who went into all of the calculations of the stresses and the movements and the forces, and designed this box girder crane. In fact, that example is still in working order as a museum piece in the docks of Bristol in England. The lifting of these very heavy individual loads in shipbuilding was a vital part of the post-launch process, and came to be termed fitting-out, because, essentially, a ship is just an empty box when it was launched in those days, and then the engines, boilers, funnels, and all else were put onboard.

#6

The Giant cantilever crane was another solution to the problem of fitting-out in the 20th century.

However, before that, the Germans came along with this design of a hammerhead crane. This is a true hammerhead crane designed by and built by the *Benrata ([セッション 2 英]00:08:05)* Company in 1898 at Bremerhaven, able to lift 150 tons, electrically powered, and that might fairly be said to be the first modern fitting-out crane. British firms never ever built hammerhead cranes ever for fitting-out, and German firms never ever built Giant cantilever cranes for fitting-out. There is a clear dichotomy between the traditions and the approaches of the two countries.

#7

Just a simple diagram to illustrate the difference between the two types, which, although superficially to the untrained eye, might look the same. The upper one shows by the arrows that, when a load is imposed on the crane, there is a tendency for the crane overturn, and this overturning is prevented by the tower seen on the right with the horizontal arrow at the top. That is the direction of the forces. In the Giant cantilever crane, the center of gravity always remains pressing down inside the tower structure and within the tower structure so that there is no tendency for the crane to overturn under all normal conditions of loading. That is what designates a Giant cantilever crane and it is the difference between it and the hammerhead crane which, is very often inaccurately termed.

The term giant comes from a long tradition of British naming cranes. In 1869, they built a crane which they called a Titan because of its prodigious lifting power. It was used for block setting and the building of harbors and ports. Then variations on that theme were called Hercules cranes or Samson cranes, and then a Goliath crane came along. All of these were allusions to mythical or biblical strongmen. When the Giant cantilever crane came along, I always use the term Giant with a 'G' because it eludes to this tradition in that a Giant was a member of the mythical tribe, the Gaia, who inhabited this mythological world that man invented called Gaia long before any written history.

#8-9

The very first Giant cantilever crane was built by the Glasgow Electric Crane & Hoist Company of Glasgow in 1905. In fact, here is the earliest drawing in existence for one of these cranes. I was in a fortunate position in the 1980s to be rescuing records from the companies that had built these cranes, not just Arrols and other, who would kept all of their records for 80/90 years; drawings and descriptions. These firms are then closing down and just destroying these records. I was in a fortunate position to be able to express an interest and get in and rescue quite a number of these things.

This is an early drawing for the first Giant cantilever crane in the world built to satisfy a particularly demanding set of topographical conditions, and for a fairly small firm at Sunderland on the River Wear in England completed in 1905 with a 60 tons capacity.

#10

One can see how cramped the quay area is below the crane, and this was the reason why it was the only design of crane that would fit on that spot. It was a rational response to challenging topographical conditions. It was demolished in 1941, but parts of it were used for wartime cranes and then the port at Cairnryan in Scotland.

#11

The second crane that Glasgow Electric Crane & Hoist Company was at Barrow and this could fairly be termed the big brother of the Nagasaki crane. They only built two 150 ton cranes. This one, which was destroyed in German air raid in 1941 and the crane at Nagasaki, which still stands.

#12

They also built two smaller cranes of the same type at Sunderland. Again, at Sunderland and at Hull. In fact, the lower one at Hull was transferred to Hong Kong in the 1930s and was only demolished, I think, in the 1980s.

#13

We move onto the subject of the presentation.

#14

There are two views of it. In 1909, the upper one showing the erection structure on top, which was used to lift the structural components of the cantilever once the tower was completed, and the lower one shows the crane as completed at that time. There are numerous vintage postcards around and reproductions of this. From that, quite clearly, it make quite an impression at that time for them to be producing so many various views of it in postcard.

#15

There is the general arrangement. It is part of one of the drawings that I saved. It is not in perfect condition, but it is a good record of the crane as built, and one could find those from other sources. I do have mechanical and structural drawings for the crane as well, detailed ones which would not be appropriate here.

#16

There were four other Giant cantilever cranes in Japan, it might interest you to know. At the top, at Kure, and at Yokosuka, both of the Imperial Japanese Navy, built by the English firm Cowans Sheldon. The Yokohama crane, which was built as a harbor heavy lift crane, but it is still a Giant cantilever crane, which was built around 1912 by Cowans Sheldon, which survived the earthquake, tsunami and fire of the early 1920s, which pretty well destroyed most of the harbor infrastructure at Yokohama. The 250 ton crane in the bottom right hand corner built for the Imperial Japanese Navy in 1913 just celebrated its 100th birthday, and it is in absolutely superb original condition. Very, very little of that has been changed, and only that which has needed to be because of safety or operational reasons. It was built by Sir William Arrol and Company, not Cowans Sheldon.

#17-19

The quote by W. H. Atherton at the start of this presentation touched on this rarity, and here for the first time, this is a world exclusive. It is almost all of them. There are one or two that I just cannot get adequate photographs of, so they are fairly poor. But my best estimation is that there were about

48 of these cranes built in the entire history of the world by all countries. When you consider that Japan had five of these, the United States only had three, Germany had none, France had two or three, Italy had none. It was a peculiarly British institution, this cantilever.

Other countries built them, but not very many. There you go, world exclusive, in correct chronological order, too, to the last one built in the 70s at the Chatham Dockyard where HMS Victory was built, which was is mentioned in Neil Cossons' presentation this morning.

#20

When I look at the surviving cranes, there are just 11 of them left in the world, of which certainly three are in working order, two of those in Japan, one in the UK very near to where I live, and the fourth one in India may be in working condition. I have been told at lunch time that it probably still is. The others are in non-working condition, and never will be. There are certainly threats to the existence of two or three of those even in Britain.

This is a structure of vanishing rarity when one considers that against some of the great masterpieces of artists. How many Rembrandt are there? How many van Goghs? How many Picassos? They are highly valued and venerated, and yet these cranes are apart from me and one or two others in on the secret, they are not really regarded at all. However, they are extreme rarity, and even when all of them were in existence that were ever built, which never really happened contemporaneously, they were an extremely rare structure. Most of the people in the world have never seen one of these; never ever seen one. The vast majority of people in the world have never seen one.

#21-22

I stole a couple of the next photographs, and took one of them on my visit to Nagasaki last year, showing the winding house, winding machinery at the top left there. All of that, as far as I could see, was original, apart from maybe brass bearings, which are anonymous and would have to be replaced with wear over the years; maybe some of the wiring. But, essentially, the gearing, the shafts, the winding drums, the brakes; all original, which is a wonderful testament, again, as I mentioned earlier, to the design and maintenance of the crane over the years.

The top right one was taken by Koko at the same time, and the driver kindly slewed the crane, so we could see and hear the mechanism in action. One just stands in awe at that, and, thinking back to 1909, when the people who built the crane and who first operated heard and saw exactly the same that Koko and Miles and I saw just last year. The bottom corner just confirms the fact about the originality of many of the things. There is the original motor plate. I have no doubt that the motor might well have been rewound in the intervening years, but most strikingly of, all of course, is the driver's controls, which were four, I think, all original. I was quite stunned by this coming to Japan for the first time and expecting a country with such a reputation for advanced electronics in the world, to come to Japan and find that an electrical control system going back over 100 years was still in use. I was quite touched by it, but amazed as well.

#23-24

We will move onto conservation. I am not a conservationist, but I just point out some of the

photographs that I took of the crane. Corrosion of the structure is inevitable being close to sea water. Access to these areas is never easy, never cheap, and never simple. It is always going to be costly. Since those photographs were taken, of course, the crane has been painted all over.

#25

The only significant deviation from the original are these two modern main hoist motors, and totally enclosed gear box which was fitted sometime in the relatively recent past, and obviously considered an operational necessity by Mitsubishi. This is exactly the way that the conservation of these structures should be approached. Safety cannot be comprised under any circumstances, but I think they have done it quite sympathetically, bearing in mind that they could have replaced all of the machinery. I do not think that this detracts in any significant way from the overall originality or importance of the crane.

#26

I have written here that I think the best guarantee for the future survival of the crane, even after its working life, lies in the hands of the cooperation between the Japanese government, Mitsubishi, and the prefecture of Nagasaki, some of which we have heard this morning from Koko. I feel certain that any difference of policy between these bodies can be resolved by reference to the historical importance and symbolism of the crane, which make its preservation as a national monument to the Japanese shipbuilding industry and to its links with Scotland, imperative. Given the small number of such cranes left in the world, and their powerful symbolism, they must be considered structures of national historical importance.

#27

I do not really need to comment on this. It is just a thought of mine that Glover in his later years might have just been sitting outside Glover House and having a cigarette and looking across the bay there and seeing this strange new structure, a harbinger of a new technological revolution that was going to take place in Japan.

#28

I thank you all very much for your attendance. Thank you. Does anybody want to ask any questions?

(Stuart) Thank you, Brian.

I should have mentioned at the start that we will have discussion after all the papers have been presented. I am going to talk about sites of shipbuilding heritage in Sydney harbor well away from Japan.

Shipbuilding Heritage in Sydney

Iain Stuart (JCIS Consultants, Australia)

#2

Although few Australians see Australia as a maritime nation, it was not until December 1919 that people were able to come to Australian by any other way than by sea. Even the first people to come to Australia between 60,000 to 45,000 years ago came by sea because there was a never land bridge between Australia and the rest of the world. Those people were still there when first fleet came in 1788 to bring the convicts to settle Australia. Here we have an illustration of aboriginal fishing people.

#3

One of the interesting pictures of Sydney harbor from the early days, and you can see there are many sailing ships from the England, but also there were the local ships, little boats that were used for fishing and also little crafts that are used by aboriginal people.

#4

Today I want to talk about three shipbuilding sites in Sydney. The Mort's Dock and Engineering Works in Balmain; Cockatoo Island, which is an island in the middle of Sydney harbor; and Goat Island, which is another island. I will give a brief history and then some indication of physical remains and some discussion of how they are interpreted. This will, of course, be a brief discussion.

#5

This shows the three islands that I am talking about. This is a peninsula, and there is Mort's Bay; this is Goat Island; and this is Cockatoo Island. For those of you who know Sydney, this is the Sydney harbor bridge, and Opera House is here. The Giant cantilever crane was there.

#6

Mort's Dock was established as a partnership between ship owner Thomas Rountree and Thomas Sutcliffe Mort, who was an auctioneer and an entrepreneur. They decided that they could build a shipbuilding facility in Sydney for major repair of ships that were coming into the colony, because there were no such facilities there, and, obviously, ships making a long trip from England or from America, or even from India, would occasionally need repair. They bought land at Balmain, quite a large amount of land, and set up this dock on the foreshore.

The dock was operational by 1855, one year before the government owned Cockatoo Island dockyard, which we will see in a second. Mort had invested £80,000 into the venture. The dock was built to accommodate the largest vessels that they thought would ever come to Sydney. Unfortunately, they were not making very much money and they rapidly had to diversify into a vast amount of other enterprises relating to the dock, and this was because Sydney's growth was stunted because of the gold rush, and many people were coming to other ports like Melbourne away from Sydney, and Sydney really did not grow very much in those period around the 1850s.

By 1861, the dry dock was in regularly use by shipping companies that were running ships up and down the north and the south coast of Sydney, and by overseas yards. But, also, it used its facilities for engineering works and they began to build boilers for industry, locomotives, and things like that. When Mort ran out of capital, he simply just sold a bit of the property off around that area and raised money by selling land.

#7

This is the plan from the 1890s. It is not a very good reproduction, but you can see that they had a patent slip, not unlike the one at Kosuge, as well as the dry dock. You can see that there are all these associated buildings with a site for fabricating metal for making boilers and for general work.

#8

Here is a picture of the early ships on the slip, and that row of terraces still exists, but the slip itself as we will, see does not.

#9

This is a postcard, again, showing the slip, which you can see just in here, and the dry dock, which you can see there, and the prominent fire tower on the hill and the residential development.

#10

This is a general shot showing essentially where it is. You can see the slips and the docks in that location.

#11

This is a 1943 aerial photo showing the dock at its height.

The dock continued to be profitable, and its height of its expansion was during the Second World War when they produced a number of warships. They constructed number of corvettes, and they repaired a vast number of warships. Here you can see slips, the dock, the engineering works and the surrounding areas. You can see that these docks often have vast flat areas where they can just use for fabricating things.

#12

But the dock fell on hard times, and in the 1950s, they essentially went into liquidation and the land was sold off. As you can see from this aerial photo, most of the dock structures were demolished, and it was designed to be, and was bought by the Australian National Line, as a container facility. This was at the time when containers were coming in to the world, and people who ran the Australian National Line had no idea about containers, because this site had no rail connection, and the road connection was very narrow because of the roads were built in the 1850s, not in the 1930s, so they could not really take semi-trailers taking containers. Therefore, it was an absolute disaster.

They decided that were going to sell the land off for development, and there was a large community opposition to the sort of developments that were proposed. The community in Balmain were arguing for this area to become a park, and the other people were arguing for it to become residential development. In the end, there was a compromise, and part of the area has become a park and part of the area has become residential.

#13

This is a modern aerial photo. You can see that there were residential areas up here for public housing, and for commercial housing. The slip has disappeared. The dry dock is still there, and here is more public housing. But there are other uses for the park as well. There is a community garden, which my nephew is involved with located up here. There are community recreation facilities in this location, and, of course people can walk throughout this whole park area.

#14

This is a picture from the ferry that comes every 20 minutes or so to take people into the city. This shows the dock structure. This was actually from the container depot. It is never explained to anybody who goes there that this was not actually part of Mort's dockyard, but part of the later occupation.

#15

This is a picture of the dockyard. You can see the dock has been filled, although you can actually excavate and reveal it if you wanted to. This is the area where people walk around. I take my dog for a walk. On the first day of the New Year, they had a big celebration in Sydney with fireworks. This area is prime view for the fireworks, so there are people here everywhere. This is an actively used area.

#16

There was only sign interpreting the dock. There is virtually nothing of this whole rich history of industrial development in this area. However, it is a popular park for recreation, and, of course there is a public good in terms of the housing.

#17

Cockatoo Island is one of, I think, about 11 islands in the middle of Sydney harbor. They are all hills, they got drowned by the rising sea. This is a very early photo, and it shows roughly that the island is a sandstone outcrop. It was not really used for very much until about 1839 when the government started to put convicts on the island to quarry stone for use in buildings in Sydney. In the 1840s, the colonial government (remember that Sydney was a colony) began to get worried that the Royal Navy would move their squadron away from Sydney. They have decided to invest in building a dry dock so that the Royal Naval ships had somewhere to berth and to make repairs. They had a convict labor force, so they have decided to excavate the dry dock using convict labor. It took 10 years, and they built a dock called the Fitzroy dry dock.

#18

Here you can see what they built.

#19

There is the dry dock. This area here was essentially built by the spill but they dugout of the dry dock. They also built a pump house, which is stand here, a boiler house, and an engineering workshop. What is remarkable about the engineering workshop is that, when ships came in for repair, the people

who did the engineering work, the workers the people who made the iron, who hammered the rivets, they are all convicts, which is very strange to see. Also, the island was occupied by a boys' home, and then later on it was a home for destitute women. This is the dock. This is the engine house.

#20

That is a ship inside the dock. Here is one of the British warships. Australia had what was called the 'Australian Station'. It had six British warships, not of high quality, but still stationed in Australia in case there was some sort of disturbance or need for the Royal Navy, and here you can see the one of the ships in the dock.

#21

Of course, visiting warships: this is a French warship has come in and you can see this is the sandstone here. There is the dock and this flat area right here, you can see there is a small steam-powered crane, and this area is used for lying out materials.

#22

That is how it looked in 1882. They then decided to construct a big dock here for larger warships called the Sutherland dock.

#23

Here it is in its full extent. This is the battle cruiser HMAS Australia, and they had actually built this huge dock. There are naval stores and items like that. The whole island started to develop for ship repairs. On the northern side of the island there was a small facility for building small iron boats and dredges, and then later on, when the island came into Commonwealth ownership in 1913, it was developed as a shipbuilding area. This whole island then took off to build ships for the Royal Australian Navy. The first ship arrived in 1913. It was a British ship. It was built in component parts and the components parts were assembled and then they used that as a patent for building other ships.

After the first World War, there was not really much call for shipbuilding, and they kept the dock alive by doing repairs. Then they built a ship called HMAS Albatross, which was a seaplane carrier, not unlike the ones the Japanese navy had. But that was built to keep the dockyard work employed. In 1933, the dock was leased to a company called the Commonwealth Dockyard, which was a branch of the Vickers Company, a British armament company, and they gradually improved the dockyard.

#24

Here, you can see the sort of works that were happening. I put this in especially for Brian, because you can see some sheerlegs and a floating crane, which was called Titan. The major work was military obviously because the war was coming along. They did a lot of work converting civilian ships into armed warships and also maintenance and repair of warships that were damaged, as well as construction of corvettes and other sorts of warships during the time of national emergency.

#25

This is a 1943 photo. You can see there is American warship in the dock there and Australian warship there. Two warships on the slips fitting-out very small docks for building ships, boats, stores and things like that. You can see it was a very, very busy operation.

#26

One of the things that the southern dock was notable for, we had this aircraft carrier from the 1960s to the 1980s. It kept running into ships, and this is after it had run into HMAS Voyager and had sunk it. It was used for repair. The warship building industry in Australia, because we did not have a big defense industry, gradually got smaller and smaller, and in the 1990s, the government closed the yard.

#27

What did they do with the heritage? Well there were a lot of issues around – this is the dockyard at its greatest extent. When they closed the yard, what they did was they did a whole lot of demolition. They demolished pretty much of all this area and all this area in here, and they remediated it because it has hazardous material in it. They made it safe. It is now a big, flat, green area.

#28

Again, there was a lot of community concern about what would happen to this site, and it went into the ownership of a Commonwealth government agency called the Sydney Harbor Foreshore Trust to manage this land. They have gradually been doing work to bring it back and interpret it. It has been added to the world heritage list as a convict site because of the convicts that were there. But, as you can see, there is not really much to be said about the shipbuilding history, which was really important to the economy of Sydney and the history of Australia. They are really focusing on the convicts.

#29

This is the site at the moment, and you can see how much has actually been removed; all of this area. The shipbuilding berths are sort of there. The docks are there, but they are not used. The main aim of management seems to have people running around in convict gear, as well as running tours and art exhibitions. People have tried to approach the government to say, "Well, maybe we could use the docks for docks to berth ships in," but they are not really interested in that.

#30-31

This is some of the uses of the yard. These are wedding photos; I believe this is a wedding photo. Two people wanted to get photographed in front of the dock.

#32-34

They have art exhibitions. This is one of the oldest buildings in the area on the island, the 1850s convict run workshops, and they had this piece of art in it. They have other forms of art, as you can see.

#35

Now, briefly turning to Goat Island, which, again, is another island in the Sydney harbor. Essentially, it was used as an explosives depot. It was constructed mainly by convict labor. You can see over here that they built a magazine for gunpowder and then gradually they built more and more buildings related to gunpowder and then they built buildings relating nitro explosives. Eventually, they were all moved to more appropriate locations.

#36

In the 1920s, this is the Queens Magazine, which stored gunpowder.

#37

In the 1920s, the Sydney Harbor Authority, who manage the harbor, has built a small shipyard here to build work vessels for the maintenance of the harbor. You can see there is a platform, there is a floating barge there; they had a small crane; they built work boats and things like that.

In the 1930s, the Maritime Services Board was formed, which consolidated all the harbor activities in Sydney with all those around the state of New South Wales, and they built much larger vessels. They gradually improved the shipyard.

#38

Again, this is here in 1943. These buildings here are related to the Sydney Harbor Trust. They are the offices and residences. This is the shipyard, and you can see there is a couple of slips and fitting-out areas here for quite small vessels.

#39

They obviously designed and built their own vessels.

#40

This is a rough plan of the area in the 1950s when they started to improve the capacity of the slips. You can see the store houses are actually all explosive depots, and the more modern work ship houses. There are wharves and cranes.

#41

One of the cranes they got was from Mort dockyard, and it was a William Arrol crane. It is regularly called in the conservation management plans, a Hammerhead crane. But, it in fact, it is nothing like a Hammerhead crane.

#43

This is the shipyard as it is today. You can see there is a very large crane there. There is a 500 ton ship lift and various stores. This is a view of the shipyard, as it is at the moment. But the whole island is actually owned by the National Parks and Wildlife Service, and there is a real issue because the National Parks and Wildlife Service does not quite understand how to deal with an island that is a

national park, but has an operational site like shipyard on it. The first management plans really tried not to discuss the shipyards. When I did some work on the island, I was told, "Do not include the shipyard in your archeological assessment. It is too recent." In the end, the national trust listed the crane as an item of heritage significance to try and get the national parks to focus on the issue of what do we do with the heritage of this building.

Recently, there was a proposal to move all buildings off the island and turn it back into its natural state because that was its most appropriate heritage. There is a whole discussion about what to do with these items, and generally people are not really sure.

#44

This is the crane that we listed.

#45

That is just a designation of the shipyard.

#46

One of the items they had on the island, notably, in the 80s, was a band called Midnight Oil. This gentleman here later became the minister for the environment in the federal government.

#47

I think I want to conclude by simply saying that, in Sydney, people are not really comfortable with their maritime heritage, and they really do not understand the heritage values of shipbuilding. In a sense, they have turned their back on that. I think part of it is because the managers of these sites choose only one period to interpret. They would choose the convict period rather than the maritime period. This is very difficult because I think the richness of the site, and site's full significance, is best expressed by looking at multiple values. I am giving this as an example of how Sydney has dealt with a mixture of operational and non-operational sites relating to shipbuilding. Thank you very much.

I would like to introduce Mr. Kitagawa.

Japanese Shipbuilding Industry

Hiromitsu Kitagawa (Research Fellow Emeritus)

I am Kitagawa. I graduated from the maritime engineering department, but I have always been a researcher. I have not really worked so much in the field. I do not have much experience in the field, but when I was younger, I spent a year at Glasgow University as a visiting researcher there. In the last years of Glasgow shipbuilding industry, Queen Elizabeth II was just launched, and I was able to see that. I was very lucky because I was the only Japanese person in Glasgow back then. I sent out some of the photos I took to some Japanese news wires.

What really surprised me was that Clyde River shipbuilding yards do not have a lot of facilities, and they are very simple, not like Japanese shipyards, and I wondered why. That is when I started to take interest in the history of development of shipbuilding industry in Japan since Meiji Era. Then I did

some more research which I could touch upon today a little bit.

#1-2

Commodore Perry came to Japan, and that was very shocking thing to Japan. However, in the west part of Japan, some of the clans or domains already knew what happened to China. China lost heavily. How countries should protect itself and defend was acute question they all had. Even within the same country of Japan, Tohoku region, which is up in the north, and Satsuma or Choshu clans which are down in the south, they did not really share the same level of a sense of crisis in terms of national defense. That is when the Meiji restoration took place.

#3

As for a shipbuilding working group, as you see from here, Dr. Shinoda, Professor at Kyushu University and Ms. Tsuda, together with myself, we worked on many different materials to have in-depth discussion as to the shipbuilding value. As a result of that, with confidence, we confirmed that the heritage, which is nominated a serial nomination, has enough value to become world heritage.

There is another very important reason why here in Japan, as long as we are Japanese, I think we feel this very acutely that we are always threatened by earthquakes, typhoons, and tsunamis. Since 2001, rather than typhoon hitting Japan, actually high waves caused by storms are affecting coastal areas more than typhoons. But in any case structures that are built on coastal areas are very vulnerable to natural disasters. Even more so, the shipbuilding related facilities that are naturally on the coastal area, the fact that some of them remain are almost a miracle, especially, probably the fact that there are very good ports, but when it comes to Nagasaki, there was a very sad thing which was a A-bomb.

Still there is much industrial heritage is there in Nagasaki, which I think is a very rare thing. Probably this is a God-given thing and in each of the heritage, some of those heritages in combination can represent the shipbuilding industry very well. That is why this series of heritage is very appropriate for the nomination of serial nomination.

#4

This are the handouts that are distributed to you. Please take a look at them.

#5

In our working group of shipbuilding, first of all, we had a certain scenario, which is that we will target the period between the end of Tokugawa Shogunate to the early part of Meiji era. How far back did we have to go back in Tokugawa Shogunate? That was much discussed thing, because the Sendai clan came up with shipbuilding and made some ships. Did we have to go back to that era or could we cover only a little later part of the Shogunate? We decided that the very last part of the 18th century will be our scope of investigation. That was what we determined. These are the industries that we looked into.

As a scenario or assumption, this is what we had: shipbuilding in terms of purely creating ships, this has always been done from the past. But then modern shipbuilding, which is a shipbuilding industry, this was a key driver of industrial revolution in Meiji era. That is very clear.

The maritime market was very much unevenly distributed in Japan mostly concentrated in the area of Osaka, or in the west. Edo, which is Tokyo right now, is in the east, and this was more commercialized, and it was not very big maritime market. There was a very good chance for Japan to go along with industrial revolution of the west because, in the Meiji era, that is the time when the west is always right in the industrial revolution with boilers and other machines; they are renewed every year.

That was great time of industrial revolution and technical innovation, even in the west. Meiji could take advantage of that. Many technologies that were introduced in Japan, of course, they were introduced a little bit delayed because there were not any aircraft carrying those technologies back then. However, the geometry is an area which could actually contribute to shipbuilding, and there are many people in Japan who are expert in geometry. Looking at some of the western charts and drawings, these people could easily imagine what could be created.

We had a kind of theory of Japanese way of mathematics, and 99% of that was based on geometry. Takakazu Seki came up with a numbering theory. Apart from that, most of the Japanese mathematics was based on geometry. From drawing to actual things to be created out of these drawings, that was very easily imagined and well imagined by some of those Japanese experts. In that respect, Japan was ahead of other Asian countries.

Shipbuilding is, of course, a very important industry for national defense, and because of that, shipbuilding and heavy industry was a focus to have an industrial revolution in Japan. Therefore, some of the materials that are usually supplied from the market actually should be held by the government to do shipbuilding.

Shipbuilding started from the making of wooden ships to iron ships to steel ships, and sail boats to wheelers to screw propellers. There was such a development in both respects. On the other hand, at each stage of shipbuilding development, we looked into industrial heritages more closely.

We assessed the following points with much emphasis, which are rarity for technological values, through the evolution of industrial technology, and the importance in the evolution of the naval architecture, and the industry. Those component parts, each of them, or as a whole, how much these contributed to the industrial revolution in Meiji era. Also, we assessed contributions to other industries as well.

Another perspective we applied was the international perspective. For instance, the speed of technical advancement, was that very rapid or was that just on average? These are the things we looked into in detail in our assessment. Eventually, those heritages that are existing, to what extent they are conserved? That was something we investigated as well.

These are the matters we took into consideration in particular, which is ways to obtain necessary materials, devices and equipment to build ships, meaning that some of those materials were sourced by importation. Another matter taken into consideration in particular was ways to transmit and convey technology, knowledge, and experience widely. It was mostly transmitted knowledge. Shipbuilding was majorly done by craftsmen. They had their own drawing. Person A to person B transmission of technology may occur, but then how person B interprets that knowledge may be different from the original. In that way, person B transmits that knowledge to person C. That is how shipbuilding knowledge or technology was transmitted in the Meiji era.

#6

The issue of shipbuilding: what kind of ships were produced? Unkou-maru was completed back in 1855 and in 1866 Chiyoda-gata was completed. This one was called *gata*, which is not the modern type ship, but then each Chiyoda, whenever it was created, the pattern was a little bit different. However, because it is called *gata*, it means it is a kind of pattern. It is not one ship. It is a pattern of ships

In 1895, a much more modernized ship, Suma-maru, was completed. Three years later Hitachi-maru was already complete. In 1908, Tenyou-maru, the triple turbine engine equipped ship, was completed as well. This could go to the outer seas.

#7

This is the early development of steam engines in Japan. The engine used was Chiyoda-gata in 1866 was like this. 30 years later in 1898, a triple expansion reciprocating engine was already possible.

But throughout the 1880s to the 1890s, what kind of engines were used in Europe and in the United States? It was mainly boilers. There were many accidents like Yarrow. There was manufacturer called Herreshoff, and they had a lot of difficulty making boilers. Of course, it is difficult thing naturally, but very rapid development in Japan was possible with these engines. How to control these engines, this is a very important knowledge we absorbed from the west and adapted here in Japan.

#8

As the conclusion of as a shipbuilding working group, we concluded to include the following component parts. The following industrial heritages as a whole meet the nomination criteria of the world heritage with the outstanding universal value belonging to the same historical and cultural group. This includes Ebisugahara Shipyard, and this contributed as the initiative to the shipbuilding industry. It was early stage in Japan for shipbuilding. Next, Shuseikan and Shuseikan Machinery Factory, this was an original site of ship machinery production in Japan. I could say that this was selected as a kind of a symbolic thing. Next is Mietsu Shipyard Archeological Site. This was something like training base for navy in Japan. It was not a simple naval training, because this site provided some training for creating some materials and machinery for shipbuilding. It was like overall training base for the navy in Japan.

Kosuge Slip Dock is the one and only slip dock using machinery or mechanical power in Japan. There is no such thing remaining any longer. I think we got really lucky that Kosuge Slip Dock still remains. I spend four weeks in Nagasaki in the past, and this was not used back in 1955, but still it has been preserved, which is very impressive.

Next, Number three dry dock of Nagasaki Shipyard. Unfortunately, there was something very similar in Kure, but, unfortunately, it has been already demolished. The only one which has been preserved as a wonderful dock and still in operation is the one in Nagasaki Shipyard.

When it comes to naval dockyard in Yokosuka, this was not a necessary component part for serial nomination. Without the naval docks in Yokosuka, we thought that we could well establish the rational for this serial nomination. Usually, shipyards or the shipbuilding industry was in a kind of isolated area, and Yokosuka is actually one such case. It was rather isolated and not affecting other industries.

Yokosuka created some materials for other industries, but then did not have direct implication to the shipbuilding industry as a whole in Japan.

#9

These are the nominated component parts. Craftsman's ability to industry. This is what has been proven in the nomination.

#10

I spent some years in Glasgow, as I said, and Queen Elizabeth 2 was launched. It is just so happened that I was there, and this was completed in John Brown's shipyard. I went to back to Glasgow three years ago and now it looks completely different, and there are many modern buildings around this area. But, of course, time has passed, so it cannot be helped.

Those kinds of steel structures can be maintained only when they are in operation. Once they are obsolete, for those parts which require some lubricant, they become rusty very easily. This Giant cantilever crane that is still used in Mitsubishi, that is very fortunate. Because it is in operation, it is well preserved. That is what I think.

#11

These are the component parts that are included in the industrial heritage.

#12

This was the Yarrow boiler used. I think this kind of boiler was something that we Japanese could also make by catching up after some time.

#13

I think that torpedo boats right now are very much high powered, and it exercises a lot of speed. This technology is a very difficult one, but it is used in torpedo boats in Japan.

#16

Now, this is looking at how sizes of ships developed in Japan. As you can see, within a space of 50 years or so, the size of the ship increased so rapidly, which I think is a very rare occurrence in history. I think that the absorption of western technologies was done by Japanese experts so rapidly. Of course, there was some potential already in Japan, but then technological absorption materialized very well. Thank you very much.

(Stuart) Thank you very much.

I would now introduce Mr. Kiyoshi Yokokawa from Mitsubishi, who they will recognize him from his excellent guidance around the site. Thank you.

History and Industrial Heritage of Mitsubishi Nagasaki Shipyard

Kiyoshi Yokokawa (Director of the Museum, Nagasaki Shipyard and Machinery Works)

I am Yokokawa from the museum at Nagasaki Shipyard of Mitsubishi. I would like talk about history of Nagasaki Shipyard and industrial heritage as well as history of Mitsubishi. My slides are in Japanese.

#2

This is the industrial heritage consisting of 23 component parts, and Nagasaki Shipyard has five, those in red.

#3

The location of this: this is the Nagasaki Shipyard. Nagasaki Shipyard is located in the west of Nagasaki port about two kilometers up north that is north right side machinery factories, and on the left hand side, that is the south shipbuilding factory.

Former pattern shop, presently the museum, is on the right hand side on the coast shore Giant cantilever crane, and in the middle, the main building. This is for designing or main office building. In the south of that is Senshokaku guest House and Number 3 Dock. The site of Kosuge Ship Repair Dock is on the opposite shore.

#4

Nagasaki Shipyard, this is the starting of shipyard in 1857. Tokugawa Shogunate requested the Netherlands to build the shipyard. Well, the Netherlands is the only western country which had exchanged with Japan during the isolation policy era, and this is the first of that. It was difficult to build a large shipyard, so the Netherlands planned a relatively compact engine repair shop. For the factory, construction which was started in 1857 as Nagasaki Foundry and renamed in the 1862 Nagasaki Iron Works. On the following year, it was completed. Nagasaki Shipyard: the founding is 1857, and we celebrated 150th year recently. Dutch technology was used in this construction.

This consisted of a foundry, forge, turnery, and that is the machining shop. Although, it is called iron works, it is not to produce steel. We import iron and then iron products were built by these iron works. This photograph shows around 1860 in the midst of construction of the ship iron works.

#5

This is the following day of the completion of the iron works from 1862. On the bottom, there is a drawing, and the original drawing still remains in Rotterdam in the Netherlands. This was the first brick structure in Japan. The responsible person for this is Hendrik Hardes, a Dutch navy engineer. He taught Japanese craftsmen how to bake bricks, and after 3.5 years of hard work, this iron works was completed.

#6

This is the inside of the turnery and also a drawing. One steam engine drives more than 10 machine tools. At the ceiling of this factory, there is a long drive shaft from the engine. The force from the engine is utilized as a rotating force delivered to these machine tools for metal machining blades

and screwing. There, some machine tools were installed. At that time, it was very modern factory. This was built in Nagasaki.

The picture on the right hand side shows the Dutch engineer, as well as Japanese Blacksmiths, in Meiji era or Edo era mostly, Dutch people are engineers. With the Netherlands, after that slip dock was planned. Unfortunately, this did not come into existence. Ship bottom maintenance is important. This is facility to pull the ship up, which was very important.

#7

In several years' time, the Satsuma clan in Nagasaki together with Thomas Glover, Kosuge Ship Repair Dock was made. This is one of the component parts. It was completed in 1869. The materials or machinery were imported from the UK by Glover. These are steam engines, rails; these are all imported. The Kosuge Ship Repair Dock, the base on which the big ship is placed, and the entire ship is pulled up utilizing a steam engine. This is the first slip dock utilizing a steam engine.

This is machine house made out of brick. This is the oldest brick structure in Japan that is in existence. This houses and machinery and rails and topology surrounding this you can see the original Kosuge Ship Repair Dock.

Immediately after its completion, the Meiji government took over. It became a part of the shipyard, and Mitsubishi took management of that. This one is capable of pulling 1100 tons, which was one of the largest back then, and also Tategami had another dock that was created. This is for smaller ship repair. In 1920, it was closed. In 1937, it was revitalized as a boat factory. Up to 1953, it continued its operation.

#8

On the left hand side 1877, the more than 1000 ton Tokai-maru was being pulled. This is the largest class. On the side of Kosuge, a big wooden ship was made when it was owned by the national government. This is during the construction of that ship. This was the largest Japanese-made wooden ship at 1500 tons and was completed in two years' time. Kosuge-maru's engine was also made at the Nagasaki shipyard. At that time, it was the largest in Japan; the largest Japanese made engine.

#9

In 1879 the first dry dock was built in Nagasaki Shipyard. For repair of the vessels, slip dock is one method, and this one is pulling the ship into the dock and separating from the seaside, and pump the water out. This is a dry dock. These are the two methods. Dry dock requires a lot of construction work, but the large vessels can be handled. At the time of completion, up to 7000 ton vessels could be repaired there. In 1963, the dock was closed.

That was Nagasaki Shipyard before Mitsubishi took over.

#10

Under Mitsubishi management, but before that I would like to discuss the history of Mitsubishi, just briefly. Mitsubishi, in 1870 to 1945, 75 years, as you can see, Iwasaki family, four presidents from Iwasaki family managed Mitsubishi. The founder is the Yataro Iwasaki; the second president was

younger brother Yanosuke; the third and fourth presidents were their sons Hisaya and Koyata. All of these presidents exhibited strong leadership and, together with Japanese modernization, they grew Mitsubishi.

#11

Yataro Iwasaki is the founder of Mitsubishi, representative entrepreneur of the Meiji era of Japan, inherited Tosa clan's shipping business, and the shipping business grew larger and larger; mining, mines and ship building, financial insurance. Those are the businesses that he entered into. And company philosophy, corporate responsibility to society, the policy to contribute to the society through businesses. That is how they grew the business.

#12

This is the house in which Yataro was born. It was 30 kilometers east of Kochi City. This is in Aki City, and three presidents were born here. Yataro, since his childhood, he was a very ambitious child. Also ,his mother was enthusiastic about education. He grew strong. At the age of 21 years old, he went to Edo for study, and also Toyo Yoshida of the Tosa clan, under which he studied.

#13

Yataro Iwasaki in 1859 visited Nagasaki and second visit to Nagasaki was in 1867. Nagasaki Tosa Trading Company officer at the age of 32. At that time, Ryoma Sakamoto, he had exchanged with Ryoma Sakamoto there about six months. The head office of Tosa Trading Company moved from Nagasaki to Osaka and Tosa shipping business was going to be privatized. In 1870, the Tsukumo Trading Company was established. This establishment of Tsukumo Trading Company is regarded as the founding of Mitsubishi and Yataro became the responsible person for this. Tosa Bay is also called Tsukumo Sea. That is where this name came from. Well, the company after that renamed to Mitsukawa and Mitsubishi. In 1874, the head office moved from Osaka to Tokyo. In that year, for the transport of troops to Taiwan, Mitsubishi contributed a lot to the Japanese government and acquired trust from the Meiji government.

In the following year, the Yokohama-Shanghai route was opened. In the fierce competition with the western shipping companies, he won that competition. In 1877 Satsuma Rebellion, he has also contributed to the military transport.

#14

At the end of 1877, it possessed 70% or higher percentage of Japanese steamships. This is Yataro Iwasaki and the management members of Mitsubishi.

#15

The symbol mark of Mitsubishi; well, the original shape was Tosa feudal lord, Yamaguchi families, three oak leaves family crest. In arranging that, the first Tsukumo Trading Company's flag and emblem was designed. Iwasaki family had stacked three tiered water chestnuts, and together Mitsubishi emblem was born.

#16

Other than shipping business in 1873, he started managing the Yoshioka Copper Mine of Okayama. In connection with the shipping business in 1880 in Tokyo, big warehouses were established for the warehousing business.

#17

In 1881, Takashima Coal Mine came under Mitsubishi, and also 1884, started management of the Hashima shipyard. Takashima and Hashima are also parts of component ports.

#18

In 1884, on July 7th, it is when Mitsubishi started operation of Nagasaki Shipyard, and this is the founding day of Mitsubishi Heavy Industries. Nagasaki Shipyard is the origin of Mitsubishi Heavy Industries.

First, it was to be leased for a period of 25 years. This is the lease request.

#19

In 1885, on the following day of Nagasaki Shipyard management, Yataro died at the age of 50 in 1885 during fierce competition with Kyodo Unyu. The younger brother Yanosuke took over. Shipping business in that year; Mitsubishi shipping business and Kyodo Unyu merged, and they established Nippon Yusen Kaisha, so the shipping business became a separate company. President Yanosuke promoted diversification of businesses, especially the core businesses at that time is mining, mines, and shipbuilding.

#20-21

Nagasaki Shipyard in 1887; Mitsubishi took over the ownership. This is the request to purchase after becoming Mitsubishi management, new shipbuilding technology was aggressively deployed. In 1887, Nagasaki Shipyard's first iron ship was completed. Yugao-maru is the name of that. In 1980, Japan's first steel ship, Chikugogawa-maru was completed and Chikugogawa-maru, the main engine was the Japanese latest engines. The very state of the art products were produced in the Nagasaki Shipyard.

#22

In 1890, in Marunouchi, a large plot of land in Marunouchi was purchased in Tokyo at the time of Yanosuke President. In 1894, the Mitsubishi number one building was built. After this, this is office building, and it was destroyed, but in 2009, it was accurately reconstructed. Currently, it is art museum. In 1923, the maru building was established.

#23

Next, in 1893 to 1916, for these 23 years, Yataro's son Hisaya was president. During which time component parts of Nagasaki Shipyard were established. Mining, mines, shipbuilding and banks became an independent accounting system. Mitsubishi especially developed centered around heavy

industries as well as the mining industry.

#24

At the time of President Hisaya, in 1898 the first greater than 6000-ton Hitachi-maru was established. It is a combined passenger/cargo ship. The end of 19th century shipbuilding was regarded as an important industry of Japan. Mitsubishi had been centered around ship repair, but now turned into shipbuilding.

Nagasaki Shipyard, a lot of investment was made for equipment in Nagasaki Shipyard around 1900 and rapidly modernized and expanded. Hitachi-maru, at the beginning of this expansion, it was built back then. This ship served the European route. The Japanese shipbuilding business was exhibited to the western world by this ship. As Mr. Kitagawa mentioned, in the case of Japan, machine manufacturers, we do not have particular machine manufacturers. So, shipyards created or made engines for vessels. The Hitachi-maru's engine was one of the largest.

#25

In 1898, the pattern shop was established.

#26

The former pattern shop is one of the component parts at Nagasaki Shipyard. This is the oldest architectural structure that is in existence now. This used electricity as power for the first time. This is the factory to produce wooden patterns for casting molds. The two-story brick structure was one of the largest in Japan back then. In 1915, the rear section was expanded to become the present size.

This factory was used as a pattern shop, but cast products demand decreased, and it was revamped as a museum now exhibiting the history of Nagasaki Shipyard. This is open to the public. The oldest machine tools in Japan, like this slotter. It was imported in 1857 from the Netherlands. The first steam turbine 1898 one, and other items are exhibited.

#27

In 1908, Japan's first luxury passenger ship Tenyo-maru was completed at 13,000 tons, one of the top vessels in the world. This used a large sized turbine for the first time in Japan. Instead of coal, it used heavy fuel oil for the first time. It had a very luxurious interior, and with this ship, this shipyard became into one of the top shipyards in the world. This is the 24th year after Mitsubishi took over the management. Rapid modernization took place.

#28

In 1909, this is the 25th year of Mitsubishi management. At that time, about 10,000 employees were working. This was the largest privately owned shipyard in the east.

#29

This is the shipbuilding design. In those days, to Europe or to UK, in order to study new technologies, there were many engineers who went to Europe. They are wearing very stylish clothes.

#30

1908: the sister ship of Tenyo-maru, this is Chiyo-maru, which is in Number 3 Dry Dock. Senshokaku Guest House is here, and Number 3 Dry Dock. Both of them are seen in this 1908 picture.

#31

Senshokaku Guest House is one of the component parts. It was completed in 1904. Originally, it was for company housing of the second Director, Heigoro Shoda, and after that, the Imperial Family stayed. Since then, it has been used as a guest house. Senshokaku means that it has very beautiful scenery, and this building has been used as a guest house up to now. Most of them are from the original days.

#32

The third dry dock, Number 3 Dry Dock, was completed in 1904. At that time, it was the largest in the east. In Meiji period in the Nagasaki Shipyard, Number 1, Number 2 docks were made, but both of them were closed, and only Number 3 Dry Dock still remains and in use. In the Showa era 1943, 1957, 1960, it was expanded three times. Currently the functionality of the original shipyard has evolved and now inherited and maintained. The pumps in the pump house, three of the four pumps were the original pumps which are now in operation still.

#33

Giant cantilever crane: as Professor Brian Newman explained, among the ones in operation, this is the oldest in the world. In 1961, the first location was reclaimed. Therefore, it was moved to the eastern direction by 150 meters.

#34

The component world heritage is up to Meiji Period, but after that, in 1916 to 1945, it is era of fourth President Koyata. Mitsubishi became a holding company and each company became independent as company limited. Three principles, management philosophy, and these are the policies that developed Mitsubishi. He studied at Cambridge University for six years in the UK, and he is one of the best management entrepreneurs.

#35

Each section became independent company: Nippon Kogaku shipbuilding, trading company, mining, bank and insurance, and Mitsubishi Electric separated from Mitsubishi Shipbuilding. Also Mitsubishi Aircraft was separated from Shipbuilding and again merged in 1934 to form Mitsubishi Heavy Industries, merging of Mitsubishi Aircraft and Mitsubishi Shipbuilding. Although the establishment of MHI was in 1934, but founding of Mitsubishi is 1884 when Mitsubishi started the management of Nagasaki Shipyard.

#36

This is 100th year from the 1857, Nagasaki Shipyard. One year prior to that in 1956, Nagasaki Shipyard became number one in terms of the annual tonnage launched. In 1956, as a result of quick recovery, in 1956, Japan became the number one shipbuilding company. Up to 1976, Nagasaki Shipbuilding became world's number one 15 times during these 21 years from 1956 to 1976.

#37

This is the present Nagasaki Shipyard after 150 years long history.

#38

In 1972, in the south of the shipyard, Koyagi plant was established, which has a shipbuilding factory, large boiler factory, as well as the research facility.

#39

This concludes my presentation. Thank you very much.

(Stuart) Thank you very much.

Discussion

(Stuart) We now have time for some questions. I am not sure how this is going to work, but I would call for questions or discussion points from the floor. Please raise your hand, and I will acknowledge you. Miles Oglethorpe.

(Q1) Thank you. Miles Oglethorpe from Scotland. I was going to ask Dr. Newman a quick question about the symbolic power that the Giant cantilever cranes had. Were they perhaps a status symbol in their own right?

(Newman) I doubt very much whether they were actually a status symbol. They might have been interpreted in the popular press at that time is status symbols, but the owners of these cranes obviously had a very demanding operational requirement for them. At the time that the Nagasaki crane was erected, of course, the direct drive steam turbine was predominant for the most powerful warships and passenger liners, and the turbine rotors, especially the low pressure rotors in those vessels and in those engines were extremely heavy, extremely costly, and time consuming to make. But when they were lifted into position, they have to be lifted in position with extreme precision. So, these cranes were very, very high integrity cranes.

I did not mention it in my presentation, but they could lower a load so slowly that it was imperceptible to the human eye, so that these very large, very expensive components could be very, very delicately loaded and positioned. They could also move a load, not just down very slowly, but in any direction radially or laterally, and very, very slowly and absolute control with no pulsation of the load. There was no tendency for the load to spring or pulsate. There is no vibration, and there is absolute control, no tendency for the load to drop when they were lifting or loading. Those characteristics are

still embodied in the Nagasaki crane today. I think that a lot of shipbuilders and other owners used them in publicity as symbols of their position in the shipbuilding firmament; that we are building the most powerful types of ships and maybe warships. Therefore, we need the most powerful and modern equipment. I think that is the extent to which it was actually seen as a status symbol.

(Stuart) Are there any more questions?

(Q2) Mitsubishi Heavy Industries has a lot of properties which are not disclosed, and I would like to ask you how you are going to start disclosing these undisclosed properties. Overseas, those properties that are already listed as world heritage, how are you going to also disclose these heritages in the future?

(Yokokawa) Yes, properties that are to be disclosed in the future which are already open. Kosuge Slip Dock and also Number 3 Dock and Giant cantilever crane, these are still in operation. Therefore, there is no plan to make them open. Another thing, which is the Senshokaku Guest House, this is a very special place, and even the employees of Mitsubishi Heave Industry could visit that place only once with their spouses. Therefore, there is no plan for making it public either.

As for the properties overseas, I do not have any information with regard to the properties overseas. Would anyone else care to answer that question? I am sorry, I do not have that information myself.

(Stuart) Thank you. Are there any more questions or points of discussion?

(Q3) Excuse me. I am from Saga Prefecture. The Mietsu navy dock is buried, but what is its value as a World Heritage? Is there not any problem with that?

(Kitagawa) Yes, the shipyard facility, we lined up various ship docks/shipyards and there was this site which only existed in Mietsu. It is for sure that it is mostly buried, but it does have value as land, and therefore we recognized this at the working group. Given that situation, it is very difficult to preserve this site, and we have to consider how the prefecture will have to preserve this site. This is a pending issue. However, I would like to request the Saga Prefectural government to look into this.

(Floor A) Let me speak from the cabinet office. Yes, the Mietsu naval site is a very historic site which has high historic value.

Also, to follow-up on your question, the underground sites and the other sites that cannot be easily accessed to private ownership, when we think of how to communicate the value, we could use movies, images, or documents and show this in a separate location. It does not have to be the actual site, but nearby where you can actually feel the environment, it could be that we use other means. We do see that such efforts are being made overseas. We are currently studying how to show the sites, and we are discussing this with Mitsubishi. We are putting together plan to how to express the values of these sites.

(Stuart) Thank you. Let us have question up here.

(Q4) This is about the Giant cantilever crane in Nagasaki. For the next 25 years or so, it is not going to become rusty, and it is still in operation. That is the status of this crane. But nothing works forever. Although, it is in operation right now, but what is going to happen to this crane? Are you going to try to preserve it as cultural heritage?

(Newman) The pyramids have lasted a long time with very little maintenance. The Forth Bridge in Scotland has been there since 1890. It is a steel bridge. It is in a very corrosive atmosphere, and there are steps have been taken with the Forth Bridge to now give it long-term sort of 30 years, and perhaps more, protective coatings, which means that corrosion is effectively stopped. I have no doubt that modern corrosion technology will be applied to the Nagasaki crane in future, if it has not already been.

As long as the people of Nagasaki and Japan consider this to be an important symbol, and it is a very, very powerful symbol, not just of shipbuilding in Japan and Nagasaki, but also of survival and new life after the terrible events of August 1945. That is one of the very, very few structures that survived absolutely intact. I do not really think it is a problem in preservation in a technological context.

As long as the will of the people of Japan, the government, Mitsubishi and the prefecture have committed to maintaining it and recognizing it as this very important, irreplaceable symbol of shipbuilding, and of the first steps of Japan really as an international player in naval and maritime affairs.

(Kitagawa) I totally agree with what has been said. For the Giant cantilever crane, I do not know, when you say the future, is it 1000 years or 2000 years from now, but eventually we think that, at least for the near future, we can conserve it.

But, yes, and we do see a lot of coating materials being developed. Therefore, if you were to say if we should be using the best coating material, I have some questions, doubts about that. I think paint-based repair is what should be done. This is possible because it is still active. In Glasgow, for the Giant cantilever crane, if it has another value as an observatory, for example, it could be that you would have to apply a permanent corrosion-proof coating. But I think for Nagasaki, we should try to use paint instead; the current conventional method.

(Yokogawa) The crane may not work in the future, sometimes, I mean, it comes when we cannot use the crane any longer, and what happens to the crane is something we need to discuss with the government, and other relevant parties to decide what to do with that.

(Stuart) Thank you. Are there any other further questions? Gentlemen in the front. Do we have a microphone? And another gentleman, maybe two more questions.

(Q5) I may have misheard you. But, Mr. Kitagawa, in your speech you said in the handout, but we do not have any handouts, is it because you cannot disclose the information?

(Kitagawa) Let me answer on this part. No, I think it is a procedural mistake. Yes, I can give it to you privately or by PDF or other media as possible. I can provide the information to you is the answer.

(Stuart) I have wondered that question myself. Can we have one last question? Can we have the microphone here? Thank you.

(Q6) Mr. Kitagawa, I think you are the right person to answer this question. This is a shipbuilding session, but because it is a serial nomination, it is nominated as a whole serial property. This is considered industrial heritage and how they related to each other. There are heritages from shipbuilding and from iron and steel and other industry. But, these component parts, as a whole, were contributing to the industrial revolution. But, in new working group of Dr. Kitagawa, the connection with other industries, how is it convincingly explained?

(Kitagawa) Well, when we started the investigation, ports, the steel industry, and other industries were also considered in inclusive manner. However, to include everything all together to have a very wide range of the industries would further complicate the matter, we thought. That is why we thought we should focus on shipbuilding. Of course, ships are not built with wood. Right now, ships are built by steel. Therefore, of course, there is a very close link between shipbuilding and the steel industry. Without development of steel industry, there would be no shipbuilding.

Steel plates were imported from outside. But, with the limited naval capacity back then, we could not import all of the necessary amount. That is why we needed to have a steel industry in Japan for shipbuilding. In that sense, they are very well linked, and of course that link needs to be well considered in the overall heritage. That is what I think. Thank you.

(Stuart) I had you, and then the one behind. So, two more.

(Q7) About Senshokaku, I have a question. For Senshokaku, is the building itself included, or is it the case where the Mitsubishi Shipbuilding has owned inside assets? Is this also included in the listing candidate? Also, from the cabinet office, you said that, even if you cannot disclose the information, in some way or other, you will try to show these sites. Yes, but if that were to happen, then the assets of Senshokaku, will this also fall under this category where you will indirectly try to show what is inside?

(Yokogawa) In regards to Senshokaku, for world heritage sites are normally targeted towards buildings, and, of course, their furniture and others inside of that is also included, though it is not directly the target of the World Heritage site. I think that this furniture and others which are inside do hold value though they are not designated as World Heritage site per se.

(*Floor A (01:52:49)*) As for the scope that we can disclose, we have to consult the companies involved and, to whatever extent possible, we will try to disclose the information.

(Q8) I am Yoichi Nakamura. I have a question to Yokokawa-san. This does not have direct bearing on World Heritage this time, but I would like to take this opportunity to ask you this question. Takashima, which is Hashima, Gunkanjima Island, and 1880 Yugao-maru steel ship, I think that, for the

people who used to live on the island, there is a lot of affection for this ship. When this ship came to the port of Nagasaki, coal was the basis of the steam engine. With the some sound and the black smoke, this sound may sound very sad when they were in sad mood and this sound may sound very happy when they were in happy mood. Around 10 or so years ago, Mitsubishi closed the shipyard in Gunkan Island, and at that time this ship, also went out of the service, but did you have any discussion to preserve this ship? It got demolished.

(Yokokawa) Well, this was one of the first steel ships or iron ships created by Mitsubishi, and that was in service for 75 years, which is a long-term. That was to connect Hashima Island with Nagasaki. That was created by sintered iron.

That ship was in service for 75 years, was very strong, and whether there was a discussion to preserve that ship or not took place, I do not know. But, I understand that people really love that ship, and that was a very lucky ship, actually. During the war, that ship was transferred to China, but fortunately it came back, and it was in service once again, not only to connect the island with Nagasaki Prefecture, on weekends people would take such ship to go for bathing in the sea. But, I think cost-wise probably it was not possible to preserve.

(Stuart) Okay. It is close to the time to finish. I would like to thank all of the members who presented such interesting papers about a wide range of shipbuilding. I would also like to thank the audience for listening to us so patiently, and for asking such interesting questions. I ask you to put your hands together and thank everybody.

Session 3: Coal Industry: Community Memory and Sustainable Tourism
Chairperson: Neil Cossons (Chair, Kyushu Yamaguchi Expert Advisory Committee)

(Cossons) Ladies and gentleman, it is now 15:45 and we have a packed program for this afternoon. I would like to make an immediate start. Each of our speakers will try to keep their address within 20 minutes. If there is a possibility, we will have one or two questions between each speaker, but that is only going to be dependent on how we run for time.

Our first speaker is Marie Patou from France. She has been the Project Manager for the Bassin Minier World Heritage Site project for the last 10 years. It was inscribed on the UNESCO World Heritage list in 2012. Marie.

Nord-Pas de Calais Coalfield as World Heritage Site
Marie Patou (Project Manager, Mission Bassin Minier, France)

First of all, good afternoon everybody. I just want to thank all the organizations and Koko and all the committee for this invitation and for giving me this opportunity to talk about the Nord-Pas de Calais coalfield. It is my first time in Japan and it is a great first time, so thank you.

I am going to talk to you about the Nord-Pas de Calais coalfield as a world heritage site. We have been inscribed two years ago in Russia and I am going to explain to you what we have done. We have

been inscribed as an industrial landscape.

#2

Just a little bit of geography first just to show you where we are. We are the French part of the northwest Europe coal seam. As you can see, it is not very far from Paris. It is about 250 kilometers. We are not very far from Brussels and either London with a channel. The coalfield extends along 120 kilometers long and is 4 to 20 kilometers wide. We have still more than a million of inhabitants living in the coalfields. We still have left more than 1200 mining components over 163 mining municipalities. Into the region of Nord-Pas de Calais, which is a French region, we have the main town of Lille as you can see on the right. This is where it will take place, the next TICCIH Congress in one year.

#3

Then a little bit of history. We are an old European basin. The coal was discovered first not very far from the Belgium frontier in 1720. Then we had the second discovery more than one century later in the Pas-de-Calais department. We also had big mining disaster one century ago, which was for a long time the biggest European mining disasters, which made 1099 victims in few seconds. We also have been destroyed during the two World Wars. Until the Second World War, the coalfield was owned by private mining companies and it has importance, so I will explain it to you a little bit later. Then, we have been nationalized. The coalfield became the property of the French state.

The production started to decrease in '60s and it finally ended in 1990. That was year that the last pit closed. What is really important for our coalfield is that we are a mono-industrial activity. There are few any other industrial activities like siderurgy or metallurgy. The coalfield was only dedicated to coal production.

#4

Of course, the coalfield has post mining history, but I do not have time to explain you what we have done since the end of the extractions. I am coming just to the world heritage candidacy, which started 10 years ago with the inscription on the tentative list. We launched a public association with double mission, production of the application, and mobilization of all actors in the project from municipalities to departments to regions and populations. I will not have time to explain all this to you apart from the population at the end of my conference.

The main parts of these 10 years of working were dedicated to studies and inventories. Then we finalized the nomination bit and we entered the UNESCO process with a submission to the World Heritage Center. We have two ICOMOS experts and finally we have been inscribed on the World Heritage List in Russia two years ago. You have a picture of the French ambassador and with our two presidents. We were quite happy when it happened.

#5

Just to show you few images of what we have done for six years about studies, systematic inventories, its mining components as an inventory sheets and it really took many times to go on the coalfield and to realize these inventories. We also have a huge landscape analysis in the coalfield because we applied

under the category of cultural landscape and 'landscape' was the main word for us. We also did a lot of research to demonstrate the outstanding universal value and to do the comparative analysis, which is, for me, the biggest difficult problem to solve in a nomination.

#6

You can see in 2009 that we have a first map of mining heritage in coalfield and this is where we started from to select and to do the core zone and buffer zone. If you look at the map from the 60s when the production was at its peak, in French, if you do the comparison between the heritage map and the map from the 60s, you can see that there are many components left in the coalfield.

#7

As I said before, we applied under the category of continuing evolved cultural landscape, which is a combined work of nature and human activity according to the UNESCO definition. We have to prove and to show the transformation of a former rural landscape into an industrial landscape; how it created a specific culture, which is mining culture; how it has evolved during three centuries of activity; and the main key for us that it was still living landscape. There are so many people still living in the landscape, so we could not do the coalfield becoming a museum or something like that. This category is not a collection approach. It is, anyway, a larger scale than a monument or a site. We are really on a landscape plan.

#8

If you really want to understand this industrial landscape, there are three main keys. The first key is the process of transformation, which is a mining system. You can find it everywhere else in the world. You have a pit, then you have waste tips, and workers' dwelling. This is the same system all along the coalfield; all along the 120 kilometers long. This is what transformed the landscapes. You can have a picture of this mining system in the 20s.

#9

The second key is that, until the Second World War, the coalfield was owned by private mining companies. In 1939, we had 18 private mining companies, which, of course, produced coal, but they also were in competitions for workers. One of the main keys was to develop their own architectural style in headframes, in pits, and in workers estates. From east to west, you have 18 different architectural styles in all these components and this is why the mining heritage in the Nord-Pas de Calais is so rich and diverse; it is the origin of its diversity. Then, when we were nationalized, there will be only one style which is a modern style, and it is a little bit less important.

#10

Then, the third key, because we are a landscape, is to play with three different scales every time. The first level, the first scale is individual components and different typologies. You have the pit, you have headframes, you have waste tips, workers estates, and all the community facilities such as churches, schools, and other things. This is the first level of individual components.

#11

The second level is what we call local mining area, and is how all these individual components interact with the others. We still have the mining system. We still can see the mining system. We had to all this exercise all along the coalfield. This is the second level.

#12

Of course, the third level, the highest level, is a level of landscapes and characteristic horizons. I will show you some all those pictures later.

#13

I am really going to be quick on that part, but just to show you pictures of technical heritage, it is definitely the weakest part of our heritage collieries because all of that have been destroyed when the extraction started to decrease in '60s. But we still have main collieries, and we still also have remains from the 19th century. You have got some few pictures here. There are also only 21 headframes left in the coalfield.

#14

Then we have what we call waste tips. We still have 220 waster tips on the coalfield and this is a major identity of the landscapes; of the mining landscapes with great visual impact. They are really iconic and they are protected now since 20 years ago to protect the landscapes and also of course, we have transport network with railways and railway stations.

#15

Then, we have social heritage. It is not only about production. About workers housing estates, we still have 563 precisely housing estates and it is still in use. It still social housing for low income people. We are four generations of housing estates. The first one is what we call the 'Coron' which is a French term. There is this long row of housing. Then, we have housing estates. They are huge with a lot of gardens. You can see also two pictures of two houses. You can see different architectural styles because it from two different companies.

#16

Then, you have garden cities at the beginning of 20th century coming from England. You can also see the difference and all the different architectural styles because they are coming from different companies.

#17

Then, the last generation, which is more in cities dating from nationalization, and we have some brick housing, and we also have a prefabricated houses using concrete panels.

#18

Of course, in these cities, we have all the social facilities like schools and all the buildings needed for education, also with different architectural style.

#19-20

Community facilities like stadiums, sports facilities, brass bands, halls, music halls, health facilities with clinics, dispensaries, pharmacies. Also, different from one company to another one.

#21

Religious buildings: mainly churches, catholic churches, for moral education of the workers.

#22

Another part of heritage or mining heritage quite separated from social housing is the owner's and manager's houses. We can see all over the coalfield, which are quite monumental, and quite different from workers housing.

#23

Then, you have grand offices of mining companies all over the coalfields still. All these facilities are still in use. Schools are still schools. Sports stadium are still stadiums and grand offices became municipality offices or universities.

#24-25

Of course, this tangible heritage tells us a story about culture heritage and mining culture. It talks about the mining work, but also trade unions, also story of strikes, big strikes arrived in the Nord-Pas de Calais coalfield. Or the question of immigration: 29 nationalities came in the coalfield to work in the coalfield. What we call 'mining pleasures' with leisure activities like pigeon fencing, football, gardening, and also brass bands. This mining culture is quite universal because we can find it in another mining basin.

#26

So, just to show you, I have just talked about the different typologies and individual components, but just keep in mind that all of these elements interact with each other. You have a picture here when you have the pit. You have the tips. You have the social housing and we have all the schools and all the community facilities, so this is the second level, and mining quarter.

#27

Then, we have the third level. This is a map of the 16 different mining landscapes that we have listed in the coalfield.

#28-29

Just to show you some pictures of the different landscapes from east to west. You have mining in the forests, you have mining in the rural environment, you also have mining heritage with highways and

railways. You also have really urban mining landscapes, and then still mining was rural environments. The last one, maybe you cannot see that, but it is more mining valley in the west of the coalfield.

#30

We had to a core zone and a buffer zone for the nomination. We had to apply many different criteria to decide what would go into the core zone. Of course, the two main criteria were integrity and authenticity, but we all also have to be representative of all what I just told you; architecture, urbanism, history, geography, landscape variety, mining culture, and we have to cross this with a state of conservation, protection, and management. I will not have time to explain to you our master plan, but you must know that nearly all the heritage is public property. We have nearly nothing in private property, so it was not so difficult to have a master plan because it is all in public property.

#31

This is the perimeter. This is the core zone and the buffer zone. It is almost 25% of the global heritage. It concerns 87 municipalities and it is about 4000 hectares of landscapes in the core zone. You have also the details of the number of elements composing these landscapes; collieries, 51 tips, 124 estates of miners housing, and all the facilities.

#32

For the nomination bit, what we have done is that we presented these 13 contiguous sectors corresponding to some former mining companies' concessions. For each section we did the historic context, the period, the mining company, their architectural styles, their social policies. Then we did the landscape context with a former landscape, the backdrop, former landscapes, evolution with mining activity, and contemporary landscapes. Then we did the description of each component.

#33

This is a quotation from the ICOMOS evaluation report dating from 2012. The most important sentence is that, "The diversity and the completeness of these various levels of the property's perception provide a unique and exceptional testimony." This is really industrial landscapes which have inscribed on the world heritage list.

#34

There are criterion two, four, and six. Criterion two is for the exchange of ideas and influences about extraction, but also workers housing and urban planning. The criterion four was for the large-scale development of coal mining, and then the criterion six, which is more intangible in material heritage. The coalfield represents a major symbolic place of workers' condition and their solidarity. They are a testimony of the dissemination of the ideals of worker unionism and socialism. These are three criterion we obtained.

#35

I will talk about the challenge of conservation and memory. We have a big mining museum that

opened 30 years ago. The memory and the story of the coalfield are well preserved by this mining museum for a long time. It is also an archive center. We have one museum that is getting on well and which deal with this question of memory.

#36

What we have done through the nomination about mining history is we got some supporters club which were the relay on the territory of the candidacy and on the nomination. There were maybe 100 (really nothing in comparison with inhabitants) but they were really active until we got inscribed but they were only turned into memory and they are quite pacifist through this nomination. We had to tell them that memory is fine, history is fine, but we also have to get projection for this coalfield. It was a little bit complicated sometimes because they were always told us that it was better before when there was still coal extraction.

#37

The big challenge we have now is what is left today of mining community, memory, and mining culture. The last pit closed 25 years ago and it started to decrease in the '60s. It was nearly ending in the '80s. There are one or two generations that did not know the mining history and did not know the coal extraction. There is a gap, and they do not know what was the value of these landscapes and of the social workers housing. For example, in mining workers estates, there are only 30% left of former miners or widows. New generation do not know what happened in their territory. We have to find a balance now between history, memory, and projection. It is not because you say that your landscape is universal and exceptional that it makes sense for today's generation, so this is really a big challenge of conservation now for the next few years.

#38

I will just end by a big thank you to the Tagawa Museum because one of our first tool is that we launched an exhibition, an itinerant exhibition for the mining municipalities in the Nord-Pas de Calais. I wanted to express the universal value of this coalfield by doing the parallel between the miners coming from the Nord-Pas de Calais and miners at the same times coming from the Sakubei collections. This is very expressive. I just wanted to thank you for this water color painting.

#39

Just a few rendezvous; next event in the coalfield. One month ago, an NHK team came and did a documentary on the coalfield. It will be on your TV maybe next fall in October or November. Be aware of it. We also have in next November an international conference organized by the mining museum about coal and conflicts in the world. Of course, in one year we will have the next TICCIH Congress in Lille. It is about 30 kilometers from the coalfield. I hope you will be able to come and see the coalfield during the trip for the Congress.

#40

Thank you for paying attention.

(Cossons) Marie, thank you very much indeed. I think we will press on directly to our next speaker, because I am very keen that we give everybody an opportunity to make their full presentation. Marie has already laid the ground for our next speaker, Mr. Tatsuo Aso, who is the Museum Director of the Tagawa City Coal History Museum in her mentioning of Yamamoto collection as memory of the world. Please.

Japanese Coal Industry, UNESCO Memory of the World, The Sakubei Yamamoto Collection

Tatsuo Aso (Tagawa City Coal, History Museum, Japan)

Thank you. Thanks to the arrangement by the secretariat. I will be able to broadcast here an edited version of an RKB news program which illustrates the Chikuho area. This will run for about 10 minutes, and then for the next 10 minutes, I would like to talk about other things.

Could you run the video please of the TV program?

<Video Playback>

Thank you. Now then, I would like to make some supplementary comments on the video that you just saw. Of course, you saw the video only once. It may not have left an impression on you, but this is the Memory of the World Program. This video is related to the contents of the Memory of the World Program. However, the main asset that we are dealing with, we believe that it really linked to the content of the memory of the world.

Now, let me make some supplementary comments. How many paintings did Sakubei-san drew in his lifetime? Of course, if you go through his diaries, you will be able to tally the number. However, there were some families or friends who were given five pieces and they only had one remaining, etcetera, and so we had to correlate the numbers. As of the end of March 2014, we were able to confirm the existence of 1118 paintings so far, and a part of them are inscribed as memory the world, but in the video you saw that there were some uncompleted works which were partly designed. If you include that, then there are 589 original paintings that have been inscribed as memory of the world. Of course, I will not allude to the contents.

Now, I believe that you saw on the video, Dr. Michael Pearson, a member of the expert committee who gave some very interesting views. Dr. Michael Pearson, while he was discussing with the members of the world heritage committee, became our contact person. The mayor of Tagawa and Mr. Pearson became agents for the Yamamoto Sakubei collection. They were very, very conducive in making the collection memory of the world. That is the flow we went that leads to today.

Now, back in the video it said that in 1940, there were close to 20 million tons of coal produced in the Chikuho area. That is out of the total national production of 57.31 million which means that close to maybe half, maybe 40% of the national production was actually produced in Chikuho.

Now, it said that Yamamoto Sakubei entered the mines at the age of seven to help with his parents by looking after his younger brother, but it was officially at the age of 14 that he worked in the mineshafts. After working there for about 50 years at 21 mines, he then became a night watchman from the age of

66 at one of the mine offices. After he became a night watchman that he began to paint these drawings.

#2

Now, this is a representative page or design that was used as the front page of the application form for UNESCO inscription and it is entitled *Mining Coal in an Upright Position*.

Now, let me also explain here that people often talk about tattoos, and this painting also shows a man with tattoos, but tattoos during the Edo period were actually placed on ex-convicts to show that they had been convicted of crime. So, I would like to call this rather *horimono* rather than *irezumi* tattoos and why these coal workers put tattoos on their skin, I do not know. But, apparently, the tattoos that Sakubei used in his designs were the tattoo designs from the Chikuzen region rather than the Chikuho region. Apparently the design of the tattoos are from the Chikuzen region rather than the Chikuho region.

In any event, I said that Sakubei-san was a night watchman, and when he was 71, in 1963, he published using private funds his first series called the series on coal mines of the Meiji and Taisho era which were written in black Japanese ink. The head of the Tagawa City library called Mr. Toshio Nagasue help to edit this series. He asked Yamamoto Sakubei to write the next series in water colors and although Yamamoto-san did resist, in the end, he did succumb to these requests and began to draw the next set of paintings using water colors.

#3

Now, this shows a man who is not tattooed, and I would like to share some interesting points with you. The work illustrated in this painting is not the European originated boring technology, but it is actually a boring technology used from the olden times in Japan. Yamamoto-san called this the Tomoko or Kanayama Kofu. Tomoko is the name. These are group of engineers called Tomoko who are boring engineers, and after a certain period of training, they will be recognized as full-fledged boring engineers by their masters. They then will go and work in the mines. They will hone their technologies and were very, very helpful in boring mineshafts in the modern coalmines as well.

There were a series of different documentations on Yuko or Tomoko and it is now known that in the Chikuho area the Tomoko were very active in contributing to modern day coalmining development using very traditional boring technologies developed in Japan.

#4

Now, these are some machinery which came from the west. A special pump is located at the very top right which was brought to the Chikuho area for the first time to use for water drainage. This special pump apparently did not work very well and failed often, but in December of 1880, apparently two of these special pumps were imported from the UK, and they were used for experimentation. One of them were apparently presented to Itsuki Katayama in Tagawa. This was the first of a series of western machines that were brought into Chikuho, but the Chikuho people wanted to maintain and repair these machines on their own. Therefore, the Chikuho coal workers got together at a house belonging to a man called Ito Daimon to train in the repair work. From 1881 such machinery first began to be utilized in Chikuho area modernizing the coalmining work there.

#5

Now, this is a very famous painting that is often cited when you talk about Yamamoto Sakubei.

#6

Of course this is in the UK, but this is a picture which was placed in the archives to criticize the use of women and child labor in coalmines. Many similar pictures were drawn after this, but Yamamoto Sakubei, as I said in the video, explained that women have stronger backs, lower backs than men and therefore this kind of labor is better suited for some women, strong women. In any event, Sakubei celebrated the contribution of female labor in the coalmine, so this is quite different in its connotations from the earlier painting, but until the 8th year of Showa, apparently women continued to work in the coalmines, but after the war, or during the war, from the 18th year of Showa, apparently women had to go back to the mines again because men were all conscripted in the army for the war efforts.

#7

Now, due to interest of time, I will make it short, but there is close to Shakano, a place called Yoshio and Sakubei, it was not a historian, so when he applied this document, all of the documents were translated into English, but in the first four lines there are some numbers inscribed that indicate years and there are some mistakes in these years. I asked Mr. Pearson that perhaps we should apply for the inscription with correct historical eras rather than the original so that the translations in English are correct.

In any event, it shows men transporting coal on barges, but they were replaced. There were six tons of coal which can be placed in one ship. It takes about 1 week from Yoshioka to Wakamatsu, but the trains can place eight tons on one cart with 12-13 carts, and in less than half a day, it can make a trip to Wakamatsu, so Sakubei's father, who was a barge driver, had to switch jobs and become a coal miner and his son, Sakubei Yamamoto, also started his career in the coal mines rather than being a barge driver.

#8

Now this is a scene that is often repeated in the collection. It is about bathing. What is interesting is that the location of people, their expressions are similar, but none of the bathing paintings are the same. They are similar, but not the same. Then, this is men and women bathing together, mixed bathing. In Japan, this scene was only seen up to 1930. After that, baths were segregated between men and women.

Also, this is bathing by the normal coal workers, but a coalmine was a highly segregated society where there were, of course, hierarchies of people. In one of his notebooks, Yamamoto Sakubei writes that the biggest bath is allocated to craftsmen, followed by the officials of the mine, then the general mine workers, and the smallest bath would be allocated to the former Burakumin or the underclass, the untouchables of Japanese society. There was a hierarchy in the bathing circumstances as well.

In Japan, when there was so called horizontal movement to abolish such prejudice, apparently such customs were abolished, and Sakubei said that, under this age of the democracy, we are all the same people that such segregation should not take place. That is also written in one of the notebooks that

constitutes the collection that were inscribed as a memory of the world.

#9

This shows the current Tagawa coal and history museum. When we were inscribed for the Memory of the World, the entire city celebrated, and we placed many banners all around the city to share in the jubilation. Let me briefly tell you about the times when it was inscribed as the Memory of the World. Tagawa City was an observer at the UNESCO Heritage Committee meeting. After that there was a meeting in Japan and Mr. Okada, who was representative of Japan, made a very, very important recommendation to the promotion committee that is to the secretariat of the representatives of the various prefectures and cities.

He said that once it is inscribed as a memory of the world there will be two big pressures on you. One is environmental pressure. The other is the tourism pressure, he said. These two pressures will come all at once. Therefore, you must prepare in advance and that was his recommendation. Of course, this is one of the central buildings of the movement toward inscription next year, hopefully. I believe that people who were involved in this movement should start considering about the pressures from the environment and also from tourism because, of course, we will have many, many people come to see the collection. We already see such mobs today and this is a very happy event. We are not raising the entry fees at all, but we do not have enough parking lots. We do not have enough toilets. Also, there is only one very narrow stairway inside the museum, so we are very concerned about the possibility of people falling and accidents. Of course, things have settled down just a bit, but we do have many, many visitors come and visit the special exhibit on the Sakubei Yamamoto collection.

I believe that introducing the Sakubei Yamamoto collection will give people a view into the Chikuho area and the role that the Japanese coal industry had in history or in the development of Japan. There is only one area in Chikuho where there is some small open cast mine and another very small mine; and they only produced about 100 tons plus a year. But there has been an increase of 180 million tons of coal imported from the world. That accounts for close to one-third to one-fourth of all of the energy burnt in Japan. Coal accounts for one-third of the energy we burn now in Japan, and this level of coal will be necessary for the distant future as well. Therefore, in order to maintain this importation, I believe that the nomination of the Sakubei collection to the Memory of the World was a very good opportunity.

All the way from North, Iwaki to the South, we are exchanging information in order to review the coal mining industry to rethink about the energy mix and energy policies of Japan.

#10

Now, to me it is in the day time, multi-colored, but this scene is the last scene that I wanted to leave in your memory impression today. First, the two chimneys, and the headframe at the right, these were sung in the Tanko Bushi, which you know very well the song, and people cherish the Tanko Bushi, but about 32 years ago, this is called the *sanko*, or for the former Mitsui coalmine, and this has been developed into a monument. We decided to leave the two chimneys and the headframe, which are symbolic of the coalmines.

With the help of the citizens and support of the citizens, we were able to light up these chimneys

and the headframe. They paid for the lighting facilities as well as the power costs. These were all supported by donations from the citizens. Also, youth organizations, the headframe to the right is shown in red, but they donated the power cost as well as lighting equipment to light this headframe up in five colors.

So, coalmines may be remnants of the past, but for us local residents and people in the Chikuho and the people related to the coal mining industry in Japan and the world, this scene will make a lasting memory. To make this symbolic, I think that this lighting up of the chimneys and the headframe is a very good initiative. Of course, we suffered the Great East Japan Earthquake, and after that we have reduced the number of lighting up only at the start of the month or on the designated days these monuments are lit up.

##

I think you will remember that about in December 2004, I believe, when the moon and the sun all lined up and the earth all lined up, this was a very monumental scene of an eclipse. Thank you.

(Cossons) Thank you for an enchanting insight into the Memory of the World project.

We now move immediately to our speaker from India, Dr. Moulshri Joshi, who is talking about Memory and Heritage Making in Bhopal, not to do with coal or coal mining or the coal industry of course. You will remember the Bhopal tragedy of 1984, and Dr. Joshi has been working there for more than 10 years on the aftermath of that event.

Memory of Community

Moulshri Joshi (Assistant Professor, School of Planning & Architecture, New Delhi, India)

Thank you and thank you Tatsuo-san. It is going to be very difficult to follow after that very, very interesting narrative on coalmining.

#2-5

At the concluding session of the Bhopal 2011 Requiem & Revitalization International Workshop and Symposium, researchers presented their findings after an intensive 10-day workshop that focused on the legacy of the Bhopal gas tragedy of 1984. A cross-section of Bhopalis in the audience including survivors, activists, government officials, artists, former employees of Union Carbide, journalists, scholars, and other citizens participated in the proceedings often engaging in impromptu debates.

This may seem unremarkable, unless one takes into account that 26 years of struggling with the tragedy, and its painful unending aftermath, has impacted the city leaving it fragmented and increasingly locked into unyielding positions; angry, defensive, fatigued, and alienated.

The political and the social divides around the issues related to the Bhopal gas tragedy, and a resistance to view sites with contemporary painful past as heritage, need to be addressed as a part of the process of transformation of such sites into publically accessible sites of remembrance and empowerment for the local community. I will attempt to highlight the difficulties in achieving a shared understanding of heritage in Bhopal.

The Bhopal 2011 workshop provided a platform for discussion and debate and dialogue towards this end by expanding the discourse and contextualizing the tragedy within the shared history of Bhopal. I will use the Bhopal case to reflect on the practice and construction of heritage as an architect engaged in designing the memorial at the factory site of Union Carbide.

#6-7

In the letter of invitation to the mayor of Hiroshima to inaugurate the Bhopal 2011 workshop, the mayor of Bhopal wrote, "We feel that such tragedies, such as Bhopal and Hiroshima blur boundaries and differences. Their aftermath and significance rises above the immediate and become events in our shared common past from which our present and future must learn from."

Participants from Sweden, Germany, Indonesia, amongst other countries, shared their close connections to the Union Carbide site. Almost everyone had a Bhopal in their backyard; sites that challenge the status quo and the power praxis. Immediate and deep connections could be made that blurred our differences, not only during the workshop, but also in our understanding of the human condition. During my early years in Bhopal, it was clear that Bhopal showed no evidence of boundaries of space, time, and concept. It was a disaster that entangled the global and the local historic and the future hope and despair.

#8

The literature on Bhopal comprising of over a 1000 articles, several substantial books, divides itself into two different but complementary approaches. One, a managerial technological one, and another a journalist-activist approach. The categories underlying the two are surprisingly similar in their commitment to the machine technology as a way of life. The general feeling in these analyses is as if some big machine had broken down and the discussion then centers around the cause and the effect. The causes of the breakdown and the possibilities of repairing it.

I realized over the years of working in Bhopal that the disaster is unique but has been unfortunately plagued by several such clichés. Entrenched in politics, it is deeply encased in our narratives and in our writing.

#9-10

In Bhopal, the idea of community coalesces around the idea of memory. The endeavor to define the memory of Bhopal (and to be defined by it in turn) in this process has been the foremost battle in the post 1984 very Orwellian Bhopal. The factory structures at the Union Carbide site, contaminated a now dwarfed by wild grass and unkempt city buildings, have become the physical ground for this battle, which constantly shifts between the appropriation of the intangible remains of the tragedy and its very tangible crumbling legacy in form of the factory; the contaminated soil, the contaminated water, that has seeped into the landscape, and its chemical babies.

#11

For its victims and sympathizers the struggle has grown to expand not only medicolegal issues, but larger questions of environment and justice. Survivor groups question the moral right of the

government to construct a memorial when it was not even able to meet the medical and other needs of the gas victims. Clearly, when accountability of the past and the rehabilitation of the present had not been settled, the appropriation of the future stewardship of the tragedy's legacy was unthinkable.

The question of stewardship itself is a key contention. There are conflicting claims to the ownership of the site and, by extension, to its legacy. The factory site is under the legal ownership of the government. The survivors claim moral ownership to its legacy and hold a critical view of the government's role in the tragedy.

The government, elected through a democratic system, claims on acting on behalf of its constituency, which includes the survivors. But democracy only guarantees the existence of a public, not public consensus. Only a strong democracy guarantees the existence of conflict. Governments, even democratically elected ones, rarely feel secure to allow self-critical views into that rarified field of national heritage. What Laurajane Smith refers to as a dominant or the authorized heritage discourse. It is a tool in our democracy to avoid public debate rather than encourage it.

Furthermore, the prevalent idea of heritage is a privileged notion of age, monumentality, and aesthetics has directed the heritage discourse in India. In Bhopal, this manifest itself in amongst other things, in a systemic exclusion of tragedy sites by the heritage establishment. Other things viewed variously as an ugly or a reminder of the past many would like to forget. The structures are not recognized as monuments of historic value by the Archeological Survey of India, nor included in any heritage work conducted by the various local heritage societies, which focus more on conventional palaces, beautiful forts, and other monuments. Bhopal has plenty. They have two world heritage sites just few kilometers outside of the city.

Though ignored within, the factory, structures are globally identified with the image of Bhopal and the tragedy that befell it. The survivors of the tragedy have been advocating the recognition of the heritage value of the site as a part of the larger movement to protect the legacy of the tragedy. Their view that the tragedy site is an integral part of Bhopal's cultural history has found resistance in many sections of Bhopal society, which are uncomfortable with the sites, painful associations, and politically fraught narratives. However, both sides, the state, the survivors groups, the various NGOs agree that this tragedy lacks an identifiable symbol that feeds both memory and resistance.

#12

I would like to delve now a little bit on the creation of communities by virtue of this disaster in the city of Bhopal.

Most environmental discussions center around on the idea of a stakeholder model which defines stakeholders as a group of people who have stake in the decision to be made. While it is expandable notion and it is capable of pushing the boundaries of the traditional decision to make us to include non-stakeholders or the marginal players into the circle, it has its problems. I will discuss them in the next part.

Workers, most of them extremely poor and migrants from different parts of India live around the factory, and receive a place on the table along with the institutional bodies and NGOs and others representing the civil society. Simultaneously, this model of stakeholdership pushes the traditional cultural, social constructions forward into the future many times the deepened fault lines that exist within

the society into the future remembrance.

#13

This model of identifying stakeholders in making a decision is based on the assumption that, within each group, the members are homogenous, consistent, and rationale. It also assumes that the various groups are static over time and space.

The success of this model lies in the recognition of differences of the various stakeholders present. Bhopal on the ground presents a picture far from this theoretical model; groups comprised of complex individual interests that change over time. Not always does the government behave rationally, and nor does the corporate interest think objectively. NGOs contest over issues and they are often intolerant and indifferent to the needs of the very people that they claim to represent.

#14

Kim Fortun in her book titled *Advocacy After Bhopal: Environmentalism, Disaster, New Global Orders* puts forward a more nuanced and dynamic model to study communities in Bhopal. I will use this to present an alternative way of engaging with this site. Fortun developed the concept of enunciatory communities to explore how communities are identity, while relatively stable, does not necessarily represent the work undertaken, the interests of its membership, or the agreement within the community. An enunciatory community's identity does not necessarily draw from what is shared or it is common amongst its member. Rather, its identity may be deployed strategically. These communities learn to tolerate and allow for differences. They are complex and they resist, in fact they disrupt, generalization.

#15

What she calls enunciatory communities are held together by double binds, which she describes as situations that create dual obligations that are related and are of equal value, yet they are incongruent with one another.

I will illustrate one such double bind in Bhopal. The demand for preservation of the remains of the Union Carbide factory is one double bind. Efforts to sanitize the site and remove the factory structure by the state were met with strong protest from the survivor groups. The government now sees the factory structures and their conservation as an instrument for starting the decontamination process and somewhat like a flag hoisting ceremony established their stronghold in the physical space of Bhopal.

The survivor organization, on the other hand, over time initially protested the conservation because they feel that the government has no moral right over undertaking any conservation work inside the factory, have softened their position to support the factory conservation when degeneration of the structure reached alarming levels, and they saw that the factory might be lost forever. Both sides are deeply engaged and believe in the objective of advocating inclusion of the tragedy's legacy in the common heritage of Bhopal which they recognize is a battle for larger social issues.

Both sides are deeply aware that, as such, and in reference to, the German memory expert Assmann, neither group has a memory. They must create one and make one for themselves with the aid of memorials and rely on symbols, text, images, rituals, ceremonies, and, of course, monuments.

Today, the very scene of the crime has become a common ground for negotiation. The process of negotiation is a powerful politically democratic asset and establishes heritage as a key terrain on which societal conflicts are expressed. Instead of treating conflict over heritage sites defensively, shielding them from attack, we can offer proactive steps to use heritage sites as resources for addressing social questions.

#16

It must be said again that taking active cognizance of the political dimension of heritage and commemoration aids in unearthing subaltern narratives that might have been preemptively excluded in the hegemonic representation of heritage. Laurajane Smith offers the alternative of heritage as a cultural practice involved in the construction and regulation of a range of values and understanding, whose authenticity lies in the meanings people construct for it in their daily lives

An acknowledgement of the latent power play and politics enables us to harness the very issues that give rise to the political nature of Bhopal as a point of departure to mobilize education, awareness, and civic engagement. In doing so, it helps resist the use of heritage as an instrument for consolidating existing power structures. There is a departure in encouraging an incremental process of dialogue that confronts the underlying issues as opposed to trumpeting the heritage status as an end in itself.

#17-18

The Bhopal 2011 workshop, of which I was a curator, was one such enquiry that investigated in to the contemporary perception of site by local communities along with the interpretation by experts. It yielded important insights about the ways in which citizens view heritage and the act of remembering.

I will discuss briefly two projects undertaken during the workshop which investigate how individuals use, perceive, and imagine such sights revealing what Paul Ricoeur calls 'unwritten testimonies.' It is a coincidence that both projects were led by Indian and Japanese architectural historians and artists.

#19-22

The Urban Rhizome project used the metaphor of a rhizome to bring our attention to the warp and weft of connections that weave us all together in some way or the other. The rhizome was an important metaphor in another aspect. It avoided hierarchy. 100 Bhopali photographers provided almost 2000 pictures collected and converted them into postcards. It is revealing that most images captured the familiar, even mundane essence of everyday life in Bhopal. This sense of familiarity and normalcy so violently disrupts the dead of the night on December 3, 1984, and it forcefully coerces the preconceived images of disaster stuck in our minds just as many recipients of these postcards experienced. Snapshots of friends, surroundings, families are evocative of a familiar, shared human experience.

They speak of both the resilience and the vulnerability of our everyday lives lived outside newspaper headlines. These images were then posted all over the world with a return address to the University of Tokyo, and later in 2011, we held an exhibition displaying various messages that arrived in Japan from across the world from people who received these postcards, including one postcard from the mayor of Nagasaki.

#23-24

The second project, like the photography exercise of the rhizome project, used walking as a metaphor for engaging with the heritage of the site. The project titled, 'Bhopal March – Landscapes of Regeneration' worked on popular urban research concept of overlays and, as David Harvey suggests ,it used the activity of mapping space as a fundamental prerequisite to structuring any kind of knowledge.

The unit traced contemporary patterns of everyday life and infrastructure in the areas around the site. They used technology to track movement pattern of cows, rag-pickers, sewage drains, the tracks that people have left in the so called closed area of the factory by trespassing every day. They set out to unravel the various buried layers of historical and cultural traces of the city by walking and mapping the walking tracks used by laborers settled in and around the contaminated factory. Because the unit focused on studying the daily lives of the urban poor, it also reinforced the insight that the tragedy of Bhopal was sustained in everybody's lives as people have to deal with the industrial economy and its failure on a daily basis with the shortage of drinking water, electricity, the mishandling of solid waste, and lack of proper shelter for all. In this sense, the excesses and shortages of the industrial age were palpable on a very exploratory walk taken by the participants.

#25

During the fortnight-long workshop, practiced and premature views shared a common platform. Local stories, everyday objects, banal spaces found appreciation and fresh analysis. Fresh perspectives on the present and shared ambitions for the future were explored. This active meaning making where we find multiple narratives of the past ascribing it values in the present and projected to its use for the shared future promotes commemoration as a practice of memorials as a product.

Heritage then becomes intangible, continuous, and, most importantly, promotes engagement. It becomes an act with participants rather than passive objects of observation. It is as valuable as the value we attribute to it and it is this process of attribution that determines its continued relevance in society. Heritage in Bhopal's context has strategic significance in its potential to serve as a powerful catalyst for negotiation and reconciliation through assisting the public in drawing connections between the history of the site and its contemporary implications. Thank you.

(Cossons) We thank you very much indeed for that very penetrating view of the events that have taken place since that catastrophe in December 1984.

We now move to one of the places which features in the current Kyushu-Yamaguchi Meiji nomination, Gunkanjima. Mr. Sakamoto, who has lived in Shime, and is the Kyushu Tradition Heritage Network President, is going to talk to us about it now. Please.

Memory of Gunkanjima

Michinori Sakamoto (Kyushu Tradition Heritage Network President/Association President to the World Heritage NPO Gunkanjima)

Good afternoon my name is Sakamoto. I am the President of the Kyushu Tradition Heritage

Network and Association President to the World Heritage NPO, Gunkanjima.

#2

Allow me to introduce some of the facts about the network that I belong to. In 2005, we established this network. It is not a legal entity. It is just a loose association of the active actors. There are various valuable heritages in Kyushu, and we would like to carry this on to the next generation. That is the objective.

#3

There are NPO World Heritage Gunkanjima. The residents club to preserve headframes at Shime, and town building, regional from Kagoshima exploration club, and NPO Moji Red Brick club, NPO Kitakyushu Cosmos club, Kumamoto townscape trust, NPO Town Building Research Center, specified nonprofit organization, Bebbu Hatto Trust in Ōita, various members like this.

For the world heritage, it is not only world heritage that we are working on at the network, because I used to live in Gunkanjima, I would like to share with you my memories of living there.

In tomorrow's session, various people will discuss more details about the preservation of Gunkanjima, and I would like you to participate in tomorrow's session as well, but today I would like to share my memory of living there.

#4

Now, many people visit Gunkanjima island. What are the appeals of Gunkanjima island? For experts, mining techniques are very attractive and architectural style is another factor, community formation.

#5

They are interested in modern industrial heritage, but many more people come because it is a ruined town. Most of the visitors come to Gunkanjima to see the ruins. For five years, half a million people, almost 600,000 people visited Gunkanjima. Now, Hashima is the formal name of Gunkanjima. It is now ruined. What kind of lives were there in the past? Let me just share with you.

#6

This is the outline. This is formal name, Hashima, Takashima town, Nagasaki City, Nagasaki Prefecture. It is 18-19 kilometers offshore of Nagasaki Port. It measures 480 meters to the north and to the south and 160 meters from east to west, 6.3 hectares of area, perimeter 1.2 kilometers, 47.7 meters above the sea level. In 1810, the coal was found. There used to be schools of seven stories, retail markets, and cinema theaters, diners, amusement facilities; all of them were there. I will show you some photos.

#7

This is a bird's eye view, 480 meters long and 160 meters wide. To the right is the housing complexes, and the left is the industrial complexes and the industrial buildings. Almost none of them

are left. The hospitals were broken and demolished, but the apartments that I used to live in are still there. The memory of the coal mine, as you can see from the photo, is almost nonexistent now, but some apartment houses are still there. Many visitors come to see the ruins.

#8

This is the photo at the end of Meiji era. That was the time of the industrial revolution in Japan and I think, in order to become the world heritage, this is the kind of image that people have. Gunkanjima is the name given to this Hashima Island in the Taisho period. All that is left now to relive the memory back then is just red bricks.

#9

This is the night view just like night-less quarters. You can see the school and at the back there is a housing complex. At the back of the island, there are housing complexes, and I never saw any photo of those houses completely lit up because I was not interested in Gunkanjima island. I did not take time to look at the photos of these fully lit apartment houses. This is a rare photo.

#10

Now, from the mainland, this is how it looks. You see one single light from the lighthouse. In 1974, it was closed. Now you can see only the light of the lighthouse now.

#11

This is the west side view. You can see the housing complexes. Those visitors have this image. If you can see the white tower, that is the lighthouse. If it is regarded as a mast of sailing ship, and the whole island looks like a ship. This is the eastside view. I showed you the night view. This is the daytime view.

#12

Someone from France said that it reminded, this French person of Mont-Saint-Michel, and if that is the case, I hope Gunkanjima become a world heritage soon.

#13

You can see that in the industrial part almost nothing is left except greenery. There was a film called *Island without Greenery*. After 40 years, the birds and the wind, they contributed to the greenery now today, but back then there was almost no greenery.

#14

When this island was established, the town was established solely to extract coal. Nothing else but coal mines. When the coal mine was closed, there was no more use for this island. That was why people left the island. My father used to be a coal miner. He was working there. Mr. Aso talked about this Chikuho's coal mine, and that gave me favorable memories. When I was in the sixth grade from Chikuho, I unwillingly came to Gunkanjima. I was born and raised in the coal mining town. I

wanted to live in Chikuho, but because of my father's job, I came here almost with tears, and for eight years I lived there.

The impact I got there was bigger than when I was at Chikuho, so now Gunkanjima is my second hometown, and I am trying very hard to preserve it. I started activity 10 years ago with the help of many people. Under the name of Hashima coal mine, this will become on the list of world heritage and I am very happy about it.

#15

This is the floating industrial city. 600 meters underground; that is how deep that pit was, and we were just extracting, people were extracting the coal from under the sea bed.

#16

This is the view inside the pit. My father, after the mine was closed, never wanted to go back to the coal mining. He chose another job. That proves how hard it must have been for him to work there, and he never asked me to become a coal miner.

#17

Now, buildings. There are 35 wings left. It was the Japan's first steel reinforced concrete buildings built in 1923. I never realized that my apartment was such a valuable property. When I started investigating into Gunkanjima, many people told me about the value, and I realized the importance of Gunkanjima, because, for us, it was the building number 30, but for outsiders this building number 30 is so valuable. For me, it is just a building number 30.

#18

This is the atrium. I never lived in this apartment, but when I was living there, this apartment was lived in by the contractors. The atrium was inside, and when the typhoon came, the waves almost overtook this building. There must have been a torrential rain falling down through this atrium at the time of typhoon.

#19

This is *nikkyu* apartment at the center line. Can you see the difference of the size of the windows? To the left and the right and towards the bottom, the size of the windows were smaller and it was built in Taisho era. I used to live in the fourth floor and the ninth floor and I heard it later, it was a setback construction method, nine story building it was for taking in the sunlight. When we were living there, I never thought about that, but they tried to come up with those devices to make it more comfortable living there.

#20

This is the roof of that building that I showed you earlier. The TV antennas are the ones there. In the 1950s or 1960s, all of the utilities like electricity and water were free of charge back then, so that is why the TV sets spread quite quickly there. There was these farms on the rooftops of the building,

they made those farms to educate children.

#21

This is not something I thought, but it is said that the Gunkanjima's buildings were not established as a completed building from the very beginning. Additions were built as the necessity arose. It was like a stuck up Japanese traditional row houses.

#22

This is the bridging passageway. Using these passageways, we could go to school quite easily without going down first. In the apartment houses, no elevators were there; 9-story buildings or 10-story buildings, but no elevators. In order to eliminate the inconvenience, that is why they came up with this passageways to connect buildings.

#23

On the right, those are the passageways, and then you can see the square apartments, building number 65. On the rainy days, I never have any recollection of having to use umbrellas.

#24

This is the staircase. It is called 'devilish staircase'. Thirty three steps to the bottom and after 33 steps, fourth story, and then again you can reach eighth story or ninth story by using the staircases. Using the passageways and the staircases, the traffic was made easier on the island.

#25

Now, there are no slagheaps there because the slag were inside the ocean. This is building number 31. The belt conveyors came out to throw out the slag and the buildings where people lived had this one window from which this belt conveyers to throw out their slags protruded.

#26

This is market in the morning. Everything is sold out, because 5000 people are living there. When typhoon came and there is this rough weather in the ocean, nothing came. Mothers worried about how to feed children. I still remember vividly those mothers.

#27

On the upper right is school, the left one is the hospital as they stand now. The seven-story buildings of the schools, up until fifth floor elementary school, upper is the junior high school and high school. There was this halogen lamps, mercury lamps for lighting and in the hospitals.

#28

This shows how a typhoon attacked the island. Maybe the wave height was more than 30 meters. Last week, the typhoon number eight came to Okinawa and then started to go north of the mainland and I was watching when I was in Okinawa to see the waves. The waves were as high as this photo. I

think that, at the back of the island, when the typhoon came, it must have looked like this. Towards the foot of the lighthouse, the wave came close. This is how high the waves were.

Many visitors come today, but they cannot have access to the island. They cannot come on to the island. Fences were broken and many rocks and gravel were there. It takes time to restore them.

#29

But on the back side, it seems that they remain intact, because when they built the buildings, they tried to make it stronger to withstand various weather.

#30

This is an embankment here. The basement or the base of the schools looks like this. At the time of the typhoon, all those soils were swept away to show the foundation work.

#31-32

The sea water is coming freely in and out. So, if things remain the same, maybe the school will collapse. I would like the reclamation of the land underneath the school to save the building.

#33-34

Some rooms were left like this, the stereo sets and TV sets. This shows how they landed on the island. Because utilities were free of charge and household appliances were in great demand and use and when they left the island, they did not take everything. The residents believed that nobody would come after them. That is why they did not take everything with them when they left the island.

#36-38

The right is the film theater, and the live concert in the film theater and Mahjong, parlors and snack bars, pachinko parlors.

#39

As I said earlier, there is this rooftop farm for children's education.

#40

This is how the rooftop looks now. The island used to have no greenery, but today so much green. Many islanders crave greenery, but after they left the island, the greenery started to grow. It is quite ironic.

#41

This is how my room looks like now. There is this letter post, and I can see good memories. This is two bedrooms and five family members.

#42-43

You can see the furniture, and still the notebooks and textbooks that I used there. It is just like a

time capsule for those who used to live there.

#44

This shows the children back then. Towards the upper left, the white part was the last residence for me on the island.

#45-46

A very, very rare color photos back then, and now, how it looks now.

#47

With the Mitsubishi logo, cigarettes and matches.

#48

Twenty years ago there was this commercial broadcaster. The island was a treasure island. Coal was found, and people came. They worked, and an island with 1.2 kilometers of perimeter became a town. Four thousand people lived there. Children were born. They grew up. One year, 10 years, 30 years passed. When there was no more coal, people left. No more livelihood was there. The island died with the resources. It was the 84th year. Now we still live on islands, Japan, without resources.

#49

This is the goodbye representation made by people back in 1974.

#50

It says, "Goodbye Hajima."

This concludes my remarks. Many people come for sightseeing, but this should not be just sightseeing. If possible, I would like people to know what kind of history this island used to have and we need to tell them the history. Tomorrow, there are sessions to talk more about this island. I look forward to that. Thank you very much.

(Cossons) Mr. Sakamoto thank you for that vivid insight into life on Gunkanjima and your thoughts on the future.

We move now to our final presenter of this afternoon, Stephen Huges, who is secretary of TICCIH, the international committee for the conservation of the industrial heritage, but in this context, he is here as the Project Director from The Royal Commission on the Ancient and Historical Monuments of Wales to talk to us about Big Pit and Blaenavon World Heritage Industrial Landscape, which was inscribed by UNESCO in 2000. Stephen.

Big Pit & Blaenavon World Heritage Landscape

Stephen Huges (TICCIH Secretary, United Kingdom)

Thank you, Neil. If people want to see photographs and information on the site, then they can go to the web address that is shown here (www.coflein.gov.uk). Just Google 'coflein' and you can put Blaenavon in the search engine.

#2

Wales has had two industrial world heritage sites inscribed in the last few years. They are shown on the map here. Wales is in the west of Britain as you can see on the smaller map. 40% of Wales is upland. It is over 244 meters in altitude, hills and mountain. Blaenavon is on the much larger South Wales coalfield. There are four major colliery museums there, and a lot of protected collieries. I will be talking about Big Pit. Big Pit is actually a museum colliery, National Museum of Wales, and has access underground. There are only two colliery museums left in the UK where you can go underground still. The others have closed, or have not been open, because of obviously the cost of pumping and sustaining coalmines in soft ground as museum, accessible exhibits where you need millions of pounds of currency spent in order to make them sustainable for the future.

Pontcysyllte is mainly a canal aqueduct, still the tallest in the world, but it is in the coal mining area. That also has a landscape collieries and both were supported by politicians in order to regenerate poor mining communities.

#3

Now, the commission for the last 20 years has been running what we call an Uplands Archeology Initiative where we have teams of archeologist recording a 150 square kilometers a year. We use two methods, one is vertical aerial photography to pick up large mining and other features, and the other one is having teams of archeologist walking across the countryside in parallel lines or transects about 30 meters apart. All these red dots, which you see on the Blaenavon World Heritage area – the Blaenavon World Heritage area is the red line going around to an area about 30,000 hectares, about five kilometers from north to south. It is on the mountain top. It is nearly all of the 244 meters, and one of the products of finding so many remains.

When we have archeologist doing this work, it all goes online within six months, and you can look at it on coflein website. We increased the number of known sites about 11 fold, and when the world heritage site was inscribed in 2000, the British Coal Authority still owned the coal reserves which were sold off. Commercial mining companies wanted to restart mining in the world heritage area, which would have done the enormous damage to the landscape, which is full of mining remains, but because we had no archeological monuments well over the site, it was possible to deflect mining from restarting.

#4

In 1974, when I first knew the site, it looked like this. It centered on an ironworks founded in 1783-1784, and the largest in the world at the time. The only reason the mining remains were not destroyed, and you see the key workers housing areas as well, it was not destroyed because it was kept in existence for possible use as a film set. There is a famous novel written, *Heads of the Valleys* and they hoped to have Richard Burton, possibly not Elizabeth Taylor, but Richard Burton starring in this film, and so the ironworks was kept.

Because it was kept, it was recognized as one of the last fairly intact ironworks of the late 18th and early 19th century in South Wales when the area had the largest ironworks in the world, possibly from 1780s, until about 1850. On the left, you can see soon after it had been taken into state ownership, and some of the housing does not have roofs, some of the buildings, the foundries, do not have roofs. On the right, which is taken by one of the commission's aerial photographers, you can see that the buildings have been re-roofed and that conservation work is actually going on in the blast furnace.

#5-

Now, the iron works actually have the coal mining going out from underneath the tower on the right, and that is standard practice for all the large metal works in Wales. They start the metal working, or copper smelting, and then tunnels are driven into the hillside from the side and the first mine is open. Over the use of the ironworks from 1783 until 1938, many hundreds of colliery tunnels and shafts were sunk in this countryside. Some of the key workers were mine directors as well as ironworks managers.

#6-7

This is a reconstruction of how the works actually looked in its heyday. Part of the background to the inscription there were the world heritage studies that TICCIH has been taking forward with ICOMOS. For the inscription, we worked on two years for the inscription of Blaenavon. It was the first of the UK sites to have quite a full of management plan as well.

We referred to the International Canal Monuments study that I coordinated back in 1996, because there are really ironworks, warehousing on the local canal network, which have survived, and was some of the first in the world. We worked for the German Mining Museum in Bochum to do the international colliery study as well. We started that in 1998 and it was finally completed in 2003.

Those world heritage studies are all essential sort of context documents to world heritage inscriptions and make them a lot easier to actually carry out.

#8

We had a colliery special interest group in South Wales on the TICCIH tour of South Wales in 2000. You can see that four of your colleagues from Japan were actually part of that group discussing the international colliery study.

#9

The ironworks first had horse-worked railways going out into the mining landscape. Part of it actually crossed this world's first high railway viaduct to have built in 1788-1789, and that ran into a tunnel on the left hand side, straight into a mine. There was no housing for the workers on the mountain top when the ironworks was built or for the miners. So, you can see that mine houses were actually built underneath the viaduct into the viaduct and chimneys actually came out through railway at the top.

You can see dumping on the right hand side from local limestone mines and workings. This finally actually filled the valley right to the top. I was responsible few years ago for helping to dig the deepest hole in British archeology, because we were digging down to try and find the viaduct, and we broke into

the tunnel. That is on the TV program. But there are other tunnels built into the landscape; many, many colliery tunnels. The first mines working in the landscape were open cast working, which was produced by a technique of water hushing, where water (it hardly ever stopped raining in this area) was kept in small reservoirs and then released on the landscapes and it scours valleys out, and the workers across the present archeological landscape can walk in these old coal mining and iron ore mining valleys and then tunnels were dug into the sides of those.

#10

The photograph here shows the blocked entrance of a colliery tunnel that was actually broken right through a mountain (it is about 1.5 kilometers long) to form a horse railway tunnel in about 1817. You can see from the photograph taken through the grill, that the tunnels actually still exist and there were proposals to take tourist in there one time, but it would be an enormous cost to do that.

#11

This is a reconstruction of how that portal looked when the horse railway was working over it.

#12

The Big Pit colliery museum has quite early tunnels at the base. It is sustainable as a tourist coal mine underground because it has these drainage tunnels going directly into the river. Therefore, it is possible to actually dewater all the upper workings by gravity.

The great cost comes in actually putting in steel supports, because over a period of time, these stones and brick arched galleries, which in some cases date back from 1817 start moving inwards, as you can see from the photograph. There is at the moment sustainable underground tour, but over time a lot of this stone arching will actually disappear.

The first coal shaft in this area was dug in about 1830 called the Coity shaft and that is still part of the colliery museum, but the main part was a much bigger shaft.

#13

But also part of the coal mine infrastructure are these early iron railway bridges. We have now realized that they actually date back to the 1780s in periods of South Wales. A few years ago, people thought that first iron rally bridge was built by Joel Stevenson about 1825. We now have a growing number of these early bridges identified. This one has just been restored with money from the British Lottery Fund. It is actually gambling that gives a lot of money to actually conserve these very big museum installations. This bridge has been taken down about a cost of million pounds, conserved, and being put back up again.

#14

Now, the basic archaeological mapping of this mining landscape is from Royal Air force vertical aerial photographs. Like the Nord-Pas de Calais region, originally we had huge spoil heaps which looked like pyramids on the landscapes.

But from the 1960s, in Wales, these were all removed because of the Aberfan disaster, when water

came underneath a spoil heap on the hillside, slid down, and killed over 100 school children in a school. It was then government policy to remove all the major spoil heaps.

#15

The lower ones in fact will be left, so we have a fairly intact mining landscape with lots of colliery sites. Hill Pits is one shown here. You can see the web of water courses, and most of the shafts were operated by water power. Water was put into cages at the top of the shaft and the weight of the water on one of the cages then lowered the cage down to the bottom of shaft and water was released. It was not a problem because they could roll above the level of the river. They could actually be drained into other tunnels and then empty cage with coal would go up at the same time.

#16

That is an aerial view of the fairly intact mining landscape. There is with multitude of colliery spoil heaps and remains of colliery railways as well.

#17

This is the main museum pit on the site. This is the only one in South Wales where you can still go underground. It now attracts huge numbers of visitors, probably about 200,000 visitors by now. All the signs are trilingual, in Welsh, English, and French. There are more French school children coming underneath the channel tunnel and travelling by bus and going down the pit than there are Welsh school children visiting the mine.

The mine winding house you see here, the brick one, is a replacement to the original stone house. It has a 1935 electric motor in there replaced with original steam engine, and the shaft, the headframe, is a steel replacement for an original timber headframe of about 1952.

You can see in the lower picture there are ranges of stone built houses. This shaft was actually sunk in 1816, Big Pit, or *** ([セッション 3 英]01:58:18) in Welsh, went down about 112 meters.

#18

This is one another things that particularly attracts the tourists. There are two ranges of underground stables, because haulage in the main haulage ways was actually done by pony and horse, and not in the side small ones. My grandfather was a coal miner underground, and like the Japanese illustrations, he would have a chain on his back pulling carts into the main haulage ways.

#19

When we were establishing the world heritage site and wanted to make it sustainable and to regenerate the local community, the town of Blaenavon had about 10,000 people in its heyday, at the beginning of the 20th century, but its population had dropped to half of that by the time of world heritage description in 2000. We wanted to get tourists away for the main colliery site into the mining landscape. One of the ways we have done this is to use lottery money to reinstate some of the colliery and ironworks railway courses along the mountain side, so there are walking trails and mountain cycling trails as well.

#20

The remains on the hillside, not only of coal mines, but of other rolling mill iron works and you can see where all the workers houses were for the rolling mills workers, and also the tunnel that actually goes underneath this site where you can still take visitors underground.

#21

The railway that went from the *Polmer ([セッション 3 英]02:00:18)* Tunnel actually came down onto a canal, which is still used for pleasure boating. We were trying to get a critical massive tourist attractions of about six or seven to continue to attract tourists and to generate international tourism.

This is one of the first railway warehouses in the world on the right there when coal and iron was brought down to the canal and transshipped there. The actual canal bed had to be reinforced in concrete, because it is actually on the mountainside, and although the earth works and buildings are original, these canals tend to fall down and flood the neighboring valleys unless they are reinforced in concrete and maintained to a high standard.

#22

Another of the sort of critical massive tourist attractions is that the ironworks and colliery the locomotive railways from the 1860s onwards have gradually been reopened with a branch into the colliery museum. This is run by volunteers. The volunteers actually raised the money to keep this tourist railway going, and the Pontcysyllte World Heritage Area has a longer tourist railway heritage attraction and it is just generating a second one as well.

#23

One of the first buildings conserved on the site was the Workmen's Hall and Institute. It was partly paid for by weekly deductions from their wages at the end of the 19th century. That housed a theatre and later a cinema for the local community and also had a library. A lot of the sons and sometimes daughters of the coalminers would actually use the libraries and some went on to local universities from the 1860s onwards.

#24

The town was a challenge to try and regenerate that from the industrial tourism. The town itself, (you see the ironworks is at the top) and the curving street called North Street and Church Road is actually because of an early railway. That is quite common in South Wales, which later became a public right of way. Number nine at the bottom is the institute; five is the ironwork school, which is now the interpretation center, and you can see a grid of housing. The Blaenavon ironworks company became the Blaenavon iron and coal company because it was selling much more coal and steam coal for driving ships from the later 19th century.

#25

This is a view one of those grids of housing looking down. On the far side of the valley, you can

see another township, which was called Forge Side built for a second ironworks in 1860s. Beyond that you can see spoil tips from collieries and iron stone working going right up the hill side. Some of that has been reclaimed from these very big pyramidal tips, which were so dangerous in some of these valleys.

#26

Before world heritage status, you can see at the top that a lot of the shops were actually boarded up and derelict. The lower picture shows the amount of restoration that has actually gone on since inscription, but £40 million of government and lottery money went into the area to regenerate it and give some benefit back to the local former miners' community. The colliery actually stopped operating in 1980 and became an underground museum and access point in 1983.

#27

There are special niche shops. They try to make the town a book town, selling second-hand books. That was partially successful. There was a chocolate factory and on the right a local cheese factory and the cheese is matured at the bottom of the coal mine.

#28

One of the distinctive parts of Welsh landscape are the number of chapels. These are not churches, but they were Christian places of worship, and they used the Welsh language. The workers wanted to keep speaking the Welsh language, whereas the iron masters tended to come from England and supported the established Church, and have services in English. They were in simple Italianate style. Some have been reused for other office accommodation.

#29

The Church still carries on in use, and it was actually built by the iron masters in 1805 to 1805 , has cast iron window frames, cast iron window sills, and heating ducts.

The tombs of the iron masters and iron managers around have cast iron tops to them and the font, the baptismal font for infants is cast iron as well.

#30

The ironwork school, again, with lottery money was changed from a derelict site into becoming the main attraction for tourist to try and attract them into the town and away from just the colliery pit itself. They can walk around the town, spend money, and help regenerate the local community.

#31

The British Government commissioned survey of world heritage site sustainability, and Blaenavon was found to be the most sustainable probably because it started from such a low base. The downside is that the prices of houses have increased, and that means for young families, things can become more difficult in actually remaining in the area and people coming in to buy properties.

I will just finish to show you a very short animated film that we show at the world heritage center. It was done with European Funding from a transnational Green Mines project and this is a technique

the commission has developed, and is used for the Pontcysyllte world heritage site as well, to try and give an international tourists an idea of what the site was like in operation. This shows the early housing and how it developed.

<Video Playback Begins>

(Narrator) Bunkers Row was built at the end of the 18th century to house iron ore miners and their families who lived and worked in the South Wales town of Blaenavon. Bunkers Row A was a block of 20 houses built back-to-back between 1790 and 1792. Bunkers Row B is a block of 14 back-to-back houses built shortly after between 1796 and 1800. Bunkers Row C1 and C2 extensions were added to the ends of the roads of housing at the beginning of the 19th Century.

These houses were not designed with anywhere to store food, and so larder blocks were added in front of the row.

These back-to-back houses consisted of two very small rooms, one downstairs with the fireplace in the corner, and one unheated room upstairs.

The Rifleman's Arms Public House is one of the oldest public houses in Blaenavon, and was built on the corner of Abergavenny Road and Rifle Street to serve the communities of Bunkers Row and Rifle Green. The building is still the Rifleman's Arms today, although it has been extended and altered since it was originally constructed.

The parish church in St. James was one of the last places of worship built in Blaenavon. It was constructed in 1913 to replace an older tin church also dedicated to St. James, which had been built on a different site. The stone used to construct this church was mostly recycled from the North Street furnaces. The building is now used as a furniture workshop, and the porch and the bell-cot from the side facing Abergavenny Road has been removed.

Penuel Calvinistic Methodist Chapel was built in 1815 on land donated by the Blaenavon Company in Kings Street, Blaenavon. It was rebuilt in 1885, and a school room, which is not shown was added in 1906.

<Video Playback Ends>

(Huges) Thank you.

(Cossons) Can I on your behalf thank our speakers this afternoon? I think we have had a splendid series of presentations that have covered not just the issue of mining, but also the site in Bhopal, India, and how the history and the archaeology of that place and the social issues that arise from it, have been handled. I would like us all I think to thank our speakers for their presentations this afternoon. Thank you.

Session 4: Management of Serial Sites

Chairperson: Jane Harrington (Port Arthur Historic Site Management Authority, Australia)

(Harrington) Good afternoon ladies and gentleman. We have five speakers in our session this afternoon, so I thought it would be a good idea if we could start on time. Thank you very much all of you for being here. Just briefly, so you know who I am, the reason I am here today and have been invited to talk to you about this session is that I am on the other side of World Heritage nomination as the manager of three sites that are part of the Australian Convict Sites serial listing, which Dr. Pearson will talk to us about today.

Just briefly, I think, as you know, we are here for discussion about sustainable management of serial sites. One of the things that you will hear from our speakers is how complex and challenging are the issues that prove to happen, but that there are a whole ranges of management mechanisms when it comes to managing any site, particularly with serial sites, and there is certainly no 'one size fits all.' However, what we can all rely on is the need for cooperation, for comprehensive research, for consultation, and for a considerable amount of effort. There are no shortcuts, and I think anyone who is involved with this will understand. However, we can certainly learn from the experience of others and that is why we are here today.

I would like to introduce you to our first speaker, Rainer Klenner. He is the head of the unit for Industrial Culture, Civic Involvement, and Urban Redevelopment with the Ministry Of Building, Housing, Urban Development, and Transport of the State of North Rhine Westphalia. However, what is more important I think is that he is the co-initiator of the European Route of Industrial Heritage (ERIH). He is the webmaster and coopted board member of that association and he will talk to us about this route this afternoon. Thank you.

The European Route of Industrial Heritage

Rainer Klenner (Ministry of Building, Housing, Urban Development and Transport NRW, Germany)

Good afternoon and before I start, on behalf of the ERIH Board, I would like to thank the organizers of this impressive conference for inviting ERIH and we feel honored to present our European-wide network here on your conference in Japan.

#2

In the next minutes, I would like to give you an overview about a project we developed in the last 15 years in Europe. And as you can see, I will start with the genesis of our project. Then, I will give you some information about the aims of our network. The next point will be ERIH and tourism/measures. Then, I will explain the structure of our network. Our main tool to promote this network is our website. And at the very end, I will give a brief introduction of the structure of the network as it is working in Europe for a number of years.

#3

Talking about industry and tourism, many people get question marks in their eyes. In their mind, they have images like this when they hear the word 'industry' or 'industrial heritage' or 'industrial culture'. In their minds, they see polluted steam and areas like this. But, as we all know, that is not really the fact

we have, at least not in Europe at these times. Many of these former industrial sites changed in the last years because of structural changes. I think you all know the reasons, and we have to deal with the remains of these former production sites. And some of them (and these are the only ones I am talking about) are reused, mostly for cultural affairs, or in a way that they are, from under the eyes of a tourist, organization from touristic attractions.

#4

As an example, I have an image from former ironwork in the region where I come from, Duisburg in the rural area in Germany; one of the old industrial areas in Europe that has had dramatic structural changes in the last 50 years. This former ironwork is now part of a huge park, more than 200 hectares large, and it is the landmark in this park, it is preserved and listed as a monument. It is reused for different purposes. As you can see in the small pictures, for example, in the former bunkers, people can climb, or some of the halls are reused, for example, for cultural events or for fairs, or whatever you can imagine. The last picture on the right hand side shows this site illuminated at night. It is a very attractive site for the people living in this town of Duisburg, living in the Ruhr, and it is also one of the landmarks of this area. It is very popular. For example, last year more than one million visitors visited these sites.

#5

Another example of reuse of former industrial sites is one World Heritage site in Scotland, New Lanark Textile Mill, a former textile settlement and a factory. Today, it is a very attractive touristic site showing the textile industry in this region..

#6

And not only the buildings are interesting, also the interior, for example, with machines or engines. My example is just in another region of Europe in the Czech Republic in the town of Ostrava, the Michal Mine. And these sites show that they are really attractive for people to come and visit it.

#7

My next image is a map showing the development of industrial regions in Europe 150 years ago. All of these brown areas are industrialized areas. And most of these areas have the same problem of structural changes. In this area, sites remain that are used as cultural sites or with an attraction for tourists.

#8

When we started our project, we did a survey. As a result of this survey, I drafted a list with more than 60 organizations all about Europe dealing with the same industrial heritage presenting industrial heritage. And our first aim was, of course, to preserve these sites and to bring them to the interest of the public, of shareholders, also of decision makers. All of these regional networks to connect was our idea; to develop a European-wide network as an umbrella for all these initiatives that are dealing with our same industrial heritage and presenting these former industrial sites as tourism destinations.

#9

We started with this project 15 years ago in 1999, and we had the idea to build this European-wide umbrella, this network we called European Route of Industrial Heritage. We could also say it is a network of industrial heritage, but 'route' is wording coming from the tourism sector, and we used this phrase European Route of Industrial Heritage. To build such a network costs money and we applied to get money and we were lucky to become supported by the European Union. It has a special program called INTERREG, and with this money we were able to write our first master plan. This master plan showed the economic potential of tourism, and especially of industrial tourism. We also drafted a first idea of how this network could be organized.

This master plan was the very beginning to get more money to realize this network. Again, supported by the European Union, and by partners form different European countries from the Netherlands, from Belgium, from Germany and from Great Britain, this was the very beginning of this network in the North West of Europe, we started to build this network in a time of five years. This was the time we got the money.

#10-11

What are the aims of this network? As I said, the main aim is tourism; to build a network and to use the potential of industrial heritage in tourism for the local or regional economic development. And we wanted to establish a brand in tourism called 'industrial heritage' or, better, called ERIH, because tourism presents many things, but not industrial heritage, at least 15 years ago. Now, we succeeded in many regions, and the tourism organizations feel that there is a potential of industrial tourism, but when we started, we had to start on a very low base, and our aim was to create a brand for industrial heritage tourism.

Our main tool to present to those who are interested in this matter was to build an information platform with these sites that are from touristic interest and that are attractive for tourists.

Another aim was, of course, to do research and knowledge on our theme industrial heritage. We wanted to show the European dimension of the technology, social, and cultural history of the industrial age during the last at least 200 years starting in Great Britain. We wanted to bring this knowledge to the general public, because it is one of, personally, my aims. I work for a ministry that is responsible for supporting the development of industrial sites. We use tax payments, and with this tax we support the developing of industrial sites, so it is important to get the knowledge about our doing to the broad public. Of course, we wanted to promote preservation of industrial heritage sites.

#12-13

Coming to our main topic: tourism. As I said, industrial heritage still is not, and 15 years ago it was much better, that industrial heritage was not known as a tourism brand. We wanted to change this public feeling about it. How would we do it? We wanted to develop a pan-European website starting in Northwest Europe and step by step we built this website. As for current content, we have all of the European countries present their most attractive industrial heritage sites. To do that, we drafted quality criteria for those sites we present. Not each sites that are, for example, in a museum or can be visited

are presented on our website and a member of our network. We only allow those ones that have special kind of quality.

The next idea was to enhance those regions where a number of industrial sites are situated, to enhance those initiatives (you remember the map I have shown) to develop regional routes or regional networks, to present their industrial history in their region, and ERIH would be the umbrella. Under this umbrella and on our website, we would present their regional system.

Also, we got in contact with tourism organizations. As I said, many of them had no feeling about the content of industrial heritage. They had no knowledge. We enhanced, or we tried to enhance, this tourism organization to promote industrial heritage sites as well as they do in the classical tourism events or tourism destinations like castles, historic towns, and other things. Our aim was that they would also present our industrial heritage. We did a little to get in contact with tour operators, and in some regions we really succeeded, but that is a matter we are still working on.

Last but not least, one of our main themes is, to advise the sites, we present how to do good tourism marketing and what the content could be of a good infrastructure for visitors at the sites. Therefore, we wrote a little booklet and every member of our association gets this booklet and is asked to fulfill these criteria.

#14-18

When we started, we had to decide how this network should be organized. It was already a result of our master plan phase to have structure of this network. As I said, we wanted to build up a database as a base for our network with the most attractive industrial sites in Europe. This database started with some 100 sites. Currently, we have more than 1000 in this database, and these single sites are related to theme routes, but it is impossible to promote 1000 sites. Therefore, we decided to have another level of sites with a special kind of quality, and these sites are called 'anchor points'. These sites build our main route, virtual route, only shown on the web, and they are the representatives of our brand ERIH, of our brand of industrial tourism.

These anchor points have to fulfill special quality and selection criteria. Some of these criteria I have listed here. I think there is handout of my presentation outside, and you can have a look at it. I can also advise you to our website. There is a much longer criteria list for anchor points, and also the system of selecting this anchor point is described. It is necessary that one of the board members of the ERIH board visits this site to give a report about it and have a personal impression so that we can compare these sites that are anchor points, and when there are new anchor points or applications to become an anchor point that we hold our level of quality criteria. At the very end, the ERIH board decides about these sites and whether if they are accepted and presented as an anchor point on our website.

Currently, we have about 80 anchor points in 12 European countries. These ones that are in orange are the countries with anchor points, and it is great variety of anchor points from different branches. Some of them I will show you in pictures.

#19

For example, one site in the region I am coming from is the Zollverein Mine in Essen, a World

Heritage Site. It is one of the largest industrial monuments we have, I think, in the world, with more than 100 hectares with 65 single buildings, for example, a mine, and as you can see in this part, a coking plant. It is really a huge site with a lot of problems to conserve it, but it is also used as a museum in this building and another museum, a design museum in this building. Some of the halls of the rooms are reused for cultural exhibitions and so on. If you would like to visit this site, you at least need one day to get a short overview about all the things you can see there.

#20

Another site in another region in our neighbor country in the Netherlands is a former steam pumping station. As you know, more than one-third of the Netherlands are under the level of the sea. If they did not pump the water, the larger part of the Netherlands would be flooded. And one of the historic pumps (they have a lot of them, but this is one of the most attractive) is one of our ERIH anchor points.

#21

Going to another region, to Scandinavia, an energy museum using water power to produce energy is situated at one of these wonderful lakes in Norway.

#22

Of course, also sites dealing with transport; the Harbor Museum in Rotterdam is another example of those 80 anchor points we have at the moment.

#23-24

The next aim we had is, as I told you, to enhance regions to build regional routes. There are, as I told you, more than 60 initiatives in different regions of Europe dealing with our theme, and we tried to get some of them on board or to start a new work beginning on regional routes. Currently, we have 16 regional routes. 10 of them were developed as part of the financed project.

The other ones were developed later and they joined our network. Every route has its own material to promote its route. You can see a number of leaflets. Most of them have their own websites, but on the ERIH website they are presented with their sites building this route also.

#25-26

As I told you, our database has more than 1000 sites at the moment, and we can collect and sort databases on different themes. We called these 'theme routes' showing the different branches of industry, 13 in all. Some examples, of course, iron as we heard in one of the sessions, and mining or textiles, industrial landscape, or paper-making industry. There are 13 different main theme routes, and there are 26 more subtheme routes under the main theme routes, so you can get a lot of information when you use our database or website.

#27-28

As I said, website is our main promoting tool. It is in four languages, in English, in German, Dutch,

and French depending to the partners of the very beginning of our project. As I mentioned, more than 1000 sites are presented on this website with some information, addresses of course, and text describing what a tourist can visit when he visits this site. We commissioned journalists to write the text and did not ask the sites to do this work because we wanted to have text that is very good to read and not with so much technical information. They should entice the people to visit them.

80 anchor points; as I mentioned, 16 regional routes and the theme routes or sub-routes. There is also some text about the industrial histories of the countries that have anchor points, which means from 12 European countries currently, and of all the branches, as I have said. 13 theme routes, 13 main branches we decided to present about the historical development of the different branches. There are also small texts.

The industrial history is not written only by this or presented by sites, by architecture, by machines. The most important thing is the people that created the sites and worked at these sites. And so, we tried to give an overview about connections between sites. The best connection are done by people. For example, the employees coming from Silesia or from Poland today to Germany, going to Belgium and to Nord-Pas de Calais. The history of these people is also the history of developing industrial industry. And, of course, the entrepreneurs (or some of them) are presented always with the point of view that they influenced the development of the industry in more than one European country to show the development of industry beginning in Great Britain and going to the continent and to other continents of the world.

Our anchor points have the possibility to give information about their events. We have an event calendar there, and we also present in a section with links on of the networks that are dealing with our theme in Europe. That means we have more than 2000 links to other industrial heritage sites in Europe. That shows that our website is the largest and the most comprehensive one or one that gives an overview about all of Europe.

#29-31

As I said, we got to develop this network. We received public funding from the European Union. When this money was finished, we had a problem of how to go on working. We decided to found a new association or, at first, an association. What we did was this association is based on German law. When we started in 2008, we had 17 founding members. Currently, there are more than 170 members from 19 countries in Europe. That shows that our network is accepted and we are very happy to have so many sites that have helped us to develop this network.

We still are developing it. As I mentioned, when we started we started with about 100 sites. When the funding ended, we presented 650 sites, and we are still going on doing research and describing the sites. Currently, we have more than 1000 and I think in some years it will be some 100 more.

#32-33

This association has a board that is elected by the general assembly of the members. These board members come from different European countries, from Norway for example, from Italy, from the Netherlands, and of course of Great Britain and Germany, the very first beginning of our network. We have a central office to coordinate the work, and this office is in Germany. But this office is not

able to manage all the work in all the countries we have, so we have people that are responsible for special regions in Europe. In these different colors, I show you their responsibilities. For example, for Scandinavia, there is one for Eastern Europe, for Southern Europe and so on. That is our structure. We try to have these people closer to our members and they give the information they have to our central office in Germany. The board is the organization that has to decide about developing and the things we are doing in the future.

That was just a brief introduction of our European wide network, the European Route of Industrial Heritage (ERIH). Thank you.

(Harrington) Thank you, Rainer. That was wonderful. I think it just shows all of us how a small group of people can be very enthusiastic about an idea and turn it into a reality.

I apologize for not mentioning at the beginning that we will hold all discussions over until the end. On that basis we will go straight into the next presentation. I have great pleasure in introducing Dr. Michael Pearson, who has extensive experience in heritage management planning including in the area of World Heritage. I think that many of you would know that he has worked on the current Japan Industrial Nomination, but I think, perhaps, if you will forgive me with a more special place in my heart, Michael did a considerable amount of work on the Australian Convict Sites nomination. Thank you, Michael.

The Management of Serial Nomination: Convict Sites

Michael Pearson (Chairman, Institute for Professional Practice in Heritage and the Arts, Australian National University, Australia)

Thank you, Jane. It is a great honor to be here with you today to be able to speak with you and I congratulate the organizers on such an interesting and well-attended event, so a memorable event. What I am about to say, while I have had discussions with Jane Harrington, who is one of the managers in one of the components of the Australian Convict Sites, and I have had discussions with officers of the Australian Department of the Environment on this topic, the interpretation of the Australian experience is, and its relevant to the Japanese circumstance in particular, is all my own fault. It is all down to me, so it does not represent an Australian-wide view. It is my personal view of the Australian situation and how it relates to the Japanese nomination here.

The approach I will take is to just highlight some of the lessons that we have learned from the Australian experience over the four years that the Australian Convict Sites have been listed on the World Heritage list, and to highlight those things which I think are useful in planning for the ongoing management and conservation of the Japanese World Heritage series.

#2

In a brief outline, the Australian Convict Sites was inscribed on the World Heritage list on the 31st of July 2010. It is just four years ago. There are 11 sites that make up the series. I will just run through quickly what those 11 sites are. These sites are spread from the West Coast of Australia near Perth, right across to Norfolk Island, which is half way between Australia and New Zealand. It is a

spread of about 5000 kilometers between elements in this listing. Kingston on Norfolk Island is a convict settlement site with many buildings making up a convict penal settlement where convicts were send from Australia to Kingston and held there. You can see just some of the sites there.

There is Hyde Park Barracks in Sydney, which is a distribution point for convicts, a holding point, and then a distribution points for convicts to work for other people within the colony; Cockatoo Island Convict Site in Sydney Harbor, which is an industrial site in the harbor of Sydney.

#3

This is Port Arthur in Tasmania, the site that Jane is a Conservation Manager for. It is a very large and complex; again, a convict settlement like the one on Norfolk Island, with a whole range of convict infrastructure, penitentiaries, selected holding prisons on the *penalty basis ([セッション 4 英]00:32:06)*, industrial buildings, a dockyard, associated coalmine, which is also shown here on this slide, and housing for the officers spread over quite a large landscape. The coalmine site itself was an operating coalmine to provide coal, both for the industrial operations at Port Arthur, and for other domestic and industrial uses in Tasmania. The Cascade Female Factory, it is not where females were made; it is a factory for female convicts where they are held and, again, are transferred from there into other positions in the colony.

#4

Darlington Probation Station: in several of the colonies which had convictism, there were different systems of graduated convictism. You came in to a prison, you went to a probation station and then you eventually could move out into the society generally if you behaved yourself.

There are two examples: Brickendon Estate and Woolmers Estate, which are privately-owned pastoral estates, farming estates, which were based very largely on convict labor that was provided to the owners to develop their pastoral enterprises.

#5

The Great North Road in Sydney: a lot of the government employment for convicts was making infrastructure in what were new colonies. The first colony in Australia in New South Wales was established with convicts in 1788. The convicts arrived in the first fleet and started to build a colony. That colony needed transport infrastructure, and this Great North Road is one of the major roads leading out of Sydney to the Northern districts. Old Government House in Parramatta represents the administration of the convict system in New South Wales. It is one of the sites from which the governor was able to control the convict administration. Fremantle prison, which was the last operating of the convict sites, operating with convicts coming out from Britain up until 1868. Then it was used as a prison within the colony, and then within the State of Western Australia, and only ceased being a prison in the 1990s.

#6

The Japanese serial nomination and the Australian serial nomination are widespread. Now, those two maps show you the spread in Japan from Kamaishi in Northern Honshu, down through to

Kagoshima in Southern Kyushu. In Australia, it is hard to make out the little dots, but the little red dots run from the bottom left hand corner of Australia in Fremantle right across to Norfolk Island in the far right off the mainland. The concentrations of sites are in the Sydney area, New South Wales, and in south on the island of Tasmania.

These sites, as I said, the first settlement using convicts was 1788, and convicts continued to arrive in Australia from Britain up until 1868. In that period, 166,000 convicts arrived in Australia. The nomination was based on the OUV of it being an outstanding large scale example of forced migration of convicts. Many European countries utilized convict labor; France, Spain, Russia, had convict establishments around the world. The case for the Australian series was that the British system was very well documented, was consistently administered on quite a large scale over a large period of time, and, as such, was an exemplar of this unfortunate phase in human history of forcing people away from their homes to live somewhere else.

It illustrates that system of convict administration and control over a long period of time. It illustrates the conditions of the convicts in a very complete way, and it represents the range of activities that convicts took part in; the production of raw materials, the building of the cities, the building of the transport infrastructure, and the building of the pastoral expansion of the colony.

It had various dimensions. One is the penal dimension in terms of the development of penal prison policy in Britain, in terms of the political roles of Britain using the Australian colonies to establish a presence in the Pacific, and in the colonial dimensions of utilizing forced labor to help establish an overseas colony. All of those things combined have been successfully argued to meet criterion four and six of OUV within the World Heritage system.

##

That is the background to the sites. The management issues I will deal with briefly. In some ways, the management issues facing the Australian Convict Sites are similar to those facing the sites of Japan's Meiji industrial revolution. Both properties have a series of sites that are spread over a large area, and a series of sites which are somewhat different in the way that they are managed, and in the part of the story that they tell.

The key issues in common are the following, and I will go through these issues as they pertain to the Australian circumstance, and then I will talk about the implications as I see them for the management in Japan.

The first issue is about the central coordination and promotion of a series. The Australian strategic management framework, which is a parallel to that developed by the cabinet secretariat for Japan, is a framework which tries to bring together and coordinate the protection and management of this dispersed series of places. It has the objective of establishing a cooperative collaborative approach across the series as a whole, and to develop cooperative management arrangements between elements of the series. That was the intention of the framework. Unfortunately, those objectives have really only been partially achieved as yet in the Australian case. And I stress, the Australian case is now only four years into World Heritage management, but there are some trends that have arisen, some of which are a bit disturbing.

Australia has not yet appointed an executive officer or an executive unit within government to

coordinate this series. The government department responsible recognizes that this is an important function in achieving the good management and protection of the serial site, but the political and financial will has not been forthcoming to actually implement it.

There is a steering committee of the management agencies making up the component parts. That committee meets annually, but its agenda is limited and its interests tend to be at the higher level of inter-government issues in relation to the series, not drilling down to the day-to-day management perspectives necessarily of the people trying to look after the sites. As a result, there is very little coordinated information exchange about management going on and little discussion between the elements of the whole series about joint management issues and problems. There has been some work centrally in providing things like images and text highlighting all of the sites that make up a series. This is made available to individual sites so that the sites can present material at this site which incorporates the whole series in the interpretation and presentations.

But a central process of monitoring and coordination of that promotion is absent. Centralized marketing of the series simply has not occurred. It was one of the objectives of the framework and it is yet to be triggered.

There has been some coordination regarding the branding of World Heritage in assisting the sites to have consistent branding which identifies the series. But, again, it is at a relatively basic level, and there is far more that could be done still to assist, particularly the small sites that make up a series, to utilize that branding and to utilize the strengths of interpreting and drawing on the series as a whole.

The creation of a central website is a high priority within the steering committee that does exist, but there is a lack of resources, and that has delayed any implementation of that website. There are individual websites. There is a central government website which has some links, but it is by no means a coordinated and an obvious gateway into the series.

#7

Some of the sites have developed effective interpretation presentation ideas, such as this one for an iPhone app which guides people through the Great North Road site in Sydney. Some other sites are trying to develop similar portable interpretive approaches which are very cost-effective, and are very popular where they exist. However, there has been no central promotion or assistance in producing this sort of material across the whole series.

##

Issue two is the adequate funding to support the management promotion of the property. Funding simply has not been adequate. Central coordination and direct support for components that might need additional assistance in conservation works or interpretation development or in management funding has not really occurred on a consistent basis. World Heritage status has, to some extent, however, helped some sites access other funding programs on the national or the state basis. So, having been given the status of World Heritage has probably made it easier for those sites to gain funding from their own states or from the few and far between commonwealth funding programs as they come up.

##

Issue three is about the cooperation between components of the sites. There has been, to varying degrees cooperation between the managers of the component sites through conference phoning and through usually state-based cooperative discussions. In Jane's case in Tasmania, there have been cooperative meetings and regular discussions about issues within Tasmania. However, it is not happening on the national level to the same degree. There is recognition that such integration or discussion between the components is important, but it would be far better achieved if there were more central coordination, support, and venues for those sorts of discussions to take place.

#8

As an example of the way in which individual components within individual states have taken the lead in this, this is the promotional booklet for the six Tasmanian components of the series with each of the series logos. This guide outlines those sites within Tasmania as a guide for tourists to the state to be able to access the historic sites.

##

Issue four that I will raise is one about taking advantage to promote related sites on a regional basis. When the nomination for convict sites was developed, it was recognized that there were many hundreds of other convict sites in Australia. These are just the best and the most representative ones which make up a series, but there are many others as well which are related to these sites. And the intention of the strategic management framework had the objective that the Australian government and the state and territory governments of Australia would work together to develop effective, cooperative, cross-promotional campaigns that covered important convict sites, not just those making up the World Heritage series. This really simply has not happened. There have been some very small efforts, again, on a state by state basis, but nothing in a coordinated way, because funding is just not available for it, and central coordination is lacking. Some individual websites indicate convict sites other than the World Heritage series, but they get very little promotion.

Issue five, and the importance of monitoring through CMPs. The monitoring of the sites in the Australian Convict Series has varied from site to site. Some sites such as Port Arthur and the related components, have very effective monitoring systems, while other sites have little or no monitoring, and little or no reporting of the monitoring of their conditions. It is recognized that effective monitoring would provide a far better basis, both for highlighting management issues that need to be dealt with in the series, and as the basis for World Heritage periodic reporting, and for justifying applications for funding to solve management and conservation problems as they arise.

The last issue, issue six, is one of managing for expected pressures. This is an interesting one in terms of different cultural approaches to World Heritage. The impact of World Heritage listing on visitor numbers differs from country to country. Tourism numbers to the Australian Convict Sites has, overall, not increased since listing. In fact in some of the cases it has decreased since listing because general domestic tourism has decreased in relation to the economic conditions. So, we do not have a culture where World Heritage listing automatically triggers major tourism internationally or nationally.

There are some possible variations to that. Port Arthur, for example, is now experiencing a surge in Chinese tourism, and it is producing information for visitors in Chinese. It has been very interesting

to see that increase and it is very interesting to see, through some very recent monitoring, that the Chinese visitors are very interested in the convict series nomination because it is so different from the heritage that they are used to. They are expressing that in questionnaires when they come to the sites. There may be, in the long term, some increase in the international tourism that may only just be starting now. In Japan, the expectation based on experience in the past is that visitation will increase substantially at some of these sites. This is an area of management where Japan really cannot learn that much from Australia. We just have a different context.

#9

Okay, what are the key messages that I would take from this arising from the Australian experience that I think should be applied to or could be applied to the Japanese experience? One is to establish central coordination. It is critical. You have to have central coordination with an executive officer and adequate support to provide and stimulate cooperative management arrangements between the sites; to exchange ideas for better management and presentation of sites; a central focus point for the promotion of the property (that is the series as a whole); a focal point for identifying and seeking funding; a central contact point for communications with the World Heritage Center and ICOMOS; and the creation of a central website for public information and promotion linked to site-based or tourism site-based sites to facilitate trip planning.

Secondly, I think the need to provide adequate funding support for the management and promotion of the properties. Funding needs to be adequate to protect and promote each component site and to support the central national coordination and promotion of the series. Now, I am well aware that in Japan you have a very good and an active program of providing for the protection and conservation of individual sites. It is not clear to me yet how the funding for the central national coordination and promotion of these sites is to be organized, but I think it is an important point to think through.

The development and maintenance of the central website as an information hub is essential.

#10

To encourage cooperation between the component parts of the series, the management of the component parts should perhaps form a club in the Japanese sense – to form a club, the World Heritage Club, and organize discussions about mutual conservation, interpretation, promotion, and management issues; basically get the component parts to talk to each other. You have component parts which have very, very different management contexts, and they can certainly learn from each other good ideas about how to properly manage or how to better manage their sites. The component parts in the Kyushu-Yamaguchi area are in a strong position to promote the visitor experience of industrial sites on a regional basis. I know that Kyushu already has programs and visitor information about the industrial heritage of Kyushu, but the World Heritage listing would accelerate the usefulness of that promotional activity.

Number four, to promote related non-World Heritage industrial sites on a regional basis; promote the many related industrial sites in Japan that are not in the series through regional tourism programs. The links, for example, between Memory of the World listing of Sakubei Yamamoto collection at Tagawa, the remnants of the Chikuho coal field, and the Yawata steel works is a wonderful opportunity of telling the bigger story and sharing the advantages of the expected promotion of World Heritage sites into

regions which could very much benefit from that tourism boost. To promote industrial site itineraries, we have heard about the European itineraries; European heritage routes idea. I know there is work going on in relation to thinking about such itineraries in relation to the Shinkansen routes. I think that is an excellent way of promoting the routes both domestically and internationally.

Monitoring conservation and pressures through the management plans; each of the sites in this series has a management plan which contains effective monitoring policies. It is critical that monitoring actually takes place. Just having it in a management plan does not ensure your monitoring is going to happen. Each of the sites has to be resourced, reminded, and assisted in undertaking good monitoring, and using that monitoring to identify protection problems, identify management problems, and act on them.

I hope that the Australian experience can help Japan in effective protection and promotion of the World Heritage series. Thank you very much.

(Harrington) Thank you, Mike. In a spirit of recognizing that things do move forward, and this is absolute breaking news as I was getting on the plane, our Heritage Minister has agreed to fund an Executive Officer for the Australian Convict Sites, so we may have that opportunity yet to move forward with some coordination.

I have great pleasure in introducing Professor Helmuth Albrecht. He is a Full Professor of History of Technology and Industrial Archaeology and the Director of the Institute for Industrial Archaeology, History of Science, and Technology at the Technical University, Mining Academy at Freiberg. What is more important, I think with his talk to us today is if you think a serial site across one country can be challenging, we are about to hear about how challenging it is when we have a transnational situation. Thank you.

The German/Czech World Heritage Project of the Mining Cultural Landscape Ore Mountains

Helmuth Albrecht (The Institute for Industrial Archeology in the Technical University Mining Academy, Germany)

First of all, I would like to thank you for the invitation and the honor to speak to you. And second, I would like to have my presentation. I start with a short remark because the World Heritage Project I would like to introduce you to today has a close connection to your Meiji industrial heritage project in two ways. It is a serial nomination like your project, and the other is a close historical connection. Those of you who have been in the 'Lecture I' today have heard about Curt Netto and Adolf Ledebur, two Freiberg professors which come from this region, I want to show you here, from the Freiberg Mining University. They had a close connection to the development of the iron and steel industry here in Japan, as we have heard. There is a connection.

#2

First of all, I would like to say where we are. This is the Ore Mountains region. It is called Ore Mountains because of the rich deposits of ore and it is a region at the border between Saxony and

Bohemia, between Germany and the Czech Republic today. It is a region of 6000 square kilometers: east to west around 150 kilometers; north to south around 40 kilometers. This is the region I want to talk about.

#3

What are my contents? I want to give you a short introduction into the characteristics and features of this project; the methods of the selection of the component parts; then an example of the object categories and component parts; some examples; we have 85 component parts and I will show some examples. My main focus will be on the methodology of the implementation and the project management and the methodology of the site management in the future.

#4

What are the characteristics of the mining cultural landscape Erzgebirge Krušnohoří (this means Ore Mountains)? It is a mining region with a history of more than 800 years starting in the 12th century. Mining is still going on. It is starting up again with the opening of new mines in this region recently. The broad variety of mined raw materials, from silver in the 12th century up to uranium in the 19th century. It is the quantity and quality of monuments and sites related to this history of mining and its cultural influences in this region; 800 years of influence. This is a variety of monuments and sites related to the history of mining and its cultural influences. One special feature is it is a historical trans-border cultural landscape between Germany and the Czech Republic. The border was established not earlier than in the 16th century, and has played a minor role during the centuries. Only in the 20th century has it played a major role and with the German reunification and the widening of the European community. This border plays a minor role today, so it is a cross-border project.

#5

The features of this World Heritage Project: it is an industrial landscape in a low mountain range. It is a trans-border project, as I just said. It is a serial nomination with 85 component parts, 79 of them in Germany, and six in the Czech Republic. Why there is this difference, I am coming to this point a little bit later. It is a cultural landscape with ongoing development and a continuing landscape. This is a very important point for the establishment of this project. As you may have heard, Saxony is the only Saxon World Heritage Project. The Dresden Elbe Valley lost its World Heritage status in 2009. It is the single example for development of this, and this influenced our project a lot.

Another special feature is the agencies of the project; in Saxony, 35 communities and three districts, and in the Czech Republic six communities and two districts. This is a very interesting point because it is not a top-down project launched by the government. It is a bottom-up project launched by the communities in the region. This is quite different to many other World Heritage projects.

#6

What does this region look like? You can see here a map of the historic mining areas. The first important point is you can see that these mining areas are spread like islands over the whole region of the 6000 square-kilometer mountain range. And not the whole mountain range is a mining area. We

have several areas, and the component parts are lying in these areas. The serial nomination was the way to handle this project. You also can see that most of these historical mining areas are lying on the German side of the border and a minority on the Czech side.

#7

I am not going into details. I do not have the time. This is a map of the 85 component parts, here is listed only the elements. It is a little bit complicated to explain. These component parts are organized in regional elements and in regional mining areas. As you can see, I only want to show this is a very complex project.

#8

A short view of the sites themselves. These are the sites, the mapping of the sites of the German side. And you can see these are the component parts and you can see that these are smaller structures, not large landscape sites, and some linear structures. This is the mining water supply system, historic mining water supply system of Germany, and several other infrastructural objects.

#9

On the Czech side, I hope you can see it, it looks a little bit different. On the Czech side these six component parts of the Czech side are larger structures. That depends on several reasons. One reason is the historical structure of the mining in the Ore Mountains, in the Bohemian part of the Ore Mountains; another region is a quite different heritage law on the Czech side. And that the Czech part of the Ore Mountains is not so heavily populated like the German side. Here, the construction of the component parts is a little bit different.

#10

What is the OUV? From our point of view, three points are important for constructing the OUV of the Ore Mountains region. It is the diversity of raw materials from silver to uranium, lead, tin, copper, and others. The raw material are not only dug up there, but also processed in the processing sites; the time horizon of 800 years from the 12th century up to the present, and the variety of the categories and associated cultural values of this project. Our project has also, like your project, met the criteria two, three, and four. But, additionally, and this has to do with the cultural values, criteria six.

#11

I want to give you some examples here, the selection of raw materials, silver, lead, tin, copper, but also non-ferrous and other raw materials like ceramic clays. You may know that the famous Meissen porcelain comes from this region, kaolin, limestone, and even black coal in the northern part of this ore mountains region.

#12

Here some examples of the time horizons. I cannot explain the pictures. I am sorry for that, but

that would cost too much time. You can see that a new mining period is just going on with the rising of the raw material prices in the world, and this caused also some problems for our project, because if you are opening new mines, as we know from Cornwall and other regions, that might be a problem in a historical mining region.

#13

Another thing I want to focus on is the categories and associated cultural values. Categories means these are represented by objects who have mining and ore processing sites, mining infrastructure, mining landscapes, post-mining industries, mining settlements, and scientific sites closely connected to the history of mining. Associated with this, a series of cultural values, the trans-boundary character of the site, the political dimension of this. I cannot go into details as it has a very close impact to the political development of the region. Education, Science, and Technology, the mining university next year, it has its 250th Anniversary as the oldest still existing mining academy of the world. The influence on arts, crafts, music, literature, folks art, and tradition, and even the European mining law you can see on the picture on the right, the manuscript of the famous *Albrecht ([セッション 4 英]01:07:39)* mining law from the early 16th century, which influenced the development of the mining laws in Europe. For mining technology, the famous book Georgius Agricola, I think everyone who deals with the history of mining knows that he was the Mayor of Chemnitz and he wrote this famous book De Re Metallica.

#14

How do we select these component parts? Each component part matches these three dimensions, the raw materials, the categories and associated cultural values, and the mining periods. This was the method of selection, because we had a lot of heritage sites in this region. I am coming back to this a little bit later.

#15

Only a few pictures, I cannot go into details here of mining and ore processing sites, also down left the furnace iron; blast furnace.

#16

The landscape features; the picture on the left you can see all where the bushes and trees are. These are mining pits following the ore weighing down under the ground and in between water storage for mining things and others, open cast mining and things; land features.

#17

Mining infrastructure; the example of the mining still in functional mining water supply system of the Freiberg mining region built from the 14th century up to the 19th century which still provides the, semiconductor industry in our region with water, drinking water. It is a leisure region and a region with its artificial lakes for birds and things like this, with canals and tunnels and everything.

#18

A special features are the more than 50 settlements founded by for mining purposes in this region starting with Freiberg, other cities. You can see on the Czech side, it is the development of mining settlements and mining towns in an upper mountain region.

#19

Here are some pictures of the development. Especially interesting is the above right picture. This is Marienberg, a renaissance planned town, the first renaissance planned town north of the Alps Mountains. And all these cities are showing the different developments during – you can see the times when they founded these cities. These are parts of our project too, these historical cities.

#20

Also important, the post-mining industries, mining work through the centuries goes up and down and the people had to find new jobs. Wood carving is one of these very early industries. You see it is on the left. It is a tradition which is still living in the region where it is famous. The machine tool industry was influenced heavily by mining. Saxony was around 1800, the first part of Germany which was heavily industrialized on the base of the water power; rich water power in the Ore Mountains. The famous watch industry in Glashütte, worldwide known, is a directly following up industry of mining. Also, for the automobile industry, in 1913 this factory was created with money for the conversion. At that time, the mines were closed. The government gave money for new industries and the investors found skilled workers in this region and also very early electrical power system based on mines. So, this industry developed with this the porcelain industry, as I told you earlier.

#21

The cultural values: only a few pictures. The living traditions of 800 years of mining still notable in the region with miners' parades, with special events at Christmas time, with arts and craft. With pictures you can see here a middle piece of the miners' altar in Annaberg down on the left side with a view of the early 16th century landscape in the Ore Mountains with all the pits and everything. It is telling also the legend how they find the silver there. The men climbing on the tree and an angel is coming and saying, "Do not search for the fruits on the top of the tree, go to the bottom and dig there, there you will find what you are searching for." The mining academy, the picture in the middle down, is the first lecture room of the mining academy founded in 1765. And, again, the mining law here as important feature.

#22

Some sketches of the objects and component parts. This is the Jáchymov mining cultural landscape. You can see its larger structure with Jáchymov the famous mining town in the south of the Ore Mountains in the Czech Republic with the structures. The picture above right is a royal mint where the famous Joachim Staler was minted, a coin which influenced heavily the development of the European coin system.

#23

This is the Annaberg structure. I hope you can see. What you can see at least is that these structures are smaller than in the Czech side, and you see it is also composed of a historical city with an iron works here, of underground structures. There you can see medieval landscape just like it looks after the first settlement with a lot of mines spread around. You cannot see them here as they are under the trees. This is a combination of landscape and mining here in this region.

#24

Another interesting point is the uranium production. The first atomic bomb from the Soviets was produced with the uranium of this region. It is a monument of Cold War science, you can say. You see here big structures from Miners Hospital down right and a landscape. Also, it is a problem of the redevelopment of the landscape, as shown in the picture in the middle. You can see the solutions they found to redevelop this uranium mining landscape after 1990 and the German reunification.

#25

What are these strategic aspects of the project? It is a network structure with only selected sites. On the German side, around 500 out of 10,000 directly and indirectly connected monuments to mining in this region. It has, which is important, less than 0.1% of these 6000 square kilometers. It is cooperation with the municipalities, the selection of the objects, the application of infrastructural planning, and regional development. This was the result of the struggle of the Dresden Elbe Valley, because the government refused to fund our project after this disaster in Dresden. You know there they built a bridge and it is an example of mismanagement on both sides (from my point of view) of UNESCO and of the Saxon government, so that they could not find any solution for infrastructural development in a heavily densely populated area and the protection of the World Heritage site.

Therefore, transparency was a major point in our project. From the beginning on we gave open access to all information, we had communication in the areas, and, of course, a special strategic aspect is a cross-border point.

#26

I do not want to explain this, but I want to show you how we tried to manage the project. This is the structure of the German project partners. You will see that in the middle of this long row we have special groups for management, for heritage administration, for regional development, for tourism, and the cooperation with our Czech partners. This was very important. We did not (like we heard here in the last paper) start after the nomination with this process to bring the partners together. We got together in advance to bring the partners together and to develop it in harmony, I would say, with the features of the regional development in this area; external partners and so on.

#27

The methodology: we made 27 studies about the 79 component parts. This is only about the German part of this project, because the Czech went another way. And you can see combined in the eight mining areas, 39 regional elements and 500 objects. The goal of this process, which was a very complicated process and this is in other connection to your Meiji Industrial Heritage Project, it took 14

years now, this nomination. And, as I heard, nearly the same time it took to develop your project.

The goal was the survey, selection, and definition of the sites; a description and justification for the World Heritage nomination; the examination of the protection status of each site; and important goals (at least for our government and our communities) the adjustment of the layout of the sites to local and regional planning of infrastructure; and other things. And the assurance of public and political acceptance of the project in the region. This was, for us, very important, otherwise I would not stand here and tell you about the project.

#28

This is a complex graphic, but this is how we manage this. You can see on the top of the right, the organizers of this progress. It is the project office of the economic promotion agency of this region, of the Ore Mountains region. It was the association of mining region, Erzgebirge. This is an association of France, which gave the money for the project. My project group at my institute, we together developed the project. Then we went to the communities on the left side and presented our selection of sites to the communities. In the next step, the community has to decide, you see it on the left side, a parliamentary decision for cooperation with us. When they have done this, we created a joint working group for this region with the communities, with the public authorities, with the associations involved there, miners associations, and the owners. And then we created and worked together. We have done 27 implementation studies. When this was finished, we gave them for the second time to the regional parliaments and they had to decide whether they wanted to be project partners or not. 35 community parliaments and three district parliaments decided with a great majority to join this project. You can estimate how long it took to develop such a way, but we think it is the best way for a project like this.

#29

I am coming to the working structure. The international: I do not want to go into details. You can see only, the Czech have their own organization, the Germans have their own organization, and there is a German-Czech mixed working group. On the top level, in the last two or three years, the governments went in, the politicians went in and now we are controlled by a German-Czech Inter-Ministerial Steering Group, which caused some problems.

#30

Proof and justification: we have done several expert workshops in the forefront to prove the authenticity and integrity of the project. We have done several attempts to bring in federal governmental institutions like the mining administration, which was (because of the new mining sites) very staying back at first to our project, regional development, regional entrepreneurs, international workshops and so on and of course, a management plan for the project.

#31

I will go through this. It is since 1998 on the tentative list. An important point was the founding of the Association of Friends, because this project was, until 2011, financed only by this association and

by sponsoring from several sponsors.

#32

You can see the studies that we have done since 2000. One important point was in 2011 the establishment of the Saxon World Heritage Convent. And you see here, 35 mayors of this region standing there and singing the miners' anthem of *Freiberg ([セッション 4 英] 01:21:57)* ***. This was the starting point. Now, these World Heritage communities, these 35 municipalities and the three districts are mostly financing our project.

#33

This was a major step to the final thing in 2013, the approval of the project by the Saxon and the Czech government, and the submission of the nomination in January 2014 to Paris.

#34

You can see here, 1430 pages done by our project group. It was a lot of work. Everyone who has done work like this knows what I am telling you.

#35

This is only the future management structure between, on the left side, the German organization, on the right, the Czech, and in the middle, the cross-border administrations.

#36

At last, I do not want to explain this. We have preventive conflict management installed because we do not want to have the same problem like Dresden had that the problem is going straight to Paris and coming back from Paris and the frontiers are so hardened that no one can talk to each other and no solution can be found. We are trying to find the solution before the problem goes to the upper level, and we have management structure for this. And, of course, because of our way to this project, I am sure that this preventive conflict management will work on the regional level. What is on the national and international level will show us the future.

I will skip this because my time is over. I would like to thank you for your attention.

(Harrington) I do not know about everybody else, but I am exhausted. What an interesting project. I must apologize. We are running a little bit behind time, but I can promise you we have two very interesting papers still to come. With no waiting, I would love to introduce you to Dr. Duncan Hay who is a historian with the National Park Service.

National Heritage Areas: Recognizing, Preserving, Managing, and Interpreting Industrial Heritage Sites in the U.S.

Duncan Hay (President, Society for Industrial Archeology, United States)

Good afternoon. I have to express, as others have, the honor that I feel the privilege of being

asked to come and speak before this group. It is also humbling because, as Patrick Martin may have indicated or suggested in his plenary this morning, what you have accomplished here so far in Japan is truly remarkable, and exceeds anything that we have managed to do in the United States, so I feel a little chagrined speaking before you today.

What has been assembled in the World Heritage nomination for sites of the Meiji industrial revolution is a compelling narrative of rapid industrialization during the late 19th and early 20th centuries. It is illustrated and supported by sites ranging from proto industrial *tatara* ironworks, reverberatory furnaces, and charcoal kilns, to turn-of-the-century cranes, dry docks, port facilities, and steel works that remain in active production. It is a powerful story with important sites that help us understand how Japan became the industrial powerhouse of the world.

But we need to recognize that the people sitting here today and the people in this larger congress had been given special insight into those stories and sites. Many of you live in those industrial communities and have been working for a long time to raise awareness. Those of us who are foreign guests studied the websites before we came. As soon as we arrived, we were given a well-written and extensively illustrated guide to the 23 sites. You need to be aware that everyday visitors are not going to have the advantages that we have had. They are not going to be taken to the sites, met by experts, and conducted. We simply cannot provide that level of service and attention to all of the visitors that will arrive here after World Heritage designation.

The history of manufacturing is complex. Its signature sites are large and sprawling, and many were heavily modified during and after production. Some of the most significant sites are severely deteriorated. The most compelling are still in production and can be noisy, smelly, hot, and dangerous; in other words, utterly fascinating. Your visitors will need help figuring out how these sites relate to each other and how they worked.

The narrative in the World Heritage nomination documents, and the summaries, and movies are very clear. It is not always so evident on the ground. We cannot expect that all of our visitors to have read the book or seen the movie before they visit Shuseikan and Kagoshima, or go to the Hagi castle town not really expecting to encounter industrial heritage. They will need maps, brochures, and other portable media that they can carry with them that will help them, lead them from site to site and explain the relationship. Once they get to those sites, they will need signs and other things to help them understand.

The good news is this is not a challenge that you face alone. You have heard about the European Route of Industrial Heritage; the Écomusée movement in France has grappled with these issues. In the US, we call them National Heritage areas, so I will talk a bit about those today.

#4

I guess the first thing to deal with is some of you may ask, "What is a guy from the National Park Service doing talking about industrial heritage?" because many of you, and this is common outside North America, folks associate the National Park Service with the Yellowstone, Yosemite, Grand Canyon, Glacier; the big western national parks. The fact of the matter is that nearly half of the units of the national park system are historic sites. The National Park Service is also the United States' principal historic preservation agency. It is responsible for the national register of historic sites, the national

register of historic places, and the national historic landmark program. There is a World Heritage office (although you would never know it), and there are the heritage documentation programs of the Historic American Engineering Record and the Historic American Building Survey. It also administers a couple of industrial sites as units of the National Park System.

#5-6

The first one to come in was Hopewell Furnace, and Pat Martin made reference to that in his morning talk; a complete iron plantation.

#7-8

Saugus Iron Works: Pat also mentioned that. Saugus is actually a reconstruction that was built on top of the archeological site by the American Iron and Steel Institute. It was then transferred to the Park Service after the reconstruction was completed.

#9-10

Edison National Historic Site: Thomas Edison's laboratory outside of New York City which has both the library, but more important for industrial heritage, two machine shops, a pattern shop, a chem lab; other elements of industry that went into Edison's method of research and development.

#11

The most extensive is in Lowell, Massachusetts, a little way north of Boston. Lowell was established in the 1820s on the banks of the Merrimack River and became, for a time, the largest water powered textile city in the country, and an inspiration for textile manufacturing centers throughout the country.

#12

Lowell was the Park Services' first urban National Park, and it was a bit unusual. In traditional parks, there is a big boundary, and around that everything inside the boundary is owned by the Federal Government; owned by the National Park Service and administered by the Park Service with rangers and hats and the whole bit. Lowell did not go that way. The Park Service only owns five buildings in Lowell. In fact, the city is the site.

#13

The Park Service developed ranger-led tours and exhibits, but does not own the real estate. It has to work with the city and the state in order to do it.

#14-15

There is a Federal Commission (or actually was a Federal Commission) that provided funding and technical assistance for non-federal property owners, which helped restoration and façade work throughout the urban core or the historic core.

The sad thing is that Lowell may be the last of its kind. It was an enormous project. It is a very

expensive project. It remains an expensive project to administer, and the Park Service did not really know what to do with it. I was fortunate enough to work there in the second and third year that it was in existence. Most of the staff were graduate students who were working on their dissertations, so it was truly a case of letting the inmates run the asylum. Meanwhile, the managers were anxious to get transferred to a real National Park. They considered it a hardship posting.

#16

What has come up since is a new concept called National Heritage Areas. If in Lowell there was very little property ownership, in National Heritage Areas, there is none at all.

#17

There are currently 49 National Heritage Areas scattered around the US. By the way, by word of explanation, 'National Heritage Area' and 'National Heritage Corridor' we use interchangeably. It is simply that a National Heritage Corridor is long and stringy, and a National Heritage Area is kind of blocky. The industrial heritage is the principle focus at about 23 of those.

#18-20

Pat talked about Rivers of Steel outside Pittsburgh. Of course, the auto industry is commemorated in Motor Cities near Detroit. There are several others.

#21-22

However, the one I am going to focus on today is the one where I spend most of my time, it is Erie Canalway National Heritage Corridor. To start with a global perspective, there is a collection of five large great lakes, basically inland seas, that are separated from the Atlantic by rapids in the St. Lawrence River, and by this little topographic feature called Niagara Falls.

#23

The proposal was, starting in the early 19th century, if a canal could be build connecting tidewater with the Great Lakes above Niagara Falls, it would open the entire interior of North America. So, the mid-west of the United States, and adjacent portions of Canada ,became the feed for the Erie Canal. It confirmed New York City's place as the principal port and financial center for the new nation, and promoted the growth of Great Lake cities like Cleveland, Detroit, and Chicago.

#24

The initial canal was not very big. It was only four feet deep, a little over a meter, but it was so successful that they started enlarging it about 10 years after it was completed, or after it first opened, to larger dimensions with double locks.

#25

They enlarged it again in the early 20th century, and the system that we have today is largely a product of that enlargement.

#26

It is operated by the New York State Agency. The canal system has always been owned and operated by the State of New York. It is currently operated by the New York State Canal Corporation, which is a division of the agency that runs the toll roads.

#27-28

It has a number of features; 57 locks; powerhouses at each lock, because in 1905 there was not widespread electrification across state of New York, so every lock had to have its own generating equipment.

#29

Movable dams, because this is an area that is subject to severe flooding in the spring and ice in the winter; so the dams are pulled out of the river in the winter time, lowered into place to allow navigation in the spring, summer, and fall.

#30

Lift bridges.

#31

Shops and dry docks. Now, all of this, remember, is roughly contemporary with what we saw at Miike Port and the Giant Crane, and even one of the intermediate enlargements of the dry dock at Mitsubishi. It was interesting to visit those sites and make comparisons. They share some elements in common.

#32

It is about 500 miles of channel. The Canal Corporation, the state agency, is also responsible for maintaining the vessels, many of which are historic, that are needed to dredge and maintain that channel.

#33-34

Their flagship is the 1901 tugboat URGER, which remains in service today.

#35

They have also developed a trail on the banks of the canal that runs from Buffalo in the west to Albany in the east.

#36

With all that, why do they need the Park Service? Why do they need a National Heritage Area? Well, part of the issue is that the authority that the Canal Corporation has extends for only a half mile, little less than a kilometer on either side of the central channel. They have no authority beyond that. The fact is that the development of New York State spread far beyond the canal. The heritage area is

defined as one municipality, one town or city on either side of the water. That allows us to tell the story about the development of those cities that were directly related to the waterway. One thing to bear in mind is, you know, and this may be startling in a Japanese context, but the canal system was started just a little less than 200 years ago. At that time, upstate New York and most of the interior of North America was unsettled. There were people there. They were native people. They will be quick to point that out, but in terms of cities and towns, you would not have found them.

#37

The Heritage Corridor was established in 2000. It has a number of goals similar to what you have heard from ERIH. How do we do this?

#38

Well, one of the first things you do in the National Park Service is you develop a national park service brochure. This is a recognizable thing. Any park you go to, you will get the brochure with the black band on the edge and the arrowhead.

#39

Typically, ours followed the pattern with a history lesson on the A side.

#40

And some sense of current conditions and what to see and do on the B side. Those are actually pretty expensive to produce. They also cannot stay current. Businesses come and go. Events come and go.

#41

In addition to the park brochure, a few years ago we started doing an annual map and guide, which has much more current and up-to-date information. It is also cheaper to produce. You know, even though it is bigger paper, it is cheaper paper, so we turn these out and distribute them throughout the corridor and then do it again.

#42

Other publications: we have done an annual calendar. This is a way for people within the corridor to get engaged. It is based on a photo contest. People send in their best shots. They are judged. The prize is that you get published. There are 12 winners and 12 runners up, so there is a master photo and an inset each month.

#43

Of course, we have a website. And we have done a lot moving from publications in portable media.

#44-45

We have done a lot with wayside exhibits. There are two categories of wayside exhibits, low profile

exhibits, which people in the park service refer to as captioning the landscape. It is important you get a careful juxtaposition between the historic image and the present day, and that these things are carefully cited and oriented so that people really can look down at the sign and look up at the present scene and go, "Oh, I get it. I see what is the same, I see what has changed."

#46

The upright exhibits are used more for general orientation. You cannot see through them, you cannot see across them, but they provide historical context and that all-important 'You are Here'.

#47

We have done a family where the text remains the same, the photograph changes, to be one that happened to be a historic photograph from the place where you are standing, so that, on the one hand, it is general information, but on the other it is place-specific.

#48

We have also done a lot with 19th century bird's eye views. These were quite common in the US and Canada, and I was delighted to see at the Hagi Museum the giant screen picture map. And I have seen them in other things here in Japan. They would be a delight to work with.

#49

But they are kind of a signature thing that we have been working with in the canal corridor because so many of our communities had these 19th century bird's eye views.

#50

However, we are a very small program. The park service cannot do this. What we are really dependent on, just like the European Route of Industrial Heritage, just like the Saxony case, is we are dependent on partners. We are dependent on museums and historic sites that were there and in operation long before the heritage corridor was designated. It is comparable to what you are facing here in Japan with the World Heritage sites. You are dependent on the people who are doing the day-to-day interpretation, meeting the visitors, servicing the visitors, which are not centralized. They are the Hagi Museum, Shuseikan, and the other heritage sites.

#51

Now, this brochure is hot off the press. It just came out three weeks ago. It identifies about 47 sites, 29 of which are full partners in our program. There is a gradation in partnerships or partner sites or affiliate sites, but it provides a way to tell the story through others, and also provides a way for those partners to exchange information between each other so that people who are separated by many, many miles can recognize similar issues and problems. The panel on the right side really sort of says it all. This is from one of the interior panels of that new brochure. It really is about connecting the dots.

#52

Another thing that we adopted from the park service is something called a passport program. This is, to me, amazingly effective. I am just sort of baffled by it. But you can get a little passport. It looks like a passport book and at each park that you visit, it gets stamped. And you will find there are about 20 sites in the corridor. And people are fanatical. They will go from one site to the other. If you happen to close a little early (I know this because my office is in a visitor center) they will be banging on the door, saying, "I want my passport book stamped." It has become pretty effective.

#53

We recognize the work of others through the Heritage Award of Excellence. This is done every two years to recognize good work by both partner sites and non-partner sites.

#54

A new program that just started last year, and has become fantastically successful, is something called 'Ticket to Ride.' National Parks used to get a lot of school field trips, but that has fallen off. Schools have fallen on hard times, getting money to rent buses or to pay admission fees is very, very difficult. So the National Park Foundation set up seed money a number of years ago to fund something called 'Ticket to Ride' to bring school groups to National Parks. Erie was the first National Heritage Corridor to get a 'Ticket to Ride' grant, and it ended up being seed money for a number of other foundation and corporate donors.

#55

Because bringing people to real sites and historic sites, it reinforces classroom learning, improves critical-thinking skills, and is tightly tied to the school curriculum. This is not just an outing. This is not just a day. It relates to maths, engineering, science, as well as history that is part of the regular curriculum in public schools.

#56

This year we had nearly 8000 students participate, visit canal sites across the state from 70 different schools in 37 school districts.

#57

Consistency is something that folks have made reference to, and we have guidance documents, both from the National Park Service, and also ones that have been developed that are specific to Erie.

#58

But one of the advantages of being affiliated with the National Park Service is that they have done a lot of work.

#58

For example, Wayside Exhibits. The park service is both the biggest client for and biggest producer of Wayside Exhibits; outdoor exhibit panels in North America. They have experience that

no single organization can do. We have really benefitted from working with them on that.

#59

In the course of that, we have learned some lessons. This applies to the partner organizations. Generally, partner organizations like the idea of being part of a larger whole. But (and there should be a 'but' in this slide) implementation can be a challenge. What is illustrated is an exhibit panel that was developed by one of the partner organizations, and I consider this one to be a great success. I am not going to show you pictures of many of the others, which will lead to a point in a minute or two.

#60

The partnerships are two-way and we need to recognize that organizations have different missions, emphases, and priorities. The Heritage Corridor is not the only show in town. The World Heritage site here in Japan is not the only story that these museums and partner organizations are going to need to tell or want to tell. Your mission, our mission, is simply part of that mix.

#61

It is all right to ask partner organizations to compete for assistance, but do not simply hand out money. That relates to the photo or the panel that I showed a couple of slides ago. We found that politicians love to make grants. People like to have the big check ceremony where they make a show of handing over the money for an organization. It is actually handing over a lot of trouble to the organization.

What we are moving toward is direct assistance so that now, rather than applying for cash, for organizations there is a grant cycle that looks like a grant application, but what they get is dedicated staffing for a one or a two year period to help them with their project rather than simply a check.

#62

Another lesson learned is to try not to contribute to clutter and sign pollution. We are the new kid on the block. There is a lot of stuff out there already. We joke that life was a lot easier and cleaner when typesetters charged by the character. The cost of producing outdoor weather-resistant materials has gone down dramatically, and that means that everybody with a few thousand dollars and a pocket grant from some foundation wants to put signs out there. It is getting kind of out of hand in the States. I do not know what the situation is here. Then once they are there, everybody says, well we have got it and we want it, and we had a grant so we have to leave it there. We are, sort of, working in this in a gentle way and introducing new signs through a replacement program rather than stepping in and ripping out what just got installed and saying, "Use ours instead," these all have a life expectancy, so you build it into routine maintenance.

You need to establish a framework for communication and interpretation, but you also have to be pretty flexible in its implementation. I can tell you that many of the things I showed you slides of, we had not thought of. They came through serendipity and good fortune.

#63

Be prepared for new media, but do not abandon techniques that work. By that I mean that everybody wants an app. A few years ago everybody wanted a cellphone tour, but the fact of the matter is that good old fashioned print and signs are effective, because not everybody has a cellphone. I can tell you, if you were based on apps here in Japan, my cellphone from the United States does not work here so I could not take advantage of it. There is a lot of enthusiasm for the new, the nifty, the shiny, the best, but there is also a significant role and a place for more traditional media like signs and publications.

With that, I thank you.

(Harrington) Thank you, Duncan. A lot of things I am sure we can learn from that. And now, our final speaker. I have great pleasure in introducing Mr. Shinji Takami, who is a Senior Deputy Director with the Cabinet Secretariat here in Japan.

Strategic Management Framework and World Heritage Route
Shinji Takami (Senior Deputy Director, Cabinet Secretary, Japan)

Thank you chairperson, and thank you all for your beautiful and informative presentations. Now, I am under pressure because the Prime Minister is coming at 6:30; but,, I have to do this presentation. This is my task as well.

Now, I would like to introduce the Japanese case of serial property and its management system regarding the sites of Japan's Meiji Industrial Revolution, Kyushu-Yamaguchi and related areas. This title is too long, so I would like to say it as JMIR at this presentation. Now, we knew great serial properties in the world; however, still some people, especially Japanese people, may be uncertain about whether the JMIR of 23 component parts from eight prefectures is a workable serial nomination. Also, my presentation may repeat and duplicate other presentations in many points. I want to explain the basic approach taken for the serial nomination of JMIR.

#3-4

Firstly, I would say, even in Japan, nine of 14 of the listed World Cultural Heritage are serial properties. Only five properties are single, such as Himeji-jo, Itsukushima Shrine, and Nikko. Just listed Tomioka Silk Mill has four component parts, and Fujisan has actually 25. It is more than JMIR. The counting rule of component part is counting number of components with their own boundaries. So, while Nikko has a lot of shrines and temples, it is counted as one site within a single boundary. The distance between each component part is not an issue.

#5

Regarding JMIR, there is about 1300 kilometers from Hashino, Kamaishi City to Shuseikan, Kagoshima. Australian Convict Sites is up to a maximum 5000 kilometers. Moreover, there are many transnational serial properties in the world, so we can understand that it is not unusual for serial properties to have long distances between component parts.

#6

We look then at how those serial properties are nominated and inscribed in the World Heritage list. Of course, like all inscribed properties, the serial property must have outstanding universal value, integrity, authenticity, and a conservation system. Further guidance is given in section 137 of the Operational Guidelines which deal with serial properties. In short, Section 137 specifies that serial properties will include component parts that are related by clearly defined links and component parts should reflect cultural, social, or functional links.

#7

Each component part should contribute to the outstanding universal value of the property as a whole in a substantial, scientific, readily defined, and discernible way. The resulting outstanding universal value should be easily understood and communicated. Consistently, the process of nomination, including selection of component parts, should take fully into account the overall manageability and coherence of the property. Also it says that the series as a whole (not necessarily the individual parts of it) must represent the outstanding universal value.

Section 114 referred in the section 137 requires an effective management system for ensuring the coordinated management of the separated components. This is essential.

#8

Now, let us discuss JMIR in relation to these requirements of the guideline. Firstly, links of serial components parts and the OUV; is it clearly defined and easily understood or communicated? Outstanding universal value of JMIR is described in nomination document as representing the first successful transfer of industrialization from the West to a non-Western nation founded on the three key industrial sectors of iron and steel, shipbuilding, and coal mining through three stages.

#9

The first stage is trial and error experimentation; second is successful importation of western technology and the expertise to operate it; and, finally, domestic expert actively adapt western technology to best suit Japanese needs and social traditions. It was achieved in just a little over 50 years without colonization and on Japan's own terms.

#10

Regarding three key industries, iron and steel is the fundamental material of industry. Shipbuilding and repair is essential to an oceanic country like Japan. It enabled Japan to take advantage of a large and growing market for shipping support in Eastern Asia and the Western Pacific. Coal is an essential energy source of steam and electric power and also for use for steel production. These industry sectors are fundamental to industrialization and are central to the industrial revolution in Europe as well.

#11

Let us see the difference between the 1850s and 1910. Underpinning the global significance of the series is the importance of industrialization in world history.

#12

The world where we live now is built on industrialization. Industrialization is one of the fundamental changes in human history and experience. It occurred in Britain and Europe, then spread in stages around the world. Japan's industrialization represents the first expansion from the West to the East and, indeed, the first successful transfer to a non-western nation.

#13

How did this rapid transformation happen? As reflected in some of the early stage sites of JMIR, Japan had a well-ordered social system and trade and crafts capability well established by that time, which enabled it to divert resources and priorities to industrial transfer through a trial and error process and to finally achieve successful industrialization. Is this only a reason?

#14

Well, because JMIR is targeting such a big change of history, it is true that it is a big challenge to decide the scope of activities to be included. Some people may question the time period that we have used or the relevance of other sectors of industry. We know that Japan's modernization and industrialization are complex issues, but we are also sure that this nomination represents the essential core of the successful transfer of the industrial revolution to Japan in both its historical process and core industrial sectors. Japan's rapid industrialization is a historical fact and a range of very rare sites combine to illustrate that history. From the viewpoint of the World Heritage Convention, which is aimed at the protection of the property, I think that the case presented in the nomination of JMIR is a clear one.

While the study of Japan's industrialization and modernization will continue, I do not think we have to wait many years until finishing all studies before protecting those properties included in this nomination through World Heritage systems. As a result, the expert committee established by the Japanese Cabinet Secretariat concluded that it was confident that the JMIR nomination was sound and that it should be submitted to the World Heritage Committee.

#15

Let us go back to the guideline requirements. Each component part should contribute to the outstanding universal value as a whole in a substantial scientific, readily-defined, and discernible way. JMIR carefully selected existent properties having integrity, authenticity, and contributing to the OUV of this rapid industrialization from all over Japan. Selection took several years and was supported by not only Japanese experts, but also UK and other overseas experts who have expertise of industrialization history. Many sites and themes of Japan's industrialization were investigated and evaluated before the scope and focus for the JMIR nomination was finalized.

#16

As a result, JMIR nominated 23 properties from three key industries and the three stages of industrialization. The whole series is reflected in this chart. Each component part tells its own story,

but it is only in combination as a series that the property explains Japan's rapid industrialization.

#17-18

Management: a management system is essential for ensuring the coordinated management of the separate components. The Japanese government introduced the general principle and strategic framework for the JMIR conservation and management. This is the Japanese governmental platform based on the cabinet decision to protect World Heritage, which includes component parts that are still in active industrial operation.

Why is the strategic framework required? It is to protect the OUV of the various component parts through a common principle and a unified governance framework and to take the most effective and efficient protective measures chosen and applied from a wide range of possible alternative approaches depending on the individual circumstances.

#19

This is a global approach in line with the operational guidelines and joint ICOMOS-TICCIH principles.

#20-22

Through this framework, the cabinet secretariat shall take full responsibility and meet all international obligations and requirement of the state party. The Cabinet Secretariat, as the staff of Prime Minister, and the overarching governmental authority work with all ministries, local governments, private property owners and communities to ensure the protection of World Heritage through a private-public-partnership outlined in the framework.

All ministries means cultural agencies, city planning, transportation, industry, maritime, tourism, information technology, education, and etcetera work together for the protection of the property with other stakeholders. Imagine the possibilities and results of this cooperation for conservation and management.

#23

A partnership-based approach makes this possible.

#24

Also, it is backed up in legislation. The law for the protection of cultural properties is applied as the most effective protection mechanism for many of the component parts in JMIR. The alternative system works for other component parts, especially working properties as follows: the authority of port, road, or Landscape has a comprehensive power to manage development activities at each field through their jurisdiction in general. Those powers are enforced in accordance with specific planning documents and controls to each site; for example, Nagasaki Port Plan, or Kitakyushu City Landscape Bylaw, etcetera.

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Strategic framework introduced a policy that protects heritage value through a conservation and management plan that is linked to all other planning documents and controls. Then, relevant management authorities could have power to protect heritage values of these complex sites under their jurisdictions.

#26

Responsible authorities are sometimes central, prefectural, or city government, depending on each jurisdiction. Central governments generally have the power to supervise prefectural or city government and the strategic framework establishes the governance system managed by cabinet secretariat and controlling each level of authorities and property owners for protecting world heritage value appropriately. More precise information will be explained tomorrow at session five by my colleague.

#28

The strategic framework is also an effective mechanism through which to interpret the OUV to domestic or international audience and to develop capacity-building, promotion, and tourism planning, too. For example, develop educational programs with engineers within private property owners, industry ministries, local communities, and education department. Using advanced digital technologies such as 3D or 4K for recording properties and utilizing its data with the ministries of IT and IT industry. Integrated transportation network of airways, railways, sea-lane, and road highway as world heritage route by cooperation of each sector; sustainable tourism or any good practice in the world.

#29

Many ideas for effective conservation and promotion are still being developed and explored. A project team has been established for developing interpretation plans and tourism plans under the Conservation Committee, which is the highest organization of the strategic framework. In addition to this, a new economic growth strategy, Japan Revitalization Strategy, part of the so-called 'Abenomics' was amended on 24 June 2014. It establishes a new strategy for tourism organized around industrial heritage such as JMIR or Tomioka. We are now expecting much support, especially financial support, from that.

#30

The sites of Japan's Meiji Industrial Revolution, Kyushu Yamaguchi, and related areas are promised to be conserved and to be managed under the strategic framework consistently and securely. I guess that most heritage sites throughout the world are managed by special national or state agencies for heritage protection. However, I would like to emphasize the framework introduced for JMIR is designed to be an effective and efficient approach to manage a serial property. It includes traditional heritage protection approaches, but also broadens the responsibility for protection to include a wider range of real managers.

#31

We think it is an effective system for industrial site protection that may be applicable in other parts

of the world. That is all of my presentation. Thank you for your attention.

(Harrington) Thank you so much, Shinji. I am very sorry for being an appallingly bad chair. We have now run out of time. I am sure the room is full of interesting questions and intends to continue these discussions. You now have met all these wonderful gentlemen, and I am sure there is an opportunity for you at the reception tonight, and perhaps tomorrow, to waylay them with your questions and any other thoughts you might have.

On that note, I would like to say thank you all very much for your attention to this session and I would like to again ask you to put your hands together for our wonderful speakers. Thank you.