INDUSTRIES OF ARCHITECTURE

Edited by Katie Lloyd Thomas,
Tilo Amhoff and Nick Beech

Industries of Architecture

At a time when the technologies and techniques of producing the built environment are undergoing significant change, this book makes central architecture's relationship to industry. Contributors turn to historical and theoretical questions, as well as to key contemporary developments, taking a humanities approach to the *Industries of Architecture* that will be of interest to practitioners and industry professionals, as much as to academic researchers, teachers and students. How has modern architecture responded to mass production? How do we understand the necessarily social nature of production in the architectural office and on the building site? And how is architecture entwined within wider fields of production and reproduction – finance capital, the spaces of regulation, and management techniques? What are the particular effects of techniques and technologies (and above all their inter-relations) on those who labour in architecture, the buildings they produce, and the discursive frameworks we mobilise to understand them?

Katie Lloyd Thomas is a Senior Lecturer in Architecture at Newcastle University, UK, where she co-directs ARC, the Architecture Research Collaborative, and is an editor of the international journal *arq*. Her research is concerned with materiality in architecture and with feminist practice and theory. She is co-founder of the feminist collective 'taking place' (www.takingplace.org.uk) and edited *Material Matters* (Routledge, 2007). Her monograph *Preliminary Operations: Material theory and the architectural specification* is in preparation.

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Industries of Architecture invites us to rethink what constitutes the 'work' of architecture – in the past, the present, and in the future. In a reversal of the usual emphasis in the humanities on design as the exclusive field of architects' creative endeavors, *Industries of Architecture* offers an alternative view – one in which architects' engagement with labour, with legal systems, with manufacturing practices, and with business organisation are no longer treated as contingent, but as central to what architects do.

Adrian Forty, Professor Emeritus of Architectural History,
Bartlett School of Architecture, UCL, UK

Industries of Architecture offers intriguing new evidence of the breadth and depth of architecture's cultural diffusion. Its exploration of myriad aspects of architectural production supplies valuable historical documentation and useful theoretical strategies to shift the focus of architectural history away from the singular presence of architectural objects and toward the conditions and connections that make those objects possible.

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Industries of Architecture

Edited by Katie Lloyd Thomas,
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Chapter 1

Industries of architecture

Tilo Amhoff, Nick Beech and Katie Lloyd Thomas

> Since 1945, perhaps under American influence, **industry** has again been general-
> ized, along the line from effort, to organized effort, to an institution. It is common
> now to hear of the **holiday industry**, the **leisure industry**, the **entertainment
> industry** and, in a reversal of what was once a distinction, the **agricultural indus-
> try**. This reflects the increasing capitalization, organization and mechanization of
> what were formerly thought of as **non-industrial** kinds of service and work.[1]

'Industry', Raymond Williams tells us in his 1976 introduction to *Keywords*, was one of
five words that, along with class, art, democracy and culture, he could 'feel' connected
together 'as a kind of structure' of his immediate world.[2] His account of the changing
meanings of the word 'industry' and its uses by authors from Adam Smith to Friedrich
Engels is revelatory. According to Williams, the meaning of 'industry' was once simply
the human quality of diligence or effort (its first application was to distinguish 'cultivated'
fruits from 'natural'), before it gradually came to mean the 'organised effort' of industrial
production, and finally extended to include a much wider arena of work activity.

It is Williams's expansive sense of 'industry' – specific, yet polyvalent,
historically contingent, and ambivalent – that we follow in our own selection of the
term for the title of this collection and emphasise through its pluralisation. Williams
destabilises any singular a-historical meaning of the term and indicates directions that
are central to the aims of this book. First, 'industry' should not be understood simply in
terms of mechanisation or limited to the 'factory mode of production'. In early political
economy the shift to modern industry was characterised by the organisation of

machinery into a system, but also by the cooperation of wage-labourers towards a common aim under the leadership of an entrepreneur. It was the organisation of machines in the factory system *together with* the labour process that was identified as transforming manufacture into industrial production. 'Industry' is never just a matter of technology, but always also a matter of social organisation and social relations.

Second, we cannot assume that 'industry' identifies any one particular form of technical and social organisation. For example, whilst industry and the 'industrial revolution' emerged under capitalism, Williams reminds us that industrialisation was also central to twentieth-century socialist projects. And, as Michael Ball has insisted, the formations of capitalism vary according to specific contexts, and hence also 'industry' is always already localised.[3]

Third, industry is understood as dynamic – what constitutes industry has undergone enormous change. At least in our own local context in the UK we might characterise this as a transition from a factory mode of production (identified by the entrepreneurial, *laissez-faire* model of the nineteenth century) to a corporate and state mode of production (supported by state institutional bureaucratic and technocratic planning), and now to a mode of production that is global, decentralised and responsive to financial capital requirements, when 'industry' is no longer concentrated in specific building typologies or processes of production but has to be considered as more spatially dispersed across institutions and techniques.

The shift towards a corporate mode is tacit in Williams's definition – in so far as he identifies the increasing 'industrialisation' and interconnection of activities previously considered non-industrial (such as knowledge or education). While we recognise that architects and historians responded to the factory mode in the first half of the twentieth century, and also to the state and corporate modes of the mid-twentieth century, it is the need to better understand architecture in the mode of production today and to identify key questions and appropriate methods of enquiry by returning to earlier formulations, transforming them and proposing new frameworks of understanding, that drives the presentation of essays here.

The scale and nature of contemporary transformation has only proliferated since the publication of *Keywords*, and these changes are particularly significant in the sphere of architectural production. They include the now-ubiquitous adoption of 'building information modelling' (BIM), new techniques of digital fabrication and materials' design, the performance-led design and evaluation of buildings as well as the ever-extending frameworks of regulation that are themselves performance-based and as such increasingly shift responsibility from the state to industry. Moreover, these changes have implications for the planning, realisation, and occupation of buildings. They necessarily alter the ways in which architects design and the kinds of parameters that inform their approaches. They may – and it is our contention for this volume that they do – also influence the conceptual frameworks through which architects understand and approach design.

A fourth aim of this volume, then, is to bring issues from 'professional practice', 'project management', or the 'merely technical' realms, where debates are usually more to do with pragmatics and efficiency, into the architectural humanities – to history and theory, and to design – for the possibility of a more critical engagement. For

example, digital design and fabrication has profoundly altered the day-to-day practices of architects and their relationship to production processes, and at the same time, informed architectural theory. Following Jon McKenzie's argument with respect to performance studies, we would also ask to what extent the embracing of 'performativity' in architectural discourse is in fact informed by the very conditions of production that the use of the concept seeks to undermine.[4] To what extent is the re-conception of the design of objects in terms of actors (human and non-human), goals and relations, no less informed by the new performance paradigm in corporate and contractual organisation, materials specification and regulation? The theoretical tools – the basic concepts, categories and procedures of knowledge formation – that are deployed in this volume and elsewhere are, we argue, not just *productive* of our subject, but are *produced* by that subject.

Researching the industries of architecture

Our own intellectual positions are varied but our common concern is that the industries of architecture are too often passed over in silence or, when confronted, treated as if external to the architectural humanities. The collaborative project that has become this book (and also a companion publication)[5] began with our shared interest in architecture's technical literatures. In Tilo Amhoff's case, these were eighteenth- and nineteenth-century specifications in London, and also a wide range of plans for the building of the city, for the factory (see Amhoff, Chapter 24), and for the economy, towards historical projects that aim to understand exchanges between architecture and other practices and institutions. Nick Beech examined building contracts of the 1940s for demolition work at the South Bank that demonstrate how relationships between public and private institutions, technologies and wider social relations were transforming in the post-war period in Britain. Katie Lloyd Thomas looked at architectural specifications from the seventeenth century to the present day, which exhibited profound differences in their modes of description of building materials. She argued that they should be understood as concepts emerging from industry with significant theoretical purchase. We convened a first very lively symposium, 'Further Reading Required: Building specifications, contracts and technical literature' (UCL, 2011), with a small group of researchers and practitioners also concerned with these texts from as diverse disciplines as literature and law, and it resulted in a special issue of *Architectural Research Quarterly* on the topic.[6] This book includes new contributions to this field: some authors make use of technical literatures for the development of their research (see Mhairi McVicar, Chapter 5; Tijana Stevanović, Chapter 15; Stefan White, Chapter 23; and Amhoff, Chapter 24) while others argue they need to be considered as subjects in their own right (see Robert Carvais, Chapter 20; Ricardo Agarez, Chapter 21; Liam Ross, Chapter 22; and Sarah Wigglesworth, Chapter 32).

The ostensibly narrow focus of this first project necessarily implies a much broader engagement with the industries of architecture. The forms that technical literatures take, and the profound effects they have on what is built and how building is constituted, executed and evaluated, can only be understood by taking into account developments in the industry and in practice. Our concerns developed alongside a

growing interest in this area since 'Further Reading Required', reflected in the composition of recent international conferences[7] and a rapid expansion in Ph.D. research in these areas. Substantial new monographs and edited collections[8] have appeared as well as a number of journal special issues on related themes such as 'Money', 'Workspace' and 'The shape of the law'.[9] Researchers return to modernist themes, but also to the more political debates of the 1960s and 1970s; to the Venice School's engagement with the workers of the Porto Marghera factory complex, to discussions about the relationship between theory and practice in Germany and Switzerland, the conditions and effects of private sector housing production, the architect as salaried employer (see Jörn Janssen, Chapter 17), to Utopie in France and to Arquitetura Nova in Brazil. Importantly this book presents an essay (Chapter 9) from the Brazilian theorist, activist, painter and architect Sérgio Ferro, whose work (appearing here in English for the first time) offers a substantive and highly original Marxist critique of the production of architecture that is both theoretically sophisticated and innovative in its historical research methodologies (see Felipe Contier, Chapter 8). Two contributions in this volume take up Ferro's work in their own arguments (see João Marcos de Almeida Lopes, Chapter 10; and Silke Kapp, Chapter 12) and we hope that this publication will provoke more interest in Ferro's work beyond Brazil and France where he has lived and worked since 1973.

Just as we follow Williams in that there is no one meaning of 'industry' we have wanted to demonstrate through the range of our contributors' subjects and positions that there is no single way to understand the relations between architecture and industry. Instead we identify some common approaches to this relationship that structure this volume. In asking – as Walter Gropius and Sigfried Giedion did in the early part of the twentieth century – how architecture should respond to industry, a clear distinction between architecture and industry is assumed. This separation is maintained in Part I, which looks at representations of industry, and in Part II where essays explore responses to industrialisation from the small scale of the components, systems and construction techniques newly introduced to the architect's vocabulary, to the large scale of the buildings and infrastructures produced.

But if industry also refers to the organisation of work and social relations, both on the construction site which is explored in Part III (and see Nick Beech, Linda Clarke and Christine Wall, Chapter 28), and in the office as a site of work in Part IV, then we need to consider architecture as an industry itself – an industry in which architects and constructors (amongst many others) labour. Although the essays in the second half of the book by no means share a common position, they are clear that architecture is not outside industry but *within* or even *under* industry (see Chapter 8 for Contier's discussion of the construction site *under* design in Ferro's work). The essays in Part V foreground the economy and the effects of financialisation on architecture, while Part VII looks at technologies and techniques of management and architecture that are so clearly *for* industry and in the service of capitalism. In Part VI contributors look at law and regulation, some recognising the possibility of a more generative relationship for architecture *with* industry, which comes to the fore finally in Part VIII, when contributors from contemporary practice look at the current transformations in the industries of architecture that the architectural humanities should be taking into consideration in order that they inform practice.

Architecture and industry: responding to industrialisation

The built environment that emerges from industry – whether the maritime environment of logistics, shipping, and ports of contemporary globalisation (see Gail Day, Chapter 2) or the monumental grain silos of early twentieth-century industrial agriculture (see Catalina Mejía Moreno, Chapter 3) – has long been the subject of aesthetic enquiry and production. Architecture has, first, powerful representational potential – as Gail Day explores with respect to filmmaker Allan Sekula's use of Frank Gehry's buildings, as well as the mundane building of logistics and coastal property development. There is a long tradition of thinking about buildings as representations of modern industry (the factory as the temple or cathedral of work) and the most recent scholarship on the subject continues to emphasise the aesthetic aspects of the relation between the organisation of industrial production and the rise of modernism. For David Gartman, 'mass production created a new look that was synonymous with modernity'.[10] For Mauro F. Guillén, however, industry came first: 'Modernism in architecture emerged as an aesthetic implementation of ideas first developed by engineers and scientific managers',[11] and architects re-interpreted scientific management in aesthetic terms. In contrast, Mary McLeod powerfully demonstrated the direct relation between scientific management, technocracy, and social change in her seminal essay 'Architecture or Revolution'.[12]

Architecture's engagement with industry was of course central for the modern movement, for its critics and historians such as Giedion, Nikolaus Pevsner and Reyner Banham,[13] and for its major architects such as Peter Behrens (see Amhoff, Chapter 24), Walter Gropius (see Mejía Moreno, Chapter 3) and, in rather different ways, Le Corbusier, Jean Prouvé (see Kevin Donovan, Chapter 4) and Richard Neutra. Industrial production has continued to offer new models and possibilities for design. Many architects have taken on quite directly methods of industrial production and industrial products, such as Mies van der Rohe (see McVicar, Chapter 5), and engaged with questions of 'open' or 'closed' industrialisation (see Donovan, Chapter 4; Wall, Chapter 6; and Alicia Imperiale, Chapter 7), and the rise of proprietary products. Their concerns move through from the design of details and systems, to the assembly of prefabricated components, and to 'shopping' and the integration of disparate ready-made products into a building. Today this condition has only intensified and, famously, was the subject of Rem Koolhaas's groundbreaking 2014 Venice Biennale *Fundamentals* that refused the usual celebration of architects' 'works' and replaced it with an exposé of the elements of building production, which today includes components such as the Nest thermostat that are part of the even wider and more ubiquitous networked system of the 'internet of things' (see Claudia Dutson, Chapter 27).

But despite architecture's enchantment with industrial products and techniques and its ongoing efforts to recruit them (almost always long after their applications in other industries) modernist discourses have typically resisted defining architecture itself as another industry or even a part of it. And in understanding architecture for its capacity to represent industry it remains thought of as something *other than* industry. As Day asserts in Chapter 2, 'a photograph of a factory reveals little of the social relations of capitalism'. An investigation into the *work* of building, therefore, requires other ways of looking.

Architecture as industry: labour and work

There have been many histories of what Howard Davis so aptly calls 'the culture of building', and of these Linda Clarke's *Building Capitalism* is a tour-de-force.[14] The shift from artisanal to industrial building (which, at least in the UK, began in the late eighteenth century) cannot be separated from changes in social relations and relations of production in building. Architecture was integral to scientific management before and beyond the avant-garde's projection of an idealised machine aesthetic. Therefore to investigate architecture today *as* an industry is inevitably to consider the division of labour, to consider the labour of those involved in building, as we do in Part III, and also to recognise that architects are not just 'authors' but also 'workers', as we do in Part IV. To acknowledge this within the discipline demands that we critically question the position and relation of the profession of the architect to other elements in the division of labour, and to accept the possibility of what Manfredo Tafuri described as 'the proletarianization of the architect, and his [or her] insertion . . . within the planning programs of production'.[15]

Industrialisation brought on a radical split between 'intellectual' and 'manual' labour. This split inspired searing critiques in the nineteenth century, still reflected upon today, that sought not improvement of the 'product' of production but emancipation within the production process itself – both as imagined in the ideal (see Kapp, Chapter 12) or in the critique of the present (see Wall, Chapter 6; and de Almeida Lopes, Chapter 10). Mid-twentieth-century socialist societies also struggled to resolve the problem of exploitation through the division of labour in production. Those architects who attempted to engage directly with production as the key site of liberation found themselves frustrated (see Torsten Lange, Chapter 14) or caught in the complexities of wider socio-economic, political, and cultural structures – particularly the necessarily hierarchical professional structure of architecture itself (see Stevanović, Chapter 15).

Whether taking a historical approach as suggested above, or accepting an ontological distinction between 'labour' and 'work' – as famously provided by Kenneth Frampton following Hannah Arendt[16] (the former designating the never complete, habitual, inescapable and ever-repeated brute act of living, the latter the singular, creative, *non-natural* autonomous act) – architectural discourse largely has accepted the division of labour as relatively straightforward. The 'architect' is, almost by definition, distinct from the construction site, and therefore not 'of labour'.

Other recent critiques of architecture have increasingly drawn upon the more radical charge – latent within Marx's commentaries on the most advanced forms of industrial capitalism – developed within Italian *autonomia* critiques, that the key location for capitalist exploitation, class formation and struggle, and social reproduction is not in the 'factory' or the material production site itself – but in 'immaterial labour'.[17] Consciousness of the exploitation that occurs within immaterial/knowledge production (see White, Chapter 23) has the potential to radically shift architectural debates from considerations of the figure of the architect as 'outside' of, or 'autonomous' from capitalist exploitation (whether as puppet or puppet-master) and instead understand that figure as protagonist in class struggle. As Peggy Deamer asserts in Chapter 13: 'If we [architects] cannot identify as workers, we fail to politically position ourselves to combat capitalism's neoliberal turn.'

Further, the binary distinction between intellectual and manual labour is open to critique. Considering labour, knowledge and technique as mutually co-productive offers new possibilities for action and agency in architecture (see de Almeida Lopes, Chapter 10). The stripping out of agency and knowledge, so frequently ascribed to mechanisation and factory production, can be shown to rest on Eurocentric assumptions (see Megha Chand Inglis, Chapter 11). And the division of labour and exploitation may cut along other lines – such as gender (see Karen Burns and Justine Clark, Chapter 16). Within architectural discourse then, 'labour' necessarily raises questions of social material needs, autonomy (or its counter – exploitation) and knowledge, and as such remains a key problematic when attending to the industries of architecture today.

Architecture for industry: from economy to technology and techniques

In the most general sense, architecture can be understood as serving the market, and we also want to consider it in so far as it is mobilised *for* industry. Contemporary design increasingly resembles a technology employed to capture global capital (see Matthew Soules, Chapter 19), responding to the needs of the financial industry. Alternatively, we might consider the shifting professional position of the architect (through 'Design and Build' contracts for example) in a macro-economic context that privileges the manufacturer over the client (see Andrew Rabeneck, Chapter 18). If others would insist on a different dynamic, prioritising the division of labour over circulation and exchange as the principal horizon of historical change (see Janssen, Chapter 17), this still appears to directly confront architecture's significance. Design, as a practice, discourse or 'product' (as considered in Parts I and II), is relegated to symptom. The vicissitudes of design and the building as aesthetic object appear as merely instrumental or frankly irrelevant. We might also ask to what extent architectural criticism and its growing interest in the industries of architecture is itself a product of contemporary economic crises?

At the same time, architecture serves other industries in so far as it is a conduit for the sale of manufactured goods and services – building products and tools, drawing and design technologies and software, office goods and so on (see Dutson, Chapter 27; and John Gelder, Chapter 29). There are close relationships between the development of architectural technologies and design and the insurance industry and the degree to which risk is distributed to the state or taken on by private enterprise (see Ross, Chapter 31). Architecture generates building typologies that facilitate specific forms of work – such as the office (see Jens van de Maele, Chapter 25), the laboratory (see Sandra Kaji-O'Grady and Chris L. Smith, Chapter 26), or the factory (see Amhoff, Chapter 24). While the factory has long been the model for other building types, which had to be 'like the factory', the workspaces of the 'knowledge economy' today encourage the social nature of collaborative work, while blurring the boundary between life and work. In that respect we understand architecture as an agent *for* industry; its techniques are both informed by the requirements of other industries, and in turn they are mobilised in the organisation of social relations.

Moreover, the 'extra-physical' techniques of bureaucracy and regulation have major impacts on architecture's practices, value-systems, objects and social relations but they are difficult to discern and easy to ignore. The value of what architects produce often remains invisible – whether the richly argued accounts of design rationale that architects in Portugal provide as part of their planning applications (see Agarez, Chapter 21) – or their schematic designs that cannot be recognised in intellectual property law (see White, Chapter 23). Building regulations and standards secure safety and quality, and at the same time promote some goods and services over others, and each new regulation or piece of health and safety legislation is scrutinised for its national economic cost (see Sofie Pelsmakers and David Kroll, Chapter 30; and Wigglesworth, Chapter 32). But all too often, architects are reluctant to get involved in shaping regulation and legislation, even if this will have much more impact on the built environment than their formal virtuosity (see Carvais, Chapter 20; and Wigglesworth, Chapter 32). If architecture is, today, necessarily *for* industry and inescapably inside industry, we need more nuanced accounts of its relationships *with* industry rather than a refusal or resistance to engage with its operations.

'Work and teamwork': towards collaborative research

Giedion gave his 1954 monograph on Gropius the subtitle 'Work and teamwork', a reference, no doubt, to his US practice, The Architects' Collaborative, co-founded in 1943. Giedion mentions that most architects build as part of a team, but he describes Gropius's propensity for teamwork as a personal quality 'a gift rarely owned by creative people'[18] rather than seeing this as a necessary outcome of architecture *as* industry. The constellations, separations and relations of workers (and their non-human counterparts) involved in architectural production are a common theme of this book. For some, the industries of architecture under capitalism have rendered obsolete the simple cooperation of building workers (see Ferro, Chapter 9; de Almeida Lopes, Chapter 10; and Kapp, Chapter 12) while others find potential in politically-aware reorganisations of building production (see Lange, Chapter 14; and Stevanović, Chapter 15), or even in the digitally-enhanced craft of Indian stone-carvers producing temple parts for global export (see Chand Inglis, Chapter 11). To ask why women are under-represented in architecture, demonstrates the importance of recognising practices that occur outside the profession's formal bodies and structures (see Burns and Clark, Chapter 16). BIM is heralded as the future for collaboration that might even bring about architects' self-consciousness of the status they share with other co-workers in building (see Deamer, Chapter 13; and Gelder, Chapter 29). The design of factories and office buildings is attributed as much to electrical engineers (see Amhoff, Chapter 24) and bureaucrats (see van de Maele, Chapter 25) as to architects, and even Mies's work is described through the dialogue with manufacturers over the development of a detail (see McVicar, Chapter 5). The architect as single author is mercifully absent from this collection – save for Gehry – who needs to retain the persona of artist in order that Sekula can use his Bilbao Guggenheim to symbolise the shiny spectacle of pure rust-free flow of capital (see Day, Chapter 2).

According to Tafuri the architectural historian needs a technical knowledge of architecture that is equivalent to that of the professional architect, and for him, as Andrew Leach has put it: 'The capacity for historians and architects to engage in conversation, simply put, lies in the construction of their shared "territory".[19] The inclusion of the 'technical' within architectural history and criticism is crucial, but we suggest that this requires dialogues with many more figures than the architect, such as engineers, proprietors, managers, lawyers, planners, construction workers, developers, surveyors, politicians, bankers, and so on. Many of these voices are directly and indirectly represented in this collection, and particularly in the contributions in Part VIII, which arise out of a series of workshops that took place at the 'Industries of Architecture' conference (Newcastle, 2014). Convenors were asked to identify key debates arising from contemporary practice and production and they invited people – construction workers, government and union representatives, health and safety officers, regulators, manufacturers and architects – to each construct shared territories of enquiry.

Such disciplinary encounters demand the researcher's familiarity with techniques and experiences outside their usual expertise and that they look at sources and practices – often technical – beyond the conventional drawings, texts and publications of architectural history and theory. To put apparently pragmatic and objective aspects of architectural practice into question, as Katherine Shonfield did with detailing manuals in her groundbreaking essay 'Why Does Your Flat Leak?' – is at once to enlist technical knowledge, to cross disciplinary boundaries and to extend the range of objects that the architectural humanities normally considers proper or relevant concerns.[20] Moreover, it is often at the level of the detail of specific practices and techniques that material and social relations become visible.

Many of the contributions to this book attempt to abstract a wider historical and material framework for understanding the industries of architecture, and these approaches have powerful effects – they analyse and illuminate processes too often only navigated (rather than directly confronted) in architecture. At the same time, it is also important that historical, geographical, and cultural specificities are taken into account. Such differences in building cultures and histories often challenge our assumptions and frameworks, demanding that we both begin and return to the analysis of concrete discourses and practices in the reformulation of our working categories and concepts. In that sense this book only begins to interrogate specific localities and marks a point of departure for future research.

Whether analysis is conducted within Marxist or pluralist/liberal, new materialist or ecological, feminist or postcolonial frameworks, we would not want to contend that there is a single 'correct' interpretation of the industries of architecture. Instead we would point to the ongoing task of paying attention to how the introduction of *technique* (new knowledge formations, institutional forms, practices of management and self-management) as much as *technology* (new materials, systems, energy production and conversion) and above all, the interrelation of both, have particular effects on those who labour in architecture, on the buildings they produce and on the discursive frameworks we mobilise to understand them.

Notes

1   Raymond Williams, *Keywords* (London: Croom Helm, 1976), p. 11.
2   See Raymond Williams, *Culture and Society 1780–1950* (Harmondsworth: Penguin, 1963), pp. 13–19.
3   Michael Ball, *Rebuilding Construction* (London: Routledge, 1988), p. 37.
4   Jon McKenzie, *Perform or Else: From discipline to performance* (London: Routledge, 2001).
5   See Katie Lloyd Thomas, Nick Beech and Adam Sharr (eds), 'Into the Hidden Abode', a special issue of *Architecture and Culture*, 3, 3 (2015).
6   *Architectural Research Quarterly*, 3, 16 (2012).
7   See proceedings and conference programmes of the European Architectural History Network Fourth International Meeting, Turin, 2014; and the Society of Architectural Historians Sixty-Eighth Annual Conference, Chicago, 2015.
8   See for example, Aggregate Architectural History Collaborative, *Governing by Design: Architecture, economy and politics in the twentieth century* (Pittsburgh, PA: University of Pittsburgh Press, 2012); Mathew Aitchison (ed.), *The Architecture of Industry: Changing paradigms in industrial building and planning* (Farnham: Ashgate, 2014); Peggy Deamer (ed.), *The Architect as Worker: Immaterial labour, the creative class, and the politics of design* (London: Bloomsbury Academic, 2015); Rob Imrie and Emma Street, *Architectural Design and Regulation* (Oxford: Wiley-Blackwell, 2011); Christine Wall, *An Architecture of Parts* (London: Routledge, 2013).
9   See James Andrachuk, Christo C. Bolos, Avi Forman and Marcus A. Hooks (eds), *Money*, a special issue of *Perspecta*, 47 (2014); Nisa Ari and Christianna Bonin (eds), *Workspace*, a special issue of *Thresholds*, 44 (2016); and Brendan Cornier and Arjen Oosterman (eds), *The Shape of the Law*, a special issue of *Volume*, 38 (2014).
10   David Gartman, *From Autos to Architecture: Fordism and architectural aesthetics in the twentieth century* (New York: Princeton Architectural Press, 2009).
11   Mauro F. Guillén, *The Taylorized Beauty of the Mechanical: Scientific management and the rise of modernist architecture* (Princeton, NJ: Princeton University Press, 2006).
12   Mary McLeod, '"Architecture or Revolution": Taylorism, technocracy, and social change', *Art Journal*, 2, 43 (1983), 132–147.
13   See for example, Reyner Banham, *Concrete Atlantis: US industrial building and European modern architecture 1900–1925* (Cambridge, MA: MIT Press, 1986); Sigfried Giedion, *Mechanization Takes Command: A contribution to anonymous history* (New York: Oxford University Press, 1948); Michael Farr and Nikolaus Pevsner, *Design in British Industry: A mid-century survey* (Cambridge: Cambridge University Press, 1955).
14   See Linda Clarke, *Building Capitalism: Historical change and the building process in the production of the built environment* (London: Routledge, 1991); Howard Davis, *The Culture of Building* (New York: Oxford University Press, 2006); Akira Satoh, *Building in Britain: The origins of a modern industry* (Leicester: Scolar Press, 1995); John Summerson, *The London Building World of the Eighteen-Sixties (Walter Neurath Memorial Lecture)* (London: Thames & Hudson, 1974).
15   Manfredo Tafuri, 'Toward a Critique of Architectural Ideology', in *Architecture, Theory, Since 1968*, ed. by K. Michael Hays (Cambridge, MA: MIT Press, 1998), p. 31.
16   Kenneth Frampton, 'Industrialization and the Crises in Architecture', *Oppositions,* 1 (1973), 57–81.
17   See Maurizio Lazzarato, 'Immaterial Labour', in *Radical Thought in Italy*, ed. by Paolo Virno and Michael Hardt (Minneapolis, MN: University of Minnesota Press, 1996), pp. 133–147.
18   Sigfried Giedion, *Walter Gropius: Work and teamwork* (London: Architectural Press, 1954), p.14.
19   Andrew Leach, 'The Conditional Autonomy of Tafuri's Historian', *OASE*, 69 (2006), 14–31 (at p. 16).
20   Katherine Shonfield, 'Why Does Your Flat Leak?' in *Walls Have Feelings: Architecture, film and the city* (London: Routledge, 2000), pp. 32–52.

Part I
Architecture and the representation of industry

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Chapter 2

Allan Sekula's industries of architecture and architectures of industry

Gail Day

Think of Allan Sekula and what comes to mind is his close and sustained attention to the maritime economy – the focus for a number of his projects: *Fish Story*, *TITANIC's wake*, *Deep Six/Passer au bleu*, *Freeway to China*, *Black Tide/Marea negra (fragments for an opera)*, *Tsukiji*, *Lottery of the Sea*, *The Forgotten Space*, and *Ship of Fools/The Dockers' Museum*.[1] The built environment is often present in his photographs, inescapably part of the scene; however, it appears – at least at first glance – that its role is contingent rather than active. We readily recall the container and bulk-cargo ships, barges, and freight trains; the gantry cranes associated with intermodal trans-shipment; oil spills in Galicia, a pilot arriving to guide a large vessel into harbour on the Basque coast; or a boy grasping the viewing binoculars on the Staten Island Ferry. Above all, Sekula seems to be an artist concerned with logistics, the transportation and transit of commodities and people, someone more interested in flows and processes than in the static structures of architecture. Yet, these opposite qualities connect. As Sekula and his collaborator Noël Burch argue: 'As ships become more like buildings – the giant floating warehouses of the "just-in-time" system of distribution – factories begin to resemble ships, stealing away stealthily in the night, restlessly searching for ever cheaper labour.'[2] The latter half of this chiasmus is captured by a memorable sequence in Sekula's major photo-text project *Fish Story* (1995): the dismantling of Fontana's giant Kaiser steelworks in 1993, and its preparation for shipment from California to China on the *Atlantic Queen*.[3]

There remains, however, an intractable problem facing any artist committed to a critical-realist epistemology: the materiality of capitalism's social relations exceeds empirical detectability. As Marx intimated: the value-form is not comprised of matter, but

of social substance.[4] In its classic articulation, this problem has centred on the very motif of industrial architecture. Sekula has repeatedly returned to Bertolt Brecht's comment (one reiterated by Walter Benjamin, and derived from Fritz Sternberg): a photograph of a factory reveals little of the social relations of capitalism.[5] The point here is not so much that we do not see the working activities inside the building (although, as many radical documentarians have experienced, corporate control increasingly determines how work-place interiors may appear). The question of the seen and the unseen, of what enters or fails to enter into photographic representation – be that inside the factory, or down-stream at the new container terminals – is not *only* a matter of where photographers and filmmakers choose (or are allowed) to point their cameras. Faced with reified social rela-tions, it is inadequate to rely on a naïvely conceived or 'naturalistic' approach to docu-mentary. Instead, using allegorical ruses, 'something must be constructed'. For Sekula, the technique of montage – allied to a critically reflexive conception of documentary – could help pierce capitalism's 'double veil of appearances and abstractions'.[6]

Furthermore, it is important to modify this chapter's opening point. It is not entirely accurate to describe Sekula's project as an exploration of commodity circulation and the maritime economy, although, of course, it involves that topic. More precisely, we should say that he uses this theme to advance the *critique* of political economy – one modelled on Marx's, but posed via visual and verbal, discursive and lyrical means, and infused with personal history. His is a critical concern with 'dismal science' (Thomas Carlyle) and the 'lottery of the sea' (Adam Smith).[7] Such critique demands a perspectival shift away from the 'standpoint of capital'; it requires that we conduct a workers' enquiry, as militant partisans 'from below'.

Structures, for Sekula, are often metonyms for labour. Indeed, there is an image in *Fish Story* of a memorial to construction workers – who were killed building a motorway from Seoul to Pusan – where a double metonymy is in play: Sekula's camera displaces us to the very outer edge of a monument that itself indexes the connection to the risks of the labour process.[8] Another photograph in *Fish Story* shows a chair in the Los Angeles County Museum of Art (LACMA): an object not only dislodged into a museum, but relegated to its storage facilities.[9] The chair was designed by Richard Neutra for the Channel Heights estate in San Pedro, a wartime project commissioned by the Federal Works Agency to house the employees of the Los Angeles harbour and shipyards. An earlier chapter of *Fish Story* evidences the relocation of yet another San Pedro house.[10] The chair and the house in transit remind us of a Los Angeles that is very different to today's city, belonging to an era when – provoked by the exigencies of war – there was a politics of public housing. Such social schemes later fell victim to policies of privatisation, closely allied to McCarthyism, and were denounced by lobbies of developers and right-wing Republicans as evidence of 'creeping socialism'.[11] These metonyms for the historical repression of labour, its organisations and impact on public policy are notable for also taking us to the sites of social reproduction: the invisible underpinning to the supply of labour-power (which has been an interest of Sekula's since his *Aerospace Folktales*).

Sekula's most direct engagement with architecture has centred on Frank Gehry, whose buildings seem to figure capital's ideology of the eternal present.

Figure 2.1
Allan Sekula, Fish, Saché, *TITANIC's wake* (1998/2000), 74cm x 102cm. Permission to reproduce original colour photograph by Allan Sekula courtesy the Estate of Allan Sekula.

The architect's work features in a number of Sekula's projects and Sekula participated in a number of symposia related to Gehry's role in urban redevelopments. In *Fish Story*, we encounter Gehry's *Lead Fish* – an image taken in 1988 and, like the Neutra chair, located in the LACMA.[12] The architect's Samsung Museum in Seoul figures in one of the essays to *Fish Story* (linked to Pusan by the motorway where construction workers lost their lives); his Kobe 'Fish Dance' restaurant forms a vector of *Project for Yokohama* (2001). The Bilbao Guggenheim features in *TITANIC's wake* (2003), as well as in its associated essays. Sekula's essay 'Between the Net and the Deep Blue Sea', which was published in *October*, prompted a public stand-off with Juan Ignacio Vidarte, Director General of Bilbao's Guggenheim.[13] The Walt Disney Concert Hall is the primary topic of *Facing the Music* (a group exhibition curated by Sekula in 2005), and of Sekula's own short film *Gala*.[14] With *The Forgotten Space*, he again returns to the Bilbao museum. It would be all too easy to be sucked into the vortex of the debates about Frank Gehry; however, the point I wish to draw out is the rhetorical dimension to Sekula's intervention.[15] His counter arguments are conceived dialectically; analysing existing rhetorical ploys, these tropes are redeployed both to target and to turn the dominant narrative against itself.[16] Major urban redevelopments, with their signature architectural projects, figure the 'visible' counterpoint to the 'invisibility' of relocated ports.[17] However, the contrast is not just spatially dispersed. As we will see, this high visibility is itself a function within a complex social occlusion. The built environment therefore plays an active (rather than merely contingent) role for Sekula, one tightly entwined with the restructuring of maritime industries and global supply chains.

Referring to his photo-project *TITANIC's wake*, Sekula hinted that we should understand Gehry as one of the 'characters' in an 'historical novel'.[18] From an assemblage of modest 'diaristic' photographs, Sekula sought to summon an 'epic resonance' that could provide insights into modern capital. In *TITANIC's wake*, 'Gehry' appears in a

panoramic diptych of Bilbao, set in the middle distance against the district of Abando. Our prospect is from across the river, high on the Artxanda hillside. Looking out across the city, we see how Bilbao is penned into the plains of the Nervión by Artxanda and the range to the south – as Sekula and Burch remind us, a critical issue for the spatial demands of container ports. To the left of the Guggenheim, the 'La Salve' bridge, built in the early 1970s, is shown before the embellishment of Daniel Buren's *L'arc rouge*. Sekula stands on the promontory that once marked Bilbao's historical boundary on the right bank, separating it from the neighbourhood of Deusto. In *The Forgotten Space*, Artxanda's slopes – although a little further to the east – are used for an interview with Arantxa Rodríguez, an expert in planning and urban econom-ics, and a critic of the rhetoric and premises of the 'Bilbao effect'. As she notes, the vista presents an urban archaeology. This spatial arc – both in the diptych of *TITANIC's wake* and in the film-pan of *The Forgotten Space* – is temporally layered, offering an epic sweep of history. Appropriately, in the diptych, Sekula stands close to the spot where a structure called Olimpo once stood, which – in addition to its allusion to the prospect of the gods (and perhaps also to cameras and optical technology) – was once the studio of sculptor Joaquín Lucarini, whose works adorn the city's post-Civil War buildings.

Highly conscious of the history of the panorama, Sekula does not try to create a seamless continuity across the two panels.[19] Marked by a postwar apartment block sited on our side of the river, a rupture registers Bilbao's two aspects: the spectacularly