

Pilgrimages to the museums of the new age: appropriating European industrial museums in New York City (1927–1937)

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Abstract

*How did industrial museums cross the Atlantic? When the first American museums of science and industry were created in the 1920s, they looked to Europe in order to import what was seen at that time as a burgeoning cultural institution. In this article, I look at this process of appropriation through an analysis of the changing perceptions of European industrial museums as expressed in the reports, surveys and books written by the curators, directors and trustees of the New York Museum of Science and Industry. I will pay particular attention to the 1927 film *Museums of the New Age*, documenting the main national industrial museums in Europe, and to a 1937 report on the techniques of display at the *Palais de la Découverte*. I will argue that their contrasting assessment of European industrial museums, which in only ten years ceased to be seen as cathedrals of a new age to become old-fashioned storehouses, is symptomatic of the significant transformation of museums of science and industry as cultural institutions during the 1930s in the United States.*

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Keywords

New York Museum of Science and Industry, Museum of the Peaceful Arts, Museums of the New Age, museums of science and industry, industrial museums

Introduction

On 29 November 1927, a film called *Museums of the New Age* was screened during a private luncheon at the elitist Metropolitan Club in New York.^[1] The goal was to raise money for the Museum of the Peaceful Arts, one of the industrial museums that was

being projected at that time in the United States. The exclusive guests were shown a 45-minute motion picture depicting the exhibition halls of the main European industrial museums, presented as radically modern institutions. The tower of the Deutsches Museum, with its clock, hygrometer and barometer dominating the city's skyline, rose in the film as an icon encapsulating the essence of an age which was abandoning bell chiming and embracing science ([Gwynne, 1927a, 06.20](#)).

The portrayal of European industrial museums as symbols of a new era became commonplace among part of New York's intellectual elite, by then immersed in the debate on the Machine Age. In 1929, after returning from a trip to Europe, John H Randall, assistant professor of philosophy at Columbia University, published a book called *Our Changing Civilization: How Science and the Machine are Reconstructing Modern Life*. In it, Randall wanted to address the radical mutation that, according to him, the world was witnessing due to the widespread process of industrialisation. A thousand-year-old rural world was giving way to a new urban Machine Age that was subverting all known standards of life. In the introduction, he exemplified this transition by describing the sharp contrast between a peasant village in Umbria and Munich, where the Deutsches Museum – described as a 'garrison shrine of a new religion [...] a great temple erected to the gods of the new age, Science and the Machine' ([Randall, 1929, p 4](#)) – stood for a radically new period of civilisation.^[2]

Even though the first national industrial museums can be traced back to the nineteenth-century – and even before – the interwar period saw the creation, or re-creation, of many of them ([Schroeder-Gudehus, 1993](#)). Although it was created in 1908, the Technisches Museum was opened to the public in 1918 ([Janetschek, 1995](#)). The Science Museum inaugurated its new wing and reordered its collections in 1924 ([Morris, 2010](#)). The Deutsches Museum was reinaugurated in 1925 with a great pageant intended to show Germany's recovery after the war ([Duffy, 2002](#)). And many other European cities, such as Stockholm, Prague, Milan or Barcelona, equipped – or planned to equip – themselves with this cultural institution, which became during this period an increasingly standard feature of European urban landscapes ([Levin et al, 2010](#)). The growing political influence of engineering elites, who strove to create their own cultural space of symbolic representation and a respectable past for themselves, together with the rhetorics of technological nationalism that flourished after the First World War, were a fertile ground for the proliferation of what Svante Lindqvist called 'Olympic stadiums of technology' ([Lindqvist, 1993](#)).

In the United States, conservative engineers linked to the vocational education movement joined efforts in a national crusade for the establishment of industrial museums that gathered momentum throughout the 1920s ([Jones, 2001](#)). After a failed attempt at creating a state-funded National Museum of Engineering Industries at the Smithsonian Institution ([Molella, 1991](#)), the decade ended with several private projects under way: Julius Rosenwald's Museum of Science and Industry in Chicago ([Pridmore, 1996](#)), the museum at the Franklin Institute in Philadelphia, the Ford Museum in Dearborn ([Staudenmaier, 1993](#)) and the Museum of the Peaceful Arts, renamed in 1930 as New York Museum of Science and Industry ([Sastre-Juan, 2013](#)).

When the time came to build these new institutions, the first thought was to travel to Europe searching for a model that could be imported to the other side of the Atlantic. The European 'Grand Tour' of industrial museums quickly became a well-established tradition among American curators and trustees, who looked at industrial museums abroad as institutional examples of an *avant-garde* cultural form. On many occasions, these trips were experienced and communicated as a pilgrimage.^[3] On the one hand, they became a kind of professional initiatic rite that had to be performed at least once in a career. On the other hand, religious metaphors became a recurring rhetorical figure in the reports written by curators, directors and trustees of the American museums of science and industry. Coming back from his 1928 European trip, the first director of the Museum of the Peaceful Arts, Fay C Brown, described with religious fervour how all corners of the world ecumenically knelt before the Machine at the Deutsches Museum:

'The industrial museum loomed bigger in my eyes than any other institution in the world [...] people from all over the world go to see it in the same way that they travel to a shrine. For, truly, it is a shrine to our god of machines. During the two weeks I was there, I found Hindu, African, Australian, New Zealander, Russian and Americans, all going through the museum, each with the same earnest, thoughtful expression of face and manner that one would expect of a person attending religious service' ([Brown, 1929, p 5](#)).^[4]

Figure 1



© National Museum of American History, Smithsonian Institution

The Director of the Museum of the Peaceful Arts, Fay C Brown (right), and William Henry Fox, Director of the Brooklyn Museum, at Paris airport during their European Grand Tour, 1928

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During the 1930s, however, these perceptions changed. Whereas in the 1920s many American ‘pilgrims’, like Brown, praised industrial museums as the Mecca of industrial civilisation, in 1937 Robert P Shaw, the new director of the museum, wrote after his European trip that they were old-fashioned storehouses offering no valuable lessons to their modern American counterparts. Once industrial museums were actually transplanted from Europe to new American soil, the conditions there made them grow as different plants. The inhibition of the state in funding these new institutions, and the different social and political context in the United States, led to an open corporate takeover during the Depression years, which redefined the social function and outlook of what came to be known as museums of science and industry.^[5]

In this article, I will look at this process through the reports, surveys and books written by the curators, directors and trustees of the Museum of the Peaceful Arts (renamed in 1930 as New York Museum of Science and Industry) after their customary European tours between 1927 and 1937. Even though we can only make full sense of this transformation through broader analyses that take into account the entangled institutional, political, cultural and material aspects involved, travel reports are a very valuable source that can be used as a seismograph in this regard. I will argue that the changing perceptions of European industrial museums reflected in the reports are symptomatic of the significant transformations that this cultural form underwent in this period in the United States.

European ‘Grand Tours’

In 1913, gemmologist George Kunz, who was Tiffany’s vice-president and curator of the American Museum of Natural History, gathered a good part of New York’s industrial, engineering and financial elites around his project for what was planned to become the largest industrial museum in the world: the Museum of the Peaceful Arts. Among the stated goals, there were the preservation of the national technological landmarks and the fostering of national productivity through the promotion of invention (Kunz, 1913). The museum was incorporated in 1914, but the First World War stopped the plans, which were only resumed when Henry R Towne, a wealthy industrialist and a fervent Taylorist, died in 1924 and bequeathed his fortune to the establishment of an industrial museum in New York City, on the condition that other donors could be found.^[6]

The new institution, still headed by Kunz, immediately looked to Europe – and Europe answered back. In November 1925, Oskar von Miller, who untiringly acted as a missionary spreading the gospel of the industrial museum idea all over the world (Lindqvist, 1993), visited the United States to give support and advice to the museums that were being projected in Chicago and New York.^[7] The first action of the board of trustees of both museums was to plan for study trips abroad. The Museum of the Peaceful Arts allocated 50,000 dollars from Towne's bequest for travels in order to look for suitable models. In Chicago, Waldemar Kaempffert, the newly hired director of the museum, immediately embarked on a two-month European trip (Pridmore, pp 31–32).

These study trips invariably included a detailed analysis of the Deutsches Museum in Munich, the Technisches Museum in Vienna, the Science Museum in London, and the Conservatoire des Arts et Métiers in Paris. These were the four institutions that had been canonised by Charles Richards' influential book *The Industrial Museum*, which became a sort of Bible for the industrial museum movement. In 1924, Richards had been commissioned by the General Education Board to tour Europe in order to make a comparative survey of the biggest industrial museums.^[8] The resulting book systematically compared them in terms of scope, history, building, administration, finance, structure and divisions, collection, techniques of display, educational activities and internal organisation of the staff. The high level of quantitative detail, including illustrations and budgets, was aimed at providing a practical guide for transplanting this cultural institution into the United States (Richards, 1925).

Richards, who would eventually become the director of the New York Museum of Science and Industry between 1931 and 1934, had been an omnipresent figure both in the movement for the promotion of vocational education and the industrial museum movement.^[9] Significantly, the same key characters involved in the 1910s in the National Society for the Promotion of Industrial Education were also behind the foundation of industrial museums a decade later. As historian Russell Jones has convincingly argued, both initiatives must be read as part of an ideological battle for cultural hegemony. The ultimate aim of the promoters was to morally uplift workers and to propagate a deterministic idea of an autonomous technology in order to soothe labour unrest by presenting corporate capitalism as an unavoidable result of internal technological progress (Jones, 2001; Wallace, 1996).^[10]

Richards presented European industrial museums as institutions of great cultural and political significance. According to him, they should provide modern men with the awareness of their role in a too complex industrial society. Unlike any village in India, where all the production processes could be directly witnessed on the streets, or at the shops of the artisans, western industrial societies hid its most basic processes behind factory walls. Industrial museums had to metaphorically tear those walls down in order to 'reveal to the eye [...] the industrial basis of our present-day life' (Richards, 1925, p 2).

According to Richards, the European industrial museums achieved this goal by using a historical approach which presented the main steps of the evolution of every branch of industry – each corresponding to a basic human need – from the early times to the present. While the Conservatoire, more focused on technical education in a narrower sense, was a repository that fell short of excellence in this regard, Richards portrayed the Deutsches Museum as an example of how this could be achieved through didactic exhibition methods, and the smaller Technisches Museum as the ideal model upon which to base the importation of this institution into the United States.^[11]

Despite having Richards' detailed guidelines available, the Museum of the Peaceful Arts sent their own 'pilgrims' abroad. In the spring of 1926, engineer Calvin Rice, who was the secretary of both the museum and the American Society of Mechanical Engineers, departed for a two-month European trip in order to study the four main industrial museums, and the trustees travelling to Europe that summer were also requested to report on the fields they were acquainted with.^[12] That autumn, a special committee consisting of Calvin Rice, Carl Mitman and Joseph Roe was formed with the purpose of analysing the information gathered by all the 'pilgrims' and writing a report for internal use with practical recommendations.^[13]

The report dealt with issues such as location, architectural style, building costs, sources of income, staff, or operating expenses, which were systematically studied through a comparative analysis and interviews with the directors of the main European museums. It also included two detailed full scripts of the transportation and machine-tools sections, elaborated by Mitman and Roe, which combined a typological and a historical approach.^[14] The report emphasised the need for working

closely with industries, and argued that each industrial sector should be more or less prominently featured according to its relative importance in the region. This was established through a quantitative and comparative assessment taking into consideration variables such as the annual value of products, the average number of wage earners, or the number of companies in each sector. Thus, while agriculture should have a prominent position in Chicago, the sectors that should have a stronger representation in New York were textile, machine-tools, transportation, and electrical and chemical industries. Emphasis was also put on the need for acquiring first the machines that were representative of the current state of the sector so that workers and the public in general could be better instructed.^[15]

The archaeocentric approach by Richards and the more contempocentric approach by Rice, Mitman and Roe reflect the two overlapping tendencies which shaped the initial importation of European industrial museums into New York City. In terms of their European referents, the first one embraced the philosophy of the Deutsches Museum, while the second one was more inspired by the Conservatoire. In both cases, the American background was the rhetoric of the vocational education movement. On the one hand, industrial museums should give individual workers, and citizens in general, an awareness of their role in the broader social scheme – as seen through the managerial lens. On the other hand, they should increase the level of technical competence in the country, as well as provide a venue in which to train visitors in the character-building moral qualities deriving from manual work.

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Museums of the new age

But the ‘pilgrimages’ didn’t stop here. The internal report by Rice, Mitman and Roe was complemented by a remarkable document of a very different nature. Charles T Gwynne, trustee of the museum and executive vice-president of the Chamber of Commerce of the State of New York, was commissioned to undertake a promotional campaign aimed at publicising the project among New York elites in order to raise additional funds. In July 1927, Gwynne sailed to Europe with film director Arthur Edwin Krows and cameraman Walter P Pritchard, and came back with nine reels of motion picture. The results of the trip were three films and a book documenting the main industrial museums of the old continent. Both the book and what contemporary sources called ‘the principal film’ (see note 17) were titled *Museums of the New Age: A Study of World Progress in Industrial Education* (Gwynne, 1927a and [1927b](#)).

In the winter of 1927–28, the films were shown to several groups of bankers, businessmen and manufacturers who might eventually become potential donors. Beyond the above mentioned luncheon at the Metropolitan Club, well-attended screenings were organised at the Great Hall of the Chamber of Commerce of the State of New York, on 20 December 1927, and at the premises of the Bronx Board of Trade, on 17 January 1928. In the Bronx, the event started with a brief talk by President George Kunz, introducing the project of the Museum of the Peaceful Arts, followed by Charles Gwynne and Arthur Krows commenting on the silent films as they were projected on the screen. By using motion pictures to reinforce oral and written discourse, the trustees hoped to seduce the audience by impressing more vividly on them what they saw as the greatness and the educational value of the ‘museums of the new age’.

Let’s now turn off the lights and get ready for the show. The film *Museums of the New Age* starts with an appeal to the worldview of its intended audience by presenting European industrial museums as a political answer to a pressing social problem of the times. In the first scene, a rotating terrestrial globe is followed by modern ocean liners, trains, planes and automobiles, conveying the idea that the world was becoming a smaller and ever more interconnected place. Industrialisation was ushering in a new age, but also causing new social problems. A sequence in which a businessman is working at his office desk is used to point out that the production of the ordinary objects he daily took for granted – his glasses, his hat, his telephone, his cigar – implied the existence of large and complex technological networks. Forgetting or ignoring the increasing interdependence on which the industrial enterprise was based entailed a very serious danger, visually represented in the film by the images of a ballot box and two workers, a man and a boy: if the working class didn’t get to understand, and thus commit itself to preserve, the fine and complex social structure of modern industrial society as a whole, it was likely to ‘forget interests beside his own’, and succumb to abstentionism or to dangerous political options. Then, a sequence showing long queues of Munich schoolchildren in front of the Deutsches Museum, ‘awaiting treatment to give them character’ (Gwynne, 1927a, 05.06), points to

the solution found in Europe: education through industrial museums.

Video 1

MUSEUMS OF THE NEW AGE

A Study in World Progress

Produced under the Personal Supervision of
CHARLES T. GWYNNE

© Science Museum/Science & Society Picture Library

Gwynne, C, 1927a, 'Museums of the New Age: A Study of World Progress in Industrial Education', British Film Institute [01.06 – 05.45]

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The rhetoric of the book also echoed the paternalistic approach of the vocational education movement:

'For the security of the nation, for the uprightness of the individual, for the welfare of the world [...] the worker must be shown the relationship of his industry to him as well as his relationship to that industry [...] Fortunately for America the need for industrial education in the modern sense became acute first in Europe. Nations less richly endowed with natural resources and room for expansion, found their economic problems much aggravated by the rigors of a world war; and in this exigency they evolved as one panacea this entirely novel idea of an industrial museum. The European museums, in several cases, were founded as such many years ago; but in their present aspects they are distinctly new and different' (Gwynne, 1927b, p 9).

Gwynne pointed to the interwar period as the zenith of a new cultural form shaped by what we would call the peculiar technoscientific geopolitics of the twentieth century. He tried to define it by establishing the similarities and the differences between the main European industrial museums. He acknowledged that they all had different policies: the Deutsches Museum was characterised by its international character, its encyclopaedic ambitions and its historical approach; the Technisches Museum by only showing the high spots of industrial development; the Science Museum by being more commemorative of national inventors and by showing the applications of science to industry; and, finally, the Conservatoire by being mainly aimed at technical and vocational education students. But at the same time they all shared several common goals and methods that made them a single cultural form that could and should be transplanted into the United States.

One of these shared goals was the preservation of a historical collection of technological masterpieces and the commemoration of national inventors. The film shows how the European museums displayed originals and reproductions of ancient technological relics and praises the historical reconstructions of an old smithy in Vienna and an eighteenth-century apothecary's shop in Munich (Gwynne, 1927a, 27.37-28.48). The book justifies the creation of museums of science and industry as a way to prevent shameful situations such as the fact that Edison had been compelled to donate his original phonograph to the Science Museum because he had not been able to find any institution in the United States suitable to preserve it (Gwynne, 1927b, p 7).

But the greatest emphasis is put on another shared feature: techniques of display. Let's go back to join Munich's schoolchildren and go into the Deutsches Museum with them. Once inside, the viewer is constantly presented with machines in movement: exhibition halls with enormous steam engines at work, pistons going rhythmically up and down, or a modern water-turbine spinning powerfully. In the film, and in many descriptive passages of the book, Gwynne underlined that 'the first different impression that one obtains in visiting the industrial museums [...] is that exhibits move' (Gwynne, 1927b, p 20). In these new institutions, suited for a new and dynamic machine age, 'everything seemed fairly to pulsate' (*Ibidem*).

Video 2

MUSEUMS OF THE NEW AGE

A Study in World Progress

Produced under the Personal Supervision of
CHARLES T. GWYNNE

© Science Museum/Science & Society Picture Library

Gwynne, C, 1927a, 'Museums of the New Age: A Study of World Progress in Industrial Education', British Film Institute [06.30 – 07.31]

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Wondering at the technological sublime (Nye, 1994) was not the only goal of putting machines in motion. Gwynne insisted on the fact that operating exhibits helped visitors to understand how a machine worked or what were the steps of a technical process. In this regard, it was also important to open the black box and peer into the interior of machines. The film shows how all European industrial museums used sectioned artefacts, both originals and models, in order to satisfy the 'human craving to see inside of things' (Gwynne, 1927a, 08.48), and illustrates the educational virtues of this method through scenes in which an attendant explains how wheels move in a sectioned locomotive, a visitor inspects the engine and the brakes of an automobile, or another visitor examines a full-size sectioned U-boat.

Video 3

MUSEUMS OF THE NEW AGE

A Study in World Progress

Produced under the Personal Supervision of
CHARLES T. GWYNNE

© Science Museum/Science & Society Picture Library

Gwynne, C, 1927a, 'Museums of the New Age: A Study of World Progress in Industrial Education', British Film Institute [09.03 – 12.21]

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For Gwynne, however, the educational method that defined the essence of European industrial museums were visitor-operated exhibits.^[19] In the United States, the Deutsches Museum was synonymous with visitor participation. Julius Rosenwald, the founder of the Chicago Museum of Science and Industry, had always repeated that the idea of promoting an industrial museum came to him after seeing his young son tirelessly having fun by turning cranks and pulling levers at the Deutsches Museum. But it was not only about having fun. According to Gwynne, the educational effectiveness increased if the visitor was able to explore the exhibits on his own:

'Handling points to the basic departure of new from old. There has been a radical change in educational approach. Those in charge today realize that "knowledge is doing" – the profoundest pedagogical principle ever enunciated. This principle, in successful practice, is the real outstanding possession of these amazing twentieth-century institutions' (Gwynne, 1927b, p 23).

Video 4

MUSEUMS OF THE NEW AGE

A Study in World Progress

Produced under the Personal Supervision of
CHARLES T. GWYNNE

© Science Museum/Science & Society Picture Library

Gwynne, C, 1927a, 'Museums of the New Age: A Study of World Progress in Industrial Education', British Film Institute [18.33 – 21.33]

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The film features countless scenes in which visitors handle exhibits, push buttons, activate mechanisms, or turn cranks. Many of them are children, like the boy who activates a model of Hero's aeolipile and the boy who presses a button to make an air-drill work, who seems to be from the working class. Despite the initial rhetorical emphasis on workers as targeted publics, the fact is that most visitors appearing in the film seem to be bourgeois or white-collar workers, portrayed in a markedly gendered way. While young men explore the hands-on experiments at the physics section, a young woman smells 'delicate coal-tar-perfumes' (Gwynne, 1927a, 14.50) from cases containing flower pots and another one demonstrates how electric buttons are perfect for handling 'even delicate and precious machines' (Gwynne, 1927a, 20.00) from a safe distance.

After having praised European industrial museums both for their inspiring iconic status and their advanced educational practices, the film ends with images of 'the greatest industrial museum in all the world' (Gwynne, 1927a, 45.12): a semi-deserted plot where construction work is going on while an overground subway arrives to a nearby station surrounded by a field of grass combed by the wind. It was the site of the old Jerome Park Reservoir, in the Bronx, where the Museum of the Peaceful Arts hoped to erect its projected building, inspired by the temple-like neoclassical architecture of the European national museums, which were referred to in the film as 'castles of science' (Gwynne, 1927a, 07.34).^[20] The last thing that the viewer sees before the screen goes black is the land where the museums of the new age were to be transplanted in New York City. But how did they finally materialise?

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From cathedrals of a new age to old-fashioned storehouses

The high ambitions clashed with the museum's chronic financial and institutional instability. The fifteen acres of the Jerome Park Reservoir site were never granted by the City Council, and the museum started an itinerant journey throughout Manhattan. From 1927 to 1929 it was provisionally established on the 7th and 8th floors of the *Scientific American* building, next to Bryant Park. Then it moved to the 3rd and 4th floors of the *Daily News* building, where it stayed until 1936, when it finally settled at the ground floor of the Rockefeller Center.

When the renamed New York Museum of Science and Industry moved to the *Daily News* building, Charles Richards was hired as director of the museum and applied the ideas developed in his 1925 book to the pilot permanent sections. In an attempt to replicate European industrial museums, Richards favoured a historical sequential approach and structured the museum in broad functional sections, such as clothing, shelter, transportation, communication, or food cultivation (Sastre-Juan, 2013). In this process of importing the contents and methods of display of the 'museums of the new age', the international network established through the 'pilgrimages' proved useful for the circulation not only of ideas, but of exhibits as well. Complementing the existing collection and the production of the museum's own workshops, a substantial number of exhibits were commissioned to European museums, such as a replica of a Spinning Jenny made at the Science Museum, models of Egyptian and Viking ships made at the Deutsches Museum, or a copy of a Vaucanson lathe from the Conservatoire.[\[21\]](#)

The move to the Rockefeller Center in 1936 went hand in hand with a transformation of the museum. A new board of trustees replaced Taylorist engineers with executives of big techno-scientific corporations, and a close collaboration with the Humanities Division of the Rockefeller Foundation turned the museum into a laboratory for developing techniques of display borrowed from commercial exhibition practices ([Niquette and Buxton, 2009](#)). The 1933–34 Chicago Century of Progress Exposition had triggered a new corporate culture of display based on the portrayal of industrial 'applied science' as the key to abundance and progress (Rydell, 1985), which was directly transferred to the New York Museum of Science and Industry. Frank Jewett, the new president of the museum, who was the director of the Bell Laboratories and vice-president of ATT, had also been the president of the Scientific Advisory Committee of the Chicago Fair. And Robert Shaw, the new director, who had worked at the Exposition as the Committee's secretary, was no longer an engineer linked with the vocational education movement, but a representative example of the new breed of exhibition designers who relied on advertising, public relations and behaviourist psychology ([Marchand, 1998](#)).

At the Rockefeller Center, a streamlined interior design and a massive use of pushbuttons were the main feature of a museum that presented itself as an ever-changing show. The New York Museum of Science and Industry stopped building a historical collection and started favouring temporary exhibitions of contemporary industrial research, surrounded by a background of reduced permanent sections. The dominant syntax of the museum's displays changed from Richards' progressive series to a story-line approach aimed at showing how the research done at corporate laboratories was advancing science and benefiting the country.[\[22\]](#) An example is DuPont's 'Better things for better living...through chemistry', which was displayed in several museums of science and industry as part of the company's public relations campaign to restore its damaged reputation ([Rhees, 1993](#)).

Figure 2



© Hagley Museum and Library

Promotional postcard of the DuPont Company's exhibit 'Better things for better living...through chemistry' at the New York Museum of Science and Industry, 1937

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As these mutations took place, the perception of European industrial museums changed significantly among the staff of the New York Museum of Science and Industry. In October 1937, Robert Shaw departed for a one-month European trip funded by the Carnegie Corporation. The aim was to study the display techniques at the new Palais de la Découverte, in Paris, but also to tour the other European industrial museums. In sharp contrast with what his predecessors wrote a decade before, his report no longer praised the Conservatoire, the Deutsches Museum and the Science Museum as suitable models.^[23]

Shaw, who was no longer interested in educating the working classes, but in spreading the desired message to the 'average men', questioned the high educational value that Gwynne had attributed to industrial museums. While, according to Gwynne, 'the modern industrial museums are striving constantly to run their exhibits from the visitor's point of view' (Gwynne, 1927b, p 25), for Shaw their sheer size was a handicap that tended to 'discourage and confuse the average visitor' by showing too much detail and unimportant steps so that 'one cannot see the forest for the trees'.^[24] After spending four days going through the several sections of the Deutsches Museum, he concluded that despite the undeniable quality of its historical collections it was just an awe-provoking 'monument to science and industry' that overwhelmed visitors to the extent that it was uncertain whether they learnt anything 'besides seeing an impressive spectacle'.^[25]

While Gwynne had devoted a substantial part of his film to praise European industrial museums for having pioneered in the most advanced exhibition techniques, Shaw considered, to the contrary, that they were 'out of date'^[26]:

'[at the Deutsches Museum] no attempt is made to employ modern technique of display. It is in no sense of the word a modern museum. No use is made of present day architectural forms, color effects, and exhibit illumination. This is, however, perfectly understandable, as the museum was built in a period that held very different concepts of these matters.'^[27]

The Conservatoire and the Science Museum received a similar diagnosis – if not worse. The Conservatoire was basically described as a poorly attended museum, the old-fashioned and static exhibits of which were only aimed at trade schools and vocational education students.[28] At the South Kensington Museum, despite its gorgeous original collections, ‘too much material was shown in an uninteresting manner, under poor light, and in a storehouse atmosphere’.[29] Except for the Children’s Gallery, which Shaw considered ‘the best thing at the Science Museum’ and thought that ‘it should have been called by some more appropriate title such as “The Museum’s Room of Modern Display”’, the rest of the museum ‘lacked dramatic appeal’.[30]

Figure 3



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Girls lifting weights and reading labels at the Pulley Block Exhibit of the Science Museum’s Children’s Gallery, 1951 – the exhibit had been part of the Children’s Gallery since its inauguration in 1931

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According to Shaw, museographical modernity was now much better represented in Europe by the approach of the Palais de la Découverte, which departed in many ways from the older industrial museums. The Palais had been promoted and designed by the French university scientific elite, who vindicated itself through a display of contemporary research presented as pure science in the service of the People, in tune with the rhetorics of the left-wing government of the *Front Populaire*. The deliberate focus on scientific principles was a strategy by socialist Jean Perrin, and the other promoters of the Palais, for legitimising the contemporary creation of the Centre National de la Recherche Scientifique (Eidelman, 1988).[31]

Paradoxically, this state-controlled institution run by left-wing scientists was the European museum that appealed the most to Shaw’s corporate-oriented taste. Shaw described the Palais as ‘the best scientific exhibition ever presented’ and praised it both in terms of content and display techniques.[32] According to him, the outstanding features of the Palais were its broad scope, its depiction of contemporary science, its relatively small size, its modern and functional architecture and interior design, and its excellent use of colour and illumination. His only criticisms were aimed at features which departed from the usual practice at the museums of science and industry in the United States: the use of lecturer-demonstrators, instead of operating exhibits;

the excessive focus on pure science, forgetting the practical technological applications of scientific principles; and the fact that it was too high brow.[33]

Despite this appreciation and praise of the Palais de la Découverte, the geographies of museographical modernity had shifted, and better models could now be found much closer to home. In 1939, Shaw was commissioned by the Rockefeller Foundation to make a survey of the two world's fairs in New York and San Francisco. The resulting book, an exhaustive and detailed compilation of the most popular and successful techniques of display at the Fairs, aimed at becoming a reference guide in the field, clearly points to the growing distance between European industrial museums and American museums of science and industry ([New York Museum of Science and Industry, 1940](#)).

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Concluding remarks: the transformation of a cultural institution

Only ten years separate the reverential accounts of European industrial museums by the first American 'pilgrims' from Robert Shaw's dismissive report. This is the time it took for industrial museums to be transformed into a new type of institution in the United States, due to an ideological shift in the interest groups behind it: from Taylorist engineers and industrialists involved in the vocational education movement to corporate industrial scientists fully committed to the behaviourist paradigm of social control through mass communications.

In the 1920s, the travels by American curators and trustees shaped the diffusion and first attempts at standardisation of these cultural institutions in the United States through the circulation of objects, personnel and techniques of display across the Atlantic.[34] The film *Museums of the New Age* reflects the context of the initial appropriation of industrial museums in the United States, marked by the absence of the state and the political agenda of the vocational education movement. As the 1930s unfolded, however, European industrial museums ceased to be perceived as suitable models. The 1937 report by Robert Shaw reflects how the corporate responses to the threats posed by the Depression's political agitation had brought about a new exhibitionary culture that ended up redefining American museums of science and industry and shaping them in directions that departed from museums in Europe.

The New York Museum of Science and Industry is an interesting case study for seeing this transformation in action as it was reorganised each time it moved. From an envisioned temple-like space in a park, to the streamlined spaces of the Rockefeller Center in Midtown Manhattan. From a focus in the past through a historical permanent collection sequentially displayed, to a focus in the present through corporate temporary exhibitions. From a paternalistic will to morally uplift the working classes through vocational education to a behaviourist management of a mass public. From preservation, commemoration, and the fostering of national productivity, to a ludic socialisation through push buttons in the corporate discourses on science and technology.

We could look at this transformation of the interwar museums of science and industry in the United States as one of the links in the chain connecting the cultural model of the national industrial museums with the 'interactive' science centres of the second half of the twentieth century. Of course, there are many differences between both cultural forms, since they were shaped by the very different Depression and Cold War contexts of the 1930s and the 1960s. But there also are shared features between the interwar museums of science and industry and the science centres with no historical collection and a strong appeal to 'interactivity' which proliferated in the United States from the 1960s onwards, presenting decontextualized scientific principles with a top-down rhetoric of public understanding of science ([Rader and Cain, 2014](#), chapter 6). A new wave, this time coming from the American side of the Atlantic, changed the way science and technology were displayed in Europe and all over the world. This is of course a complex and different story which deserves further research, but it probably cannot be fully understood without taking into account the transformations reflected in the reports of the interwar 'pilgrims' to what were once seen as museums of a new age.

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- [Twentieth century](#)

Footnotes

1. 'Industrial museum is aided by movie', *New York Times*, 30 November 1927, p 22
2. Another New Yorker who visited with delight the European industrial museums was Lewis Mumford, who toured them in 1932, funded by the Guggenheim Foundation, while conducting research for his ground-breaking *Technics and Civilization* (Molella, 1990, pp 28–31).
3. The terms 'Grand Tour' and 'pilgrimage' have already been applied to the European trips of American curators by Jones (2001, pp 107–109).
4. Brown travelled to Europe in the summer of 1928, accompanied by William Henry Fox, the director of the Brooklyn Museum, and Howard McClenahan, the secretary of Philadelphia's Franklin Institute. Their trip is described in: Brown, 1929.
5. For an excellent and exhaustive account of this transformation from the point of view of museums of natural history and science, see: Rader and Cain, 2014, chapter 3. For a detailed analysis of this process focused on the changing politics of display at the New York Museum of Science and Industry, see: Sastre-Juan, 2013. For a more global treatment, see: Guay, 1987.
6. Towne had been the president of the Merchants' Association. On Towne's figure and ideological background, see: McGrath, 2002, chapter 1.
7. 'Deutsches Museum head visits American cities', *Museum News*, 15 November 1925, p 11. It would not be his last visit to New York in order to support the Museum of the Peaceful Arts: 'Business men laud "daddy" of museums', *Brooklyn Daily Eagle*, 7 December 1929, Museums of the Peaceful Arts Records, Dibner Library of the History of Science and Technology, Smithsonian Institution, Volume I, p 139.
8. 'Illness delays active work of professor Richards', *Museum News*, 1 June 1924, p 2. In addition to the publication of *The Industrial Museum*, the 1924 trip also resulted in the publication, two years later, of a book on museums of industrial arts (Richards, 1927).
9. Apart from teaching and playing leading roles at institutions such as the Pratt Institute, Columbia University's Teachers College or Cooper Union, Charles Richards had been the president of the National Society for the Promotion of Industrial Education. He was also the president of the American Association of Museums between 1923 and 1927.
10. The naturalisation of social relations was not restricted to industrial museums. Donna Haraway has analysed New York City's American Museum of Natural History in the 1920s as a semiotic machine and a ritualistic space in which the capitalist patriarchal self was produced through visual technologies such as dioramas (Haraway, 1985).
11. Richards preferred the smaller Technisches Museum because the Deutsches Museum had 'reached the point where the significant is in danger of being overwhelmed by quantity and complexity' (Richards, 1925, p 53).
12. 'Museum of Peaceful Arts gets under way: experts visit Europe to study exhibits. Nucleus of staff developed in New York', *Museum News*, 15 May 1926, p 1. The trustees who travelled to Europe were Elmer Sperry (inventor), J W Lieb (vice-president of the Edison Company), Samuel Stratton (president of the MIT), Louis Livingston Seaman (physician) and H Foster Bain (secretary of the American Institution of Mining and Metallurgical Engineers and former director of the US Bureau of Mines). The only extant report is: Bain, H F, 1926, 'Memorandum regarding mining and metallurgical exhibits in the Technological Museum at Vienna and the Deutsches Museum at Munich', Museums of the Peaceful Arts Records, Dibner Library of the History of Science and Technology, Smithsonian Institution, Volume IV, pp 119–125.
13. Rice, C, Mitman, C and Roe, J, 1926, 'Preliminary recommendations for the Museum of the Peaceful Arts', Manuscripts Collection, New York Historical Society. Mitman, who had been one of the main characters behind the failed National Museum of Engineering Industries (Molella, 1991), was the curator of mineral and mechanical technology at the Smithsonian Institution and had been hired for six months as assistant director of the New York museum. Joseph Roe was Professor at New York University and collaborated closely with the museum as expert in the history of machine-tools.
14. The machine-tools section, for example, consisted in two divisions devoted to the elements and types of machine-tools, and a third one devoted to reconstructing the historical evolution of old shops (*Ibidem*, p 56).
15. *Ibidem*, pp 4–15.
16. More research is needed to illuminate the history of the production, use and reception of the films. According to the copies donated to the Science Museum on 21 March 1928 ('Films-General', Science Museum Records Centre, file SCM 8291) the three films were: *Museums of the New Age* (3,600 feet), *Big Industries in Little* (900 feet) and *The Building and*

Operation of Industrial Museums (1,700 feet). For the purposes of this article, I will only focus on and describe *Museums of the New Age*, which contemporary sources refer to as ‘the principal film’ (‘World industrial museums shown in film’, *American Machinist*, 8 December 1927, Museums of the Peaceful Arts Records, Dibner Library of the History of Science and Technology, Smithsonian Institution, Volume I, p 48). *The Building and Operation of Industrial Museums* is a more technical film dealing with issues such as location, architecture, arrangement of spaces, personnel, maintenance and production of exhibits at the museums’ workshops. I have not had access to *Big Industries in Little*.

17. ‘Trade museum spurred by films’, *New York Times*, 21 December 1927, Museums of the Peaceful Arts Records, Dibner Library of the History of Science and Technology, Smithsonian Institution, Volume I, p 48; ‘Board of Trade shows industrial museum films’, *Bronx Home News*, 18 January 1928, Museums of the Peaceful Arts Records, Dibner Library of the History of Science and Technology, Smithsonian Institution, Volume I, p 50.
18. ‘Display of museum such as is to be erected in Bronx will be shown as movie subject’, *The Home News*, 15 January 1928, Museums of the Peaceful Arts Records, Dibner Library of the History of Science and Technology, Smithsonian Institution, Volume I, p 49.
19. For a similar view from Chicago, see: Kaempffert, W, ‘The great museum of the machine age’, *New York Times Magazine*, 26 October 1930, pp 4–5.
20. The project for a monumental building for the Museum of the Peaceful Arts can be consulted in: Museums of the Peaceful Arts Records, Dibner Library of the History of Science and Technology, Smithsonian Institution, Volumes III, V and VII. The first part of *The Building and Operation of Industrial Museums* is devoted to the architecture and spatial arrangements of the Conservatoire, the Science Museum, the Deutsches Museum and the Technisches Museum in order to suggest to potential donors that an impressive building that could rival the European counterparts should be built in New York (Gwynne, 1927c, 01.10 – 17.25).
21. ‘Models to be purchased from museums’, folder 3, box 7, F C Brown Papers, Archives Center, National Museum of American History
22. In Chicago, the ambitious initial attempt by Waldemar Kaempffert at musealising the social consequences of science clashed with the interests of the trustees, who favoured a more uncontroversial narrative that would eventually turn into plain corporate boosterism when Lenox Lohr assumed the presidency of the museum in 1940 (Mann, 1988).
23. Shaw, R, 1937, ‘Report on studies of Palace of Discovery, Paris International Exposition, museums of science and industry, and other exhibitions in Europe’, folder 3119, box 262, Record Group 1.1., Rockefeller Foundation Archives, Rockefeller Archive Center.
24. *Ibidem*, pp 52–53
25. *Ibidem*, p 53
26. *Ibidem*, p 54
27. *Ibidem*, p 53
28. *Ibidem*, pp 60–61
29. *Ibidem*, p 72
30. *Ibidem*, pp 70–71. On the Children’s Gallery, see: Nielsen, 2014
31. For a reassessment of the history of the Palais, see: Bergeron and Bigg, 2015.
32. Shaw, R, 1937, ‘Report on studies of Palace of Discovery, Paris International Exposition, museums of science and industry, and other exhibitions in Europe’, folder 3119, box 262, Record Group 1.1., Rockefeller Foundation Archives, Rockefeller Archive Center, p 4
33. *Ibidem*, pp 3–20
34. For an analysis of the transatlantic circulation and appropriation in diverse cultural and political settings of exhibits and techniques of display, such as the Transparent Man or pictorial statistics, see: Canadelli, 2016; Charles and Giraud, 2013.

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