

后工业时期的建筑转换

[英] 赫斯维克建筑事务所等 | 编
大连理工大学出版社

建筑立场系列丛书 No. 86

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曹麟 吴美萱 | 译

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Industrial Emissions

Consumption

后工业时期的建筑转换——从生产到消费

Post-industrial Conversions – From Production to Consumption

Richard Ingersoll

随着工业机器的引入，发达国家中几乎所有的城市，甚至是像威尼斯这样宝贵的历史古迹，都经历了彻底的变革。到处都在建设火车站、工厂、仓库、移动式起重机和工人阶级的住房，彻底破坏了传统城市结构的凝聚力。在如今气候变化的时代，除了这些对城市结构产生的不利影响，另一点需要谴责的便是工业文明，因为它是导致二氧化碳和其他温室气体过量积聚的罪魁祸首。1784年詹姆斯·瓦特制造出蒸汽机之后，保罗·克鲁岑和其他人类世理论权威拥护者的言论与行动成为这个新地质时代开始的标志。工业革命在创造无与伦比的财富的同时，理所当然地也带来了无法缓和的环境和社会灾害。但评论家常常忽视的却是工业对建筑和城市所产生的意义深远的影响。早在1825年，普鲁士邦就派卡尔·弗里德里希·申克尔去曼彻斯特对其转型进行考察，申克尔在信中和画中记录了新工业园区发生了规模巨大的转变并创造了无尽利润。工业厂房和仓库无论在水平方向还是垂直方向，都数倍于欧洲哥特式建筑（两个开间，三到四层）的标准尺寸。最早出现的建筑建造得像城堡和宫殿，但是很快这种建筑类型便黯然失色，并且被认为带有顽固的实用主义色彩。对于城市环境更关键的是，工业园成为第一个现代城市飞地，这在欧洲就有很多先例，如中世纪的修道院和医院，它们对19世纪工业改造的规模毫无影响，而此次改造留下了大量的城市补丁，如位于柏林莫阿比特区的AEG公司厂址，该公司厂房屋于20世纪头十年在彼得·贝伦斯的指导下建成。再如位于都灵庞大的菲亚特Lingotto工厂（图1），它不间断地延伸了500m之长。工厂成为城市结构中的最大障碍。服务于它们的多条火车线路和它们所占的大面积土地导致城市结构被分割，将工作区域与生活区域分离割裂开来。然而，20世纪60年代后，城市经济却发生了从生产到

Almost all of the cities in the developed world, even precious historic sites such as Venice, underwent drastic transformations after the introduction of industrial machinery. Train yards, factories, warehouses, mobile cranes, and working class tenements, were reproduced everywhere, radically subverting the cohesion of traditional urban fabric. Aside from this generally negative impact on urban form, during the current age of Climate Change, one tends to chastise industrial civilization for its dominant role in the excessive buildup of CO₂ and other greenhouse gasses. Paul Crutzen and many other authoritative proponents of the theory of the Anthropocene mark the origin of this new geological period at 1784 with the introduction of James Watt's steam engine. That the Industrial Revolution generated an unmatched creation of wealth, while producing unmitigated environmental and social calamities, goes without saying, but what critics often overlook is the profound architectural and urban impact of industry. Already in 1825 when Karl Friedrich Schinkel was sent by the Prussian state to investigate the transformation of Manchester he noted in his correspondence and drawings the dramatic alteration in scale and the relentless expediency of the new industrial estates. The factories and warehouses of industry stretched both horizontally and vertically many times beyond the standard dimensions of the European Gothic lot of 2 bays and 3 to 4 storeys. The earliest examples appeared like castles or palaces, but soon the building type lost all claims to glamour and assumed a tough functionalist demeanor. More critical for the urban situation, the industrial compounds imposed the first modern urban enclaves, and while there had been some precedents in Europe, such as medieval convents and hospitals, they were nothing on the scale of 19th century industrial interventions, which left enormous patches of the city, such as the AEG company's settlement in the Moabit district of Berlin built under the guidance of Peter Behrens during the first decades of the 20th century, or the colossal FIAT Lingotto factory in Turin ^{figure 1}, which extended half a kilometer without interruption. Factories became significant impediments in the urban fabric. The



图1 都灵Lingotto建筑群
1. Lingotto complex in Turin



图2 Boott纺织厂博物馆与有轨电车，美国马萨诸塞州
2. The Boott Cotton Mill Museum & Trolley, Massachusetts, USA

消费的根本转变。随后发生的工业园后工业转型（通常被认为是对工业化导致的灾害的一种补偿），鼓励工业园向城市开放，并格外关注公众可达性。

在20世纪，艺术家时常要为了自己的需求适应工业空间，而人们对工业建筑遗产文化的关注始于20世纪50年代的英国，工业革命的发源地。“工业考古学”这个概念通过肯尼森·赫德森1963年所著的书籍《工业考古学：简介》得以普及，后来多个工业建筑历史遗产保护协会成立，最早成立的是美国，然后是英国。人们第一次承认工业历史建筑的时间是1934年，当时建于1777年的考布鲁克代尔镇铁桥被列为国家历史遗产。1978年，铁桥所在场地成为工业历史遗产第一次国际会议的举办地点。同年，位于马萨诸塞州洛厄尔的纺织厂（图2）开始进行改造，它作为工业博物馆被改造成一座国家历史公园。如今，联合国教科文组织的世界遗产名录包含了近100个工业场地（大多数位于美国、英国与加拿大）。遗产因素经常混淆了一个问题，即怎样处理不再使用的工业建筑和它们所在的区域：是将它们视为拥有历史价值、一成不变的工艺品，还是将其看作新建筑以增加创意元素？

促使如今工业建筑改造流行起来的一个原因是工业建筑的审美品位，这种品位在现代主义英雄时代因一些现代派领军人物而流行起来，这些领军人物包括勒·柯布西耶、沃尔特·格罗皮乌斯和路德维希·密斯·凡·德·罗。勒·柯布西耶在他的朋友阿梅德·奥占芳设计的住宅（1922年）上安装了锯齿形屋顶，看上去就像是工厂一样。格罗皮乌斯于1911年设计了水青冈鞋厂，采用了与建于1926年位于德绍的包豪斯学校建筑相似的理念，厂房采用全玻璃工厂窗户和开放式平面布局工作室。密斯·凡·德·罗在芝加哥伊利诺伊理工

multiple train lines serving them and their extensive territories led to the chopping up of city form, dividing and segregating areas for work from areas for life. After the 1960s, however, which saw a fundamental switch in urban economies from production to consumption, the subsequent post-industrial conversions of industrial compounds, often proposed as a compensation for the damage wrought by industrialization, encouraged their opening up to the city with specific attention to accessibility.

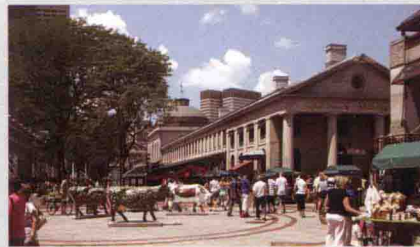
While artists during the 20th century had frequently adapted to industrial spaces for their needs, the general cultural attention to the legacy of industrial architecture began in the 1950s in the UK, the home of the industrial revolution. The concept of "Industrial archaeology" was popularized by Kenneth Hudson in his 1963 text *Industrial Archaeology: an Introduction*, which was followed by the foundation, first in the US and then in Britain, of various associations for the preservation of industrial structures as historic patrimony. The first acknowledgement occurred in 1934 with the recognition of the Iron Bridge at Coalbrookdale built in 1777 as a national monument. In 1978 this site became the locus of the first international convention on industrial monuments. During the same year the cotton mill of Lowell, Massachusetts ^{figure 2}, began to be converted into a National Historic Park as museums of industry. Currently UNESCO's world heritage list includes nearly 100 industrial sites (mostly in the US, UK and Canada). The heritage factor often confounds the question of what to do with unused industrial buildings and their territories, whether to treat them as immutable artifacts of historic value or as a fresh palette for creative additions.

The taste for industrial aesthetics, one of the reasons for the current popularity of industrial conversions, was popularized during the heroic age of Modernism by protagonists such as Le Corbusier, Walter Gropius, and Ludwig Mies van der Rohe. Le Corbusier installed a saw tooth roof like a factory on the house for his friend Amédée Ozenfant (1922), Gropius, who designed the Fagus Shoe Factory in 1911, brought a similar attitude to the Bauhaus School



© Soren harward

图3 罗伯特·史密斯森在美国犹他州乡下设计的螺旋形防波堤
3. Spiral Jetty by Robert Smithson in rural Utah, USA



© Chris Wood

图4 昆西市场, 美国马萨诸塞州波士顿
4. Quincy Market in Boston, Massachusetts, USA

学院校园中设计建造的小礼堂 (1952年) 常常被误认为是一座发电厂。艺术家们常常引领着人们走上工业美学的探究之路, 尤其是罗伯特·史密斯森, 他曾在1967年讽刺地说过, 去他位于新泽西州的家乡帕塞伊克游览名胜古迹, 会看到铁桥和污染行业的管道。他被仿造工业基础设施技术建成的大型环境设施所激怒, 如螺旋形防波堤 (1970年, 图3)。20世纪80年代, 唐纳德·贾德将德克萨斯州马尔法镇的前军事基地工业棚式建筑改造为金属和混凝土的雕塑群。迪亚艺术基金会资助了贾德, 并在同一时期修复了瓦尔特·德·玛利亚等艺术家在纽约建造的工业建筑, 最后还翻新了纽约比肯的纳贝斯克工厂, 以存放艺术家们那些优秀的当代艺术作品。艺术家和建筑师在设计时对实用性和创新性有着相同的想法, 他们的幻想在罗杰斯和皮亚诺设计的巴黎蓬皮杜艺术中心 (1976年) 项目上达到了顶峰, 这是一个巨大的文化工厂。蓬皮杜艺术中心于20世纪70年代中期建成后, 一个历史性的转变也在此时出现了: 社会学家阿兰·图海纳和其他人给出了后工业时代的定义, 他们意识到工业的巨大转变, 工业被废除、转移, 有时转移到遥远的国家, 那些国家有着廉价的劳动力和更宽松的环境法规。整个城市 (如底特律) 似乎在一夜之间就被搬空了。工业建筑的大规模废弃, 加上实用主义现代品位和历史遗产新因素二者的混合, 促使很多令人印象深刻的工业建筑被再次使用。不用新设计一座看起来像工厂的建筑, 只需要翻新原有的工厂, 这开始对公众产生很强的吸引力。在20世纪80年代的许多电影中, 空旷的工业空间场景都成为主要的故事发生地点, 如让·雅克·贝纳克斯导演的《歌剧红伶》(1981年), 安德烈·塔尔科夫斯基导演的《潜行者》(1979年) 以及保罗·范霍文的《机械战警》(1987年, 在底特律拍摄)。

building in Dessau in 1926, which exhibited fully glazed factory windows and open plans for the studios, while Mies van der Rohe's chapel for the IIT campus in Chicago (1952) was often mistaken for a power house. Artists frequently led the way in the investigation of the industrial aesthetic, in particular Robert Smithson, who in 1967 proposed, not without irony, a "Tour of the Monuments of Passaic", his home town in New Jersey, showing the iron bridges and pipes of polluting industries. This set him off toward large scale environmental installations like the "Spiral Jetty (1970) figure 3", often emulating the techniques of industrial infrastructure. During the 1980s Donald Judd transformed the industrial sheds of the ex-military grounds of Marfa, Texas, into a collection of metal and concrete sculptures. Judd was helped by the DIA Foundation which during the same period revised industrial buildings in New York City for installation by artists such as Walter de Maria, and finally retrofitted the Nabisco factory in Beacon, NY, to house their formidable collection of contemporary art. The fantasy of artists and architects working with the same sense of utility and invention culminated in Rogers and Piano's Centre Pompidou in Paris (1976), which presented itself as a colossal factory for culture. Just as Centre Pompidou was being completed in the mid-1970s a historic reversal occurred: the post-industrial age was being defined by sociologist Alain Touraine and others, who recognized the dramatic shift of industries that were being dismantled and moved, sometimes to distant countries where labor was cheaper and environmental laws were more relaxed. Entire cities, such as Detroit, seemed to have been evacuated overnight. This wholesale abandonment on a vast scale of industrial structures, combined with a mixture of modernist taste for functionalism and the new factor of historic patrimony, encouraged the reuse of many impressive industrial buildings. Instead of designing a building that looked like a factory, one could just retrofit existing factories, which began to exert a strong fascination on the public. In many films of the 1980s, such as *Diva* by Jean-Jacques Beineix (1981), *Stalker* by Andrei Tarkovsky (1979), *Robocop* by Paul Verhoeven (1987, filmed in Detroit), the



图5 阿尔伯特码头, 英国利物浦
5. Albert Dock, Liverpool, UK

© Tony Hisgett

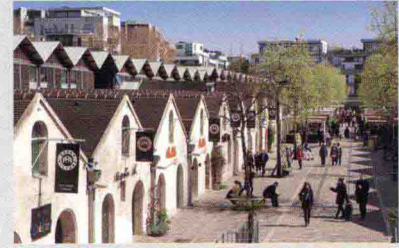


图6 葡萄酒存储仓库改造, 法国巴黎贝西村
6. wine storage warehouses transformation, Bercy Village, Paris, France

© Daniel Thierry (courtesy of Paris Tourist Office)

开发者开始理解原有工业空间作为消费场所所具有的潜力。1976年, 就职于劳斯公司的本杰明·汤普森回收了位于波士顿的昆西市场(图4), 这是两座建于19世纪初的长长的工业仓库建筑, 改建成了第一个“节日购物中心”, 给人们提供了一种全新的购物体验, 空间布局类似历史建筑中的主题公园。在市场运营的第一年, 作为一个公共的景点, 它的受欢迎程度甚至超过了迪士尼乐园。无数城市复制了这种位置较为中心的工业建筑群的改造方案, 包括利物浦, 该市在20世纪80年代期间将阿尔伯特码头宏伟的铸铁仓库(由杰西·哈特利和菲利普·哈德威克设计, 建于1846年, 图5) 改造成了一系列博物馆, 其中包括泰特利物浦美术馆和披头士纪念馆, 博物馆两侧是商业空间与酒店。同一时期, 巴黎将塞纳河河畔圣达美隆的葡萄酒存储仓库改造成了贝西村购物区(图6)。在里昂的热尔浪区, 托尼·加尼埃建造的巨大屠宰场(1914年) 被改造成了SMAC当代音乐中心, 它是1988年法国最宽敞的音乐厅之一。更近一点的案例是马德里从2006年开始的屠宰场改造项目, 始建于20世纪20年代的屠宰场由砖、石头和铁建造而成, 被改造为马塔德罗马德里艺术中心(图7), 这是一个可以举办音乐、电影、艺术及文学活动的多文化中心。这些建筑方案之所以成功, 一部分是因为它们的地理位置接近中心, 另一部分是因为它们的审美情趣。

人们想要忘记那些难以处理的问题: 剥削工人问题、工人健康问题和通常由工业引起的致命污染问题。而工业建筑真正的魅力部分在于它表达了一种怀旧之情, 非常明确地表现了其功能。居住在德国鲁尔山谷的两位摄影师伯恩哈德·贝歇和希拉·贝歇拍摄了一系列正式的黑白照片, 集结成册, 于1970年出版, 名为《无名雕塑》, 展现了高大的起重机、巨大的筒仓和带有蛇形管的粗糙输送带所表现

setting of empty industrial spaces acquired a central narrative role.

Developers began to understand the potential of ex-industrial spaces as places of consumption. In 1976 Benjamin Thompson, working for the Rouse company, recycled Quincy Market in downtown Boston ^{figure 4}, two long industrial warehouses from the early 19th century as the first “Festival Mall,” a new kind of shopping experience arranged like a theme park within a historic structure. During its first year in operation it surpassed Disneyland as a public attraction. This formula of transforming a relatively central industrial complex has been repeated in numerous cities including Liverpool, which during the 1980s converted the majestic cast-iron warehouses of the Albert Docks (built in 1846 by Jesse Hartley and Philip Hardwick) ^{figure 5} into a series of museums, including the Tate Liverpool and the Beatles Story, flanked with commercial spaces and hotels. During the same years in Paris the wine storage warehouses of St. Emilion along the banks of the Seine underwent a transformation into the shopping district of Bercy Village ^{figure 6}. In the Gerland district of Lyon, Tony Garnier’s immense slaughter house (1914) was converted into SMAC, one of the most capacious concert halls in France in 1988. More recently, beginning in 2006 in Madrid the slaughter houses originally built in the 1920s in brick, stone and iron, were converted into Matadero Madrid ^{figure 7}, a multiple cultural center for music, cinema, art, and literature. The success of these operations comes partly from their geographic positions, accessible to a central location, and partly to their aesthetic appeal.

While one would like to forget the nasty questions of the exploitation and health of workers and the fatal pollution produced by industries in general, the genuine fascination with industrial structures derives partly from a sort of nostalgia for their grand expressions of functionalism. The photographers Bernhard and Hilla Becher, residents in the Ruhr Valley, Germany, immortalized in a series of formal black and white photographs, published as *Anonymous Sculptures* in 1970, the enduring power of the majestic cranes, colossal silos, and the gnarled conveyor belts with



图7 马塔德罗马德里艺术中心, 西班牙
7. Matadero Madrid, Spain



图8 德意志关税同盟煤矿工业建筑群, 德国埃森市, 原建筑建于1850—1930年, 2007年由大都会建筑事务所翻新
8. Zollverein Coal Mine Industrial Complex, Essen, Germany, original structures 1850-1930, retrofitted by OMA, 2007

出来的力量。他们最喜欢的是位于埃森市郊区的德意志关税同盟煤矿工业建筑群 (图8) 照片, 建筑始建于19世纪中期, 于20世纪中期完工。在2001年, 联合国教科文组织将德意志关税同盟煤矿工业建筑群列为世界遗产。在接下来的几年里, 它宽敞的空间得以保存并被改造成一系列文化和娱乐设施。大都会建筑事务所的雷姆·库哈斯对100ha的场地进行了总体规划, 将煤炭分拣大厅改造成了一系列博物馆, 将一部新的自动扶梯与原来的多条输送带结合在一起。1997年, 诺曼·福斯特将5000m²的大锅炉房改造成红点设计博物馆 (图9), 每年竞赛的获奖作品都会展示在早年生锈的机器之间。

对工业建筑的重视在巴塞罗那被终结了, 巴塞罗那为了建造奥运村 (由奥依厄·博依霍斯规划), 批准在占据了20个街区的场地上的重要工业建筑之间完全空白的区域建造现代住房和奥运会服务设施。但下一代建筑师却以一种不同的态度回应了这种方式, 他们在规划附近的22@区时, 尽最大努力去保存老建筑, 将新建筑与经过翻新的原工业建筑结合在一起, 例如, 若迪·巴迪亚的杰作新野兽派 Can Framis博物馆 (2009年) 和Batlle i Roig建筑事务所设计的CMT总部 (2010年), 后者是一座古铜色的十层建筑, 为国家传媒发展办公楼, 保留了工厂部分, 这一部分占据了场地的一大半面积, 作为华丽的空中花园继续发挥作用, 基座内设有商业空间。

意大利摄影师加布里·巴西里克受到贝歇夫妇形式主义的一点启发, 捕捉到了众多后工业时期建筑场地上巨大铁砖结构棚式建筑中废弃机器的“忧郁”。他所拍摄的米兰Falck钢厂 (图10) 成为很多建筑改造方案的基础, 包括伦佐·皮亚诺最近的项目。附近倍耐力轮胎公司的La Bicocca工厂占据20个街区的飞地经历了重大改造, 这是20世纪90年代欧洲面积最大的棕地再生项目。维托里奥·格雷戈

snaking tubes. Among their favorite subjects were the coal works of the Zollverein complex ^{figure 8} on the outskirts of Essen, with buildings built from the mid 19th century until the mid 20th. The Zollverein complex was subsequently classified as a world heritage site by UNESCO in 2001. In the following years its vast spaces have been preserved and transformed into a series of cultural and amusement features. Rem Koolhaas of OMA developed the master plan for the 100 hectare site, converting the great hall for sorting coal into a series of museums, mixing a new escalator with the various existing conveyor belts. Norman Foster transformed the 5,000 square meters of grand boiler house into the Red Dot Museum of Design in 1997 ^{figure 9}, where the winning objects from the yearly competitions are displayed amid the rusted machinery of the earlier age.

The transition toward respect for industrial structures was played out in Barcelona, which for the 1992 Olympic Village, planned by Oriol Bohigas, allowed the complete tabula rasa among significant industrial structures on a 20-block site to produce modern housing and services for the Olympic games. This approach was answered with a different attitude by the next generation in the planning of the nearby 22@ district, where every effort was made to conserve and blend in new structures with existing retrofitted industrial buildings, seen in Jordi Badia's masterful neo-Brutalist Can Framis Museum (2009) and Batlle i Roig's bulging copper-colored 10-storey CMT Headquarters (2010) designed as the office for national media development, leaving the factory component untouched, which occupies more than half of the site as a splendid hanging garden with commercial spaces at its base.

The Italian photographer Gabriele Basilico, somewhat inspired by the formalism of the Bechers, captured in numerous Post-industrial sites the melancholy of abandoned machinery in vast iron and brick sheds. His vision of the Falck Steel Plant in Milan ^{figure 10} became the basis of many proposals for conversion, including the current project by Renzo Piano. Nearby, the 20-block enclave of the Pirelli company's La Bicocca plant underwent a dramatic conversion,



图9 福斯特及合伙人事务所设计的红点设计博物馆，德国埃森，1997年
9. Red Dot Design Museum by Foster+Partners, Essen, Germany, 1997



图10 原Falck钢厂入口，意大利米兰塞斯托圣乔瓦尼
10. Entrance of former Falck Steel Plant in Sesto San Giovanni, Milan, Italy

里希望能让曾经不起眼的飞地重新成为城市网格的一部分，在他的严格指导下，保留了前工业建筑中的两座，并将其改造成大学建筑，同时对场地的大部分进行平整和再开发，建造了新的住房，文化建筑和办公建筑。宏伟的冷却塔（衰败期间巴西里克多次对其进行拍摄）被保存下来，倍耐力轮胎公司管理部门的办公楼环绕在其四周，冷却塔则被分割成多间会议室。La Biccoca飞地北侧边缘宏伟的机库成为当代艺术的主要展览空间，可以展示大型作品，包括安塞尔姆·基弗的一个永久性作品——神秘的混凝土塔楼，被称为“七座天宮”（2004年），它会让人想起垂直集中营带来的恐惧感。

在经济高速增长20世纪60年代，意大利工业的骄傲和经济发展的关键是前面提到的位于都灵的Lingotto工厂（图1），这是一座巨大的五层建筑，设计创意绝妙，由工程师Giacomo Matté Trucco在1915年至1922年间设计，于20世纪70年代完工。1983年，伦佐·皮亚诺赢得了建筑改造竞赛的冠军，在接下来的20年里，他将巨大的结构网格开发成众多城市空间——音乐厅、购物中心、宽敞的画廊空间、Agnelli藏品博物馆、热带花园和大学教室。因此，这个项目成为一座巨大的多功能超级建筑，不再是原始的孤立飞地，现如今通过无数的点连接着城市结构，这些点包括跨越铁路站场上方连接老批发市场的天桥，市场于2006年被翻新成冬奥会的办公楼。

维也纳也出现了同样规模的建筑改造，坐落在西梅林区的Gasmeters建筑改造后成为巨大的多功能建筑，巨大的体量如同隐没在远处的幻象般若隐若现。其中的每一座建筑都是由不同的建筑团队负责翻新的，这些团队分别为蓝天组、让·努维尔、威尔海姆·霍兹鲍尔和曼弗雷德·韦赫登。较高楼层设置了公寓和学生宿舍，中间楼层用作办公室，较低楼层为购物中心和娱乐

the largest brown field renewal in Europe during the 1990s. Under the strict guide of Vittorio Gregotti, who desired to reconnect what was once a discreet enclave into part of the city's grid, two of the ex-industrial structures were maintained and converted into university buildings, while most of the site was scraped and redeveloped with new structures for housing, culture, and offices. The majestic cooling tower, frequently photographed by Basilico during its decadence, was maintained and enclosed with the office building of the Pirelli management; the tower was divided into conference rooms. On the northern edge of the La Biccoca enclave the grand hangar became a prime exhibition space for contemporary art, permitting works of enormous scale, including one permanent work of Anselm Kiefer, the enigmatic concrete towers, known as the "Seven Heavenly Palaces (2004)", which suggested the angst of vertical concentration camps.

The pride of Italian industry and the key to its economic prowess during the boom years of the 1960s was the afore-mentioned Lingotto factory in Turin ^{figure 1}, an immense 5-storey bar designed with superb originality by the engineer Giacomo Matté Trucco from 1915 to 1922, and disengaged in the 1970s. Renzo Piano won the competition for the structure's conversion in 1983, and during the next 20 years developed its vast grid into spaces for the city's concert hall, a shopping mall, generous gallery spaces, a museum for the Agnelli collection, a tropical garden, and classrooms for the university. The project thus became an immense megastructure for multiple functions and instead of its origins as an isolated enclave now connects at numerous points to the urban fabric, including an aerial footbridge over the rail yards to the old wholesale markets that were retrofitted as the offices of the winter Olympics in 2006.

A conversion on the same scale resulting in gigantic megastructures for multiple functions occurred in Vienna, where the massive volumes of the Gasometers in the Simmering district loomed as distant phantoms. ^{figure 11} Each



图11 Gasmeters建筑，奥地利维也纳
11. Gasometers, Vienna, Austria

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图12 SANAA设计的新时间画廊，法国巴黎，2012年
12. New Louvre Lens by SANAA, Paris, France, 2012

© Frédéric Iovino/courtesy of musee du Louvre-Lens

场所。天桥连接着商业区，并且每座天桥都有一种乡村的感觉。让·努维尔翻新的筒仓建筑内部的反光面营造了一种玄幻的气氛，能够掩饰保存下来的整齐的原有室外砖块。

工业建筑的角色已基本上从生产转换成了消费。在几个项目案例中，这推动了大规模的博物馆消费，如雷姆·库哈斯和大都会建筑事务所为米兰普拉达基金会建造的项目，建筑师修复了俯瞰废弃铁路站场的一座大型冶炼厂，保留了多座原有仓库建筑，并加入了几个新展览馆及一座倾斜的十层塔楼。为了让参观者反思老建筑的价值，建筑师在五层高的中央塔楼外覆盖了金箔。萧条的法国煤矿小镇伦斯掀起了又一次的工业建筑改造浪潮，这一次甚至比之前更加猛烈，SANAA建筑事务所在一座废弃的煤矿之上设计了时间画廊（2012年，图12），它是著名的巴黎博物馆卢浮宫的一个分馆。米歇尔·戴斯威纳沿着通往煤矿的旧轨道设计了相互连接的景观，这样参观者就可以从车站步行到博物馆。他的同事凯瑟琳·摩斯巴赫复制采矿过程中剩余的煤渣的形状和材料，环绕长长的拉丝铝立面创造了类似月球表面的景观。也许最有潜力的工业遗产来源于旧铁路站场，几十年来，它一直在大多数城市中发挥着主导性的作用。在波尔多，凯瑟琳·摩斯巴赫将巴斯蒂德区废弃的铁路调车场改造成了一座壮观的1km长的植物园，这个公园（图13）展示了法国西南部的地质现状和当季的植物。在柏林，多个老铁路站场被改造成公园，最让人印象深刻的是自然公园Südgelände（图14），在那里，一代人已经见证了桦树发芽生长，自然覆盖废弃铁路的过程。艺术家们已开始采取干预措施，将工业场地的剩余空间改造成游乐场。最成功的老铁路线改造是曼哈顿岛的Highline项目（詹姆斯·科纳和Diller/Scofidio+Renfro，2009—2018年），市民的参与和市政与私人资金资助

was retrofitted by a different architectural team, by Coop Himmelb(l)au, Jean Nouvel, Wilhelm Holzbauer, and Manfred Wehdorn respectively. The upper range was fit with housing for apartments and student residences, and the mid range for offices and the lower zones for shopping and entertainment. Aerial bridges connect the commercial areas and each has acquired a kind of village feeling. The reflective surfaces on the interior of the silo retrofitted by Jean Nouvel provide a hallucinatory atmosphere that belies the tidy conserved brick of the original exteriors. The conversion of industrial buildings generally proceeds from production to consumption. In a few cases this leads to the grand consumption of museums such as Rem Koolhaas and OMA's project for the Prada Foundation in Milan, which revised a large refinery overlooking an abandoned rail yard, leaving many of the original warehouse structures untouched and inserted a few new pavilions and a tilted ten-storey tower. To taunt the visitor into rethinking the value of the old buildings the architects clad the 5-storey central tower with gold leaf. An even more powerful revisiting of industry occurred in the depressed coal mining town of Lens, France, where SANAA designed the new Louvre Lens (2012) ^{figure 12}, a subsidiary to the famous Parisian museum, on top of an abandoned coal mine. Michel Desvigne prepared the articulated landscape along the old rail track leading to the mine so that visitors can walk from the station to the museum and his colleague Catherine Mosbach created a lunar landscape surrounding the long brushed aluminum facades, repeating the shapes and materials of slag left over from the mining process. Perhaps the industrial legacy with the greatest potential comes from the old train yards, which have been lying dormant in most cities for decades. In Bordeaux the same landscape designer, Catherine Mosbach transformed the abandoned switching yards of the Bastide district into a spectacular kilometer-long botanical garden, a public park ^{figure 13} that puts on display both the geological realities of the southwest of France and the type of plants that are in season. In Berlin, several of the old train yards have been transformed into parks. The most impressive is the