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'The sweetest music you will ever hear': structural and programmatic uses of concrete by Denys Lasdun & Partners

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Sir Denys Lasdun (1914–2001) was one of Britain's leading Modernist architects. This article investigates his use of concrete both as a structural material and as an exposed finish, pre-cast and *in situ*. It investigates the evolution of Lasdun's structural thinking about concrete, and proposes that Lasdun used concrete as one of a number of means of establishing and protecting his artistic prerogative. Client opinion, Corbusian influence and pressure from Lasdun's architect contemporaries are considered as possible forces shaping Lasdun's decision making on finishes for his buildings. Finally, the National Theatre, London, is examined as a case study of the relationship between politics and exposed concrete architecture under the UK Welfare State. The article concludes that this relationship is complex and does not conform to the conventional narrative of the Welfare State years.

Introduction

For much of the British public, admirers and detractors alike, exposed concrete is their first association with Modernist architecture of the period between the end of the Second World War and the election of Margaret Thatcher as Prime Minister. British architecture in this period used structural reinforced concrete for most buildings larger than two-storey houses, and the architectural journals consistently dwelt on concrete details, concrete construction photographs and above all high-contrast black and white photographs of newly-completed concrete buildings, emphasising their crisp shapes, their chunky strength and their abstract aesthetic properties. Three accounts of the reasons for the dominance of structural and exposed concrete recur in the historiography and journalism covering the period, sometimes in combination. The first, highlighted by Reyner Banham, and many others since, concerns the influence of Le Corbusier's intentionally

rough, expressive post-war concrete work, in particular at the Marseille *Unité d'habitation*. As Banham put it: 'behind all aspects of the New Brutalism, in Britain and elsewhere, lies one undisputed architectural fact: the concrete-work of Le Corbusier's "Unité d'Habitation"'.¹ The dramatic change from the smooth abstraction of Le Corbusier's 1920s' villas was a substantial spur to the international tendency to expose concrete, and often to texture it strongly. Le Corbusier's buildings were much visited and extensively published even whilst under construction, but in fact British architects were slower to copy Le Corbusier's primitivist concrete than the planning ideas of his *unités*, which spawned copies from the 1950s in housing such as the slab blocks of Alton West by the London County Council (LCC) Architect's Department (1955–59).

The second widespread narrative proposes that concrete was more or less a default material in the economic and construction conditions of the

1950s to 1970s. This apparent normality of concrete usage functions at two levels. First, a technical one: reinforced concrete uses far less steel than a steel structure, which made it a much better bet under the materials rationing of the period to 1954. The construction industry accordingly became accustomed to the use of concrete to the point where it gained an unassailable position as the normal way to get a permanent structure up efficiently. Secondly, at an aesthetic level, Adrian Forty has recently argued that concrete's dominance was, for a period, such that it took the emphasis away from materials and was used by some architects to explore shape and function without the distraction of physical substance:

Architects of the 1960s and '70s who used concrete to escape from, or to transcend, matter did so under the supposition that concrete had become normalised as the medium of modernity: its ubiquitous presence for every kind of 'modern' purpose meant that when used for prestige projects it would not draw attention to itself and would simply merge into a universe of concrete modernity.²

A third common explanation for concrete's central position in post-war architecture is that it was felt to be an appropriate material for the architecture of the Welfare State. This association was articulated in negative form by post-modernist critiques, but in its positive recent form is captured in John Grindrod's coinage 'concretopia', an elision of concrete and utopia which he uses to encapsulate a pairing of concrete architecture and progressive political consensus in Britain from Attlee to Callaghan.³ This narrative emphasises the practical and symbolic

advantages of concrete —a material whose industrial associations, urban feel, mass-producibility and connotations of modernity suited the unsentimental, proudly pragmatic spirit of Welfare State expansionism. An ideal of collective technical endeavour towards a common good had been cultivated under the emergency of the Second World War and then espoused by the 1945 Labour Government as the fitting mood for post-war reconstruction. Exposed-concrete hospitals, schools and housing estates suited this sleeves-rolled-up, mucking-in Welfare State ethos: a reasonable job for the many rather than an exquisite job for the few. The New Brutalism, with its pleasure in materials 'as found', made a virtue of this stripped-back architectural palette.

This paper examines these three interlocking narratives of British architectural concrete between the 1950s and the 1970s by looking at the meanings of concrete for a single case-study architect, Sir Denys Lasdun (1914–2001). One case study can neither prove nor refute hypotheses, and any individual practice will have atypical aspects, but Lasdun's near-universal admiration from his architectural peers in the 1960s gives his work and his architectural thinking a significance beyond the small sample size. Through his most internationally celebrated schemes, the new University of East Anglia (UEA, built 1965–70) and the National Theatre (built 1969–76), he became one of the most celebrated proponents of exposed-concrete Modernism in the UK, published and discussed worldwide.

As befits the interlocking and complex nature of the three narratives above, the paper will be

organised not around the narratives in sequence, but around meanings which can be discerned in Lasdun's use of and writing or speaking about concrete. The conclusion will return to the three separate narratives and draw out of the analysis explicit judgements on the extent of validity of the three narratives as accounts of Lasdun's use of concrete, and whether other explanations are also needed.

The first section of this paper looks at Lasdun's structural use of concrete: why he chose it and how he used it. The case will be made in the second section that concrete was a central part of Lasdun's career-long effort to establish and defend his creative prerogative as an artist. The position of exposed concrete and other finishes in Lasdun's architectural art will then be investigated: section three will ask how far Lasdun's concrete was derived from Le Corbusier's; section four will investigate the influence of clients, planners, the public and architectural commentators on Lasdun's choice of finishes, and will ask whether exposed concrete was ever a default finish for Lasdun. Finally, in section five, Lasdun's National Theatre, the single biggest arts building of the UK Welfare State and one of the world's most extensive and perfect specimens of board-marked *in-situ* concrete, will be used to question the 'concretopia' hypothesis, and to propose rebalancing the understanding of the relationship between politics, Modernist architecture and exposed concrete in 1960s' Britain.

This approach to Lasdun's work accepts his creative authorship of his designs—a potentially controversial reading of the supremely collaborative art of architecture. In referring to Lasdun, the constant

involvement of his collaborators is to some extent taken for granted: architects within the cumber-somely-named practice "Drake and Lasdun of Fry Drew Drake and Lasdun" (his practice from 1951 to 1959), and Denys Lasdun & Partners (from 1960); consultant engineers, especially Peter Dunican and others at Ove Arup & Partners; other technical consultants; and building contractors and labourers who produced the structures and finishes specified by Lasdun and his team. As the second section of this paper will demonstrate, however, Lasdun shaped his collaborations and his career very carefully in order to obtain and retain an unusual degree of personal control over the design and completed form and finish of his buildings. It is more than a convenient shorthand to refer to the development of these meanings of concrete as being 'Lasdun's'. The emphasis on the individual architect himself reflects a strongly defended hegemony which he held in his design and construction process. Whilst other models of collaboration were widespread and increasingly diverse in the decades after 1945, Lasdun's defence of an older ideal of the artist as architect was by no means unique, and other leading practitioners of the period who kept comparably close control over their practice include Ernő Goldfinger and James Stirling.

1) Lasdun's structural concrete

It is hardly surprising that as Lasdun began to establish his independent identity as an architect in the 1950s, much the biggest influence on his architecture was his experience with Berthold Lubetkin's practice, Tecton.⁴ After studying at the Architectural Association in the early 1930s, and a brief period

working with Wells Coates, Lasdun joined Tecton in 1938, staying there with an interruption for war service until the dissolution of the practice in 1948. Even after that Lasdun continued until 1956 to complete the design and execution of a large housing estate which began within Tecton: the Hallfield Estate in Paddington.

In the 1930s Tecton had established itself as one of the most technically competent and artistically rich practices in the development of viable reinforced concrete structures for architectural purposes. Tecton's understanding of the construction practicalities of concrete, as well as its engineering properties, was grounded in experience, and in a mutually formative collaboration with Ove Arup and his practice.⁵

As a partner in one of the successor practices continuing Tecton jobs, Lasdun inherited not only a large concrete building site, and Tecton's attitude to concrete, but also the close relationship with Ove Arup & Partners. Concrete was to remain, as a structural material, the natural choice for Lasdun throughout his independent career. This habitual use of concrete found itself little challenged in the climate of the UK construction industry during the 1950s and 1960s: with the initial spur of post-war steel rationing, followed by energetic marketing of concrete by the cement industry, the building industry developed considerable expertise in the construction of reinforced concrete by the later 1950s.

Despite the ubiquity of concrete, and fast-growing construction expertise with it, it remained by no means necessarily the cheapest structural option for many buildings where it was used. Other technical advantages were often cited, and

excitement at the potential of reinforced concrete was also a major factor. As Lasdun said in 1965, 'Believe me, the sweetest music you will ever hear is "concrete" on your own site.'⁶ In the case of the UEA residences (which went out to contract in 1964), for example, logistical rather than economic advantages were cited: the engineers (Ove Arup & Partners), quantity surveyors (Davis Bellfield & Everest) and architects stated a joint preference for using a structural system of pre-cast panels, partly because of a shortage of building labour in Norwich relative to the amount of construction going on at the time (Fig. 1). To establish whether pre-cast panels would be financially viable they put the design out to tender at the cost plan stage—earlier than would normally be the case. The costings from different contractors were strikingly divergent, reflecting different methods, including on- and off-site casting, and rival ideas for how to crane pieces into place across a large, boggy site. Five tenders were obtained for stage one, ranging from £206,767 to £434,380. Only the lowest of these beat the quantity surveyors' estimate for concealed, structural-brick cross-walls internally: £210,000.⁷ The one cheaper tender had been questioned by the quantity surveyors, and slightly increased, but according to Arups the valuation of its floor units 'still hardly covers the cost of materials', and 'external wall units are changed in appearance and will require further treatment (which was not included in their price)'.⁸

In the estimate for brick vertical structure the outer walls would still have been concrete, presumably for reasons of architectural expression or aesthetics, suggesting that concrete was important to

Figure 1. University of East Anglia (UEA), Denys Lasdun & Partners, built 1965–70. Construction photograph showing the student residences being assembled by a crane on tracks, carrying pre-cast components from the casting yard at the centre of the site. On the right the Teaching Wall is being constructed from a pre-cast system tied into *in-situ* cores. (Lasdun Archive/RIBA Library Photographs Collection.)



Lasdun's conception of the buildings. That the architects and engineers continued to press for pre-cast concrete throughout, despite its greater cost, suggests excitement at this construction technique. Pre-casting was not cheaper, but merely 'compares reasonably with a frame built in traditional construction'.⁹

This excitement at concrete structural ideas and construction techniques is seen in the progressive development of Lasdun's thinking about structure through the 1950s and 1960s. He experimented

spatially and compositionally with the options which reinforced concrete engineering opened up. Thus the initially cellular tendency of the Hallfield Estate and Hallfield School (built 1952–5) gave way to floor-plates supported on columns at the UEA Teaching Wall and Lasdun's buildings for the University of London, where partitions could be built or demolished as appropriate to changing institutional needs. This flexibility was achieved by moving structural columns to the building's perimeter, and to flank circulation routes—places

where structure would not obstruct possible future layouts. In an unbuilt scheme for the New Museums Site, a University of Cambridge science area (1961–2) and again at UEA (Fig. 2), Lasdun and his team explored the relationship between structure and advanced servicing for science laboratories, carrying pipes and ducts vertically through voids in C-shaped concrete columns, and horizontally behind fascia claddings below windows. Again this integration of servicing and concrete structure improved future flexibility for disciplines to grow, shrink or merge by allowing partition walls to be moved without re-plumbing and re-wiring. These ideas were being explored too by the group around Leslie Martin, and by the nascent architectural design team within Ove Arup & Partners, soon to become Arup Associates.¹⁰ It is clear from UEA publication drawings that Lasdun and his team were excited by the challenge of integrating these new techniques with their planning ideas into practical, beautiful architecture.¹¹

In parallel with servicing, Lasdun explored hybrid structures, combining pre-cast concrete with *in situ*. His 1950s' pre-cast was often 'permanent shuttering': pre-cast panels into which *in-situ* concrete would be poured, ensuring a more reliable quality of finish than was available in normal site conditions. From the mid-1960s onwards Lasdun's use of pre-cast concrete grew more extensive: beautifully smooth fascia panels with intricate rainwater detailing, but also floors and columns were craned onto the UEA Teaching Wall. *In situ* was still present, particularly in stair and lift cores, which also contained any room shape which did not fit the standard floor-plate; the versatility of *in situ* cir-

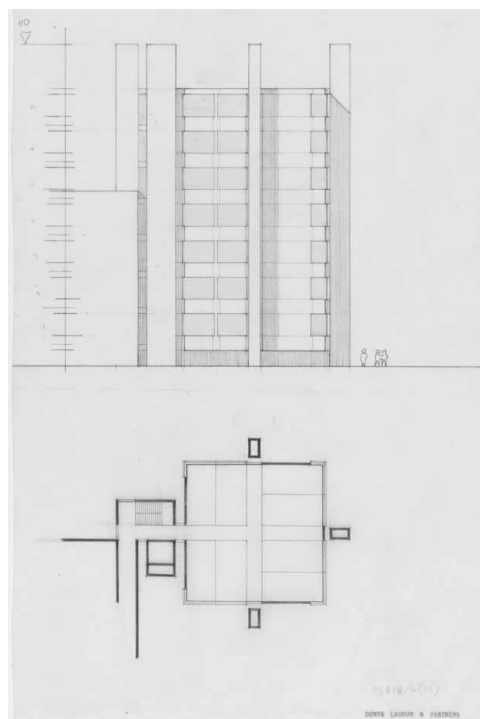


Figure 2. Unbuilt scheme for science towers on the New Museums Site, Cambridge, Denys Lasdun & Partners, c. 1961. The sketch shows in plan and elevation the separation of hollow vertical structural columns, which were to carry services. (Lasdun Archive/RIBA Library Drawings Collection.)

cumvented expensive one-off adaptations to the pre-cast kit. As a bonus, the core stabilised the pre-cast structure.

Lasdun himself traced the pattern of *in-situ* core and pre-cast surrounds to the pre-cast fin-columns which supported one edge of the floor-plate at Hallfield School:

The technique of precasting at Liverpool [University Sports Centre, built 1963–6] has developed from the early experimental precast work done

fourteen years ago at Hallfield School. Both Liverpool and Leicester [University, Charles Wilson Building, built 1964–7], from a structural point of view, are based on a structural core in situ with perimeter structure precast.¹²

A more poetic structural inspiration was Lasdun's development on the theme of Le Corbusier's influential Dom-ino idea. The Dom-ino was an unadopted proposal for rapid, industrialised housing production to meet urgent demand after the First World War. However, to Lasdun it represented the idea of a reinforced-concrete architecture where horizontal plates did not impose divisions on the space below, as load-bearing walls did. The Dom-ino seemed to promise vertical discontinuity with horizontal continuity: very large continuous floor-plates uninterrupted by anything more substantial than some widely spaced columns.

The cellular teaching and research buildings described above had an element of this thinking, as did the horizontal displacement of decks within the Royal College of Physicians (RCP, built 1961–64). The National Theatre took it further, with large plates of waffle-grid concrete supported only on the walls round staircases, lifts and vertical service runs, and on slender slab columns. The rigidity of the waffle grid, strengthened by pre-stressed concrete perimeter parapets, allowed Lasdun and his team to place columns to suit aesthetics, and basement car-parking layouts. Outside, the cantilevered decks almost appear to float.

Lasdun may have used structural concrete by default, then, but he was serious about understanding and artistically exploiting it.

2) Concrete and the artistic prerogative

If concrete was a major artistic stimulus to Lasdun, it also allowed him to defend his own artistic freedoms within the design and construction process. Lasdun believed he was responsible for producing buildings which provided something beyond the brief. As he famously said, 'our job is to give the client, on time and on cost, *not* what he wants, but what he never dreamed he wanted and, when he gets it, he recognises it as something he wanted all the time'.¹³ He defended the status of the architect strongly when he felt it to be under threat, writing angrily when UEA proposed to pay fees mid-job in an attempt to smooth-over disagreements: 'DL protested again at the monstrous behaviour of the V [ice]-C[hancellor] regarding his correspondence on the subject of fees and he was told bluntly that we had never been treated by any other client in that way before and it was not going to happen again. We did not ask for fees until they were due nor were we tradesmen.'¹⁴ Instead, Lasdun consistently referred to architecture as an art, and fought to maintain personal creative control of his output.

The ideal of the architect as a creative visual artist had always presented practical and intellectual difficulties, but the twentieth century saw immense challenges to it, imposing on the lead designer numerous collaborators with varying degrees of power to change aspects of a scheme. Many of the most interesting commissions in the 1950s and 1960s were for local authorities, universities and central government, making architects responsible to committees as clients. Bureaucratic controls on commissioning and construction were on the rise,

and there was pressure towards standardisation of design and construction techniques.

Simultaneously, increasing structural and technological sophistication spawned consultants: structural, mechanical, electrical and acoustic. Quantity surveyors adjudicated between architects, engineers, clients and contractors, and contractors themselves sprawled into complex patterns of sub-contracting to specialists, taking the output another step from the architect's control. Local and central government building regulations and planning restrictions shaped what architects could do, and planning departments and the Royal Fine Arts Commission asserted their rights to aesthetic influence over designs.

Within architectural partnerships themselves the amount and scale of work available to successful teams at the height of the 1960s' building boom led some practices to expand considerably. Basil Spence's practice, for example, grew rapidly, and split in the early 1960s into two London practices and one in Edinburgh, all bearing Spence's name.

Nor was this increasingly sprawling collaborativeness universally resisted by architects as an unwelcome intrusion. Communist Party architects in Britain, and their sympathisers, favoured for both ideological and practical reasons large local and central government architecture offices, divided into anonymous, anti-hierarchical teams of architects, engineers and other technical specialists.¹⁵

Lasdun disagreed strongly with the advocates of anonymous teamwork and generic building systems. He and Andrew Derbyshire, a vocal advocate of broad, multi-disciplinary collaboration, rowed about it publicly during Lasdun's lecture inau-

gurating the RIBA's 'Architect's approach to architecture' series. When Dan Lacey of the Ministry of Education gave a talk in the series, advocating system-building and teamwork, Lasdun lampooned Lacey's praise for the systems-built Hertfordshire primary schools in a private memorandum: 'the general intellectual level of this talk would have disgraced even primary school standards'.¹⁶

If 1950s' and 1960s' jobs tended to limit the creative identity of the architect and pushed architects towards becoming the coordinators of technical teams, this was never something Lasdun accepted. Instead he structured his practice, career and each individual job with increasing skill to wrest control of the final design from the many rival inputs. He defended his design autonomy fiercely against intrusions. In the process, according to a partner from Davis Bellfield and Everest, Lasdun's preferred quantity surveyors, he did not get the best out of his collaborators.¹⁷ This seems to have been a price he was willing to pay: what he lost in collective wisdom from teamwork he hoped to more than regain in the undiluted strength of his personal architectural vision. He did everything he could to establish and protect this ability to realise his designs in a form with which he could be satisfied.

Lasdun defended his reputation aggressively in order to win jobs affording a budget that would leave room for artistic expression. He pressured journalists and editors writing about him: 'DL said his wish to censor "fact" in McC's article would apply equally to praise and criticism, i.e. if he liked something for the wrong reason, based on incorrect facts, it would be censored'.¹⁸ Lasdun controlled production and publication of images of his

projects.¹⁹ He drafted statements about his architecture, to which he then stuck unwaveringly to avoid misspeaking: for example, the repeated motif of the 'landlocked harbour' became from 1966 the recurrent description of the central grassy area at UEA, used by Lasdun, his partners and associates whenever they spoke of the project.

Within his office Lasdun defended his personal artistic power even from partners and associates. They contributed ideas, but he maintained a veto over all design work, keeping his practice to a maximum of around twenty—small enough for him to lead and oversee the crucial design stages of every project. Architects such as Edward Cullinan or Jan Kaplický, who wanted to establish strong personal design identities, left Lasdun's office fairly quickly. Those who chose to spend their careers in Lasdun's office traded personal control of designs for working on thrilling jobs in a team dedicated to the highest standards of architectural art as they defined it.

In the 1960s, when his reputation was at its height, Lasdun's restriction on the amount of work the practice accepted in order to protect his creative process from too much time pressure meant refusing enviable jobs. These included the British Embassy in Brasilia (later offered to the Smithsons), the BOAC terminal at Idlewild (later built by Gollins Melvin Ward) and Dorman Long's research building (later offered to James Stirling).²⁰ Turning down high-budget work takes courage, losing considerable income for partners and resisting the temptation of the thrilling outline design stages of a good new job. So strong was Lasdun's commitment to this principle that he rejected all offers of new work

through the five years which represented the height of his reputation and success: the National Theatre, won at the end of 1963, is job number 552. Job 553 was Hill House, a commission he started discussing in the Autumn of 1968.²¹

Lasdun also included in the programme extra time for each design to develop through client consultation, outline design, re-consultation, redesign and time to detail the final scheme with proper focus. Thus, when busy, Lasdun alerted prospective clients to delays before he would start designing their projects: he told Liverpool University, in December, 1960, of a nine-month delay before he could start on their sports centre, and in March, 1961, warned Leicester University of a 14-month delay before he would begin designing their dining facility.²²

The same desire to keep the time free for architectural design is seen in Lasdun's disengagement from the many other activities which often accompany architectural success. After a brief spell teaching at the Architectural Association in the early 1950s Lasdun turned down regular teaching appointments, rejecting an approach from Yale among others, although he gave a lot of one-off talks in architecture schools, and was helpful with groups wanting to visit his office or his executed buildings. He also avoided time-consuming posts of honour or power, refusing to be nominated for the RIBA Presidency and declining an invitation to lead the Cambridge Department of Architecture on Leslie Martin's retirement.²³

Lasdun's defence of his design autonomy is also seen in the way he managed the briefing process. From at least the RCP (records for earlier projects

are typically too sparse to tell) Lasdun met and talked with his client committees extensively before starting to design. He liked whenever possible to observe the client institution at work. He explained the formative importance of this consultation in 1965:

All this can be demonstrated by a skeletal model to a committee, including lay people who may not be able to read plans. They will have participated in all the arguments. A trustworthy rationale is built up. [...] The rationale may take six months or a year or more. It has to be impeccable.²⁴

The main aim was to devise a sound brief based on properly understanding the needs of the building's users. At the same time, this careful involvement of the committee in developing a rationale also defended his artistic design process, which would begin in earnest only once the outline had been agreed. Lasdun involved his clients heavily in drawing up the brief, then excluded them entirely from the decisive phases of his creative design process, to prevent what he saw as artistic interference. They therefore needed fully to support the outline:

In their minds [...] each member of the committee will be dressing that skeletal model up as he thinks it is going to look, some in stone with mouldings, others in steel and glass. [The rationale [...]] will have to sustain the concept when the shock of its final appearance is made known.²⁵

Notice that the scheme's appearance is 'made known' rather than 'brought forward for consultation' or any such formulation—aesthetics are Lasdun's personal prerogative.

As for planners' attempts to interfere with his schemes, Lasdun was even tougher in his defence.

He researched and normally conformed to every planning restriction on a site—light angles, plot ratios, building lines, master plans and so on—in order not to gamble on planners permitting rule-breaking, the way an architect like Richard Seifert often did in the pursuit of increased lettable floor areas for commercial clients.²⁶ Once Lasdun had factored in pre-existing restrictions, any further interference by planners was fought off energetically. In controversial cases the Royal Fine Arts Commission was often involved and generally backed Lasdun's designs. In his London jobs Lasdun repeatedly organised private meetings to get LCC or GLC (Greater London Council) architects and planners on-side.²⁷

Lasdun's pronounced pattern of defending his creative prerogative was furthered by some of the ways in which he used concrete. In particular, Lasdun increasingly used the material to defend designs from artistic interference—witting or unwitting—by engineers or contractors. The first role of concrete in this defence is that, when used with structural restraint, concrete allowed architects to design by rule of thumb initially, with engineers able retrospectively to calculate reinforcement requirements without much changing the location, shape or size of the concrete members.

Lasdun's designs of the 1950s periodically relied on spectacular engineering: his winning design for a pre-stressed concrete bridge competition (1950), and the footbridge at Whiteleigh in Devon that was commissioned on the strength of that win (1953–54; *Fig. 3*), involved close collaboration with engineers to achieve expressive angularity. Lasdun's unsuccessful competition entry for Liverpool Metropolitan Cathedral (1960; *Fig. 4*) involved

Figure 3. Whiteleigh Footbridge, Devon, Denys Lasdun of Drake & Lasdun, 1953–4 (demolished). Pre-stressed concrete engineering exploited, at this early stage in Lasdun's career, for visual effect. (Lasdun Archive/RIBA Library Photographs Collection.)



a highly expressive roof structure—probably inspired by the vogue of that moment for hyperbolic paraboloids—in which twisted strips of roof spanned the entire church, their apex over the central altar.²⁸ If he had won the competition it would presumably have required substantial engineering involvement, just as Jørn Utzon's winning Sydney Opera House drawings became in

execution a major achievement for Ove Arup & Partners.

The RCP represented a last gasp of this sort of thinking in Lasdun's work: whilst the structure does not particularly look like spectacular engineering, the double cantilevers of the library front, with the balcony level not even having a continuous rigid floor-plate to support the corners, are in fact

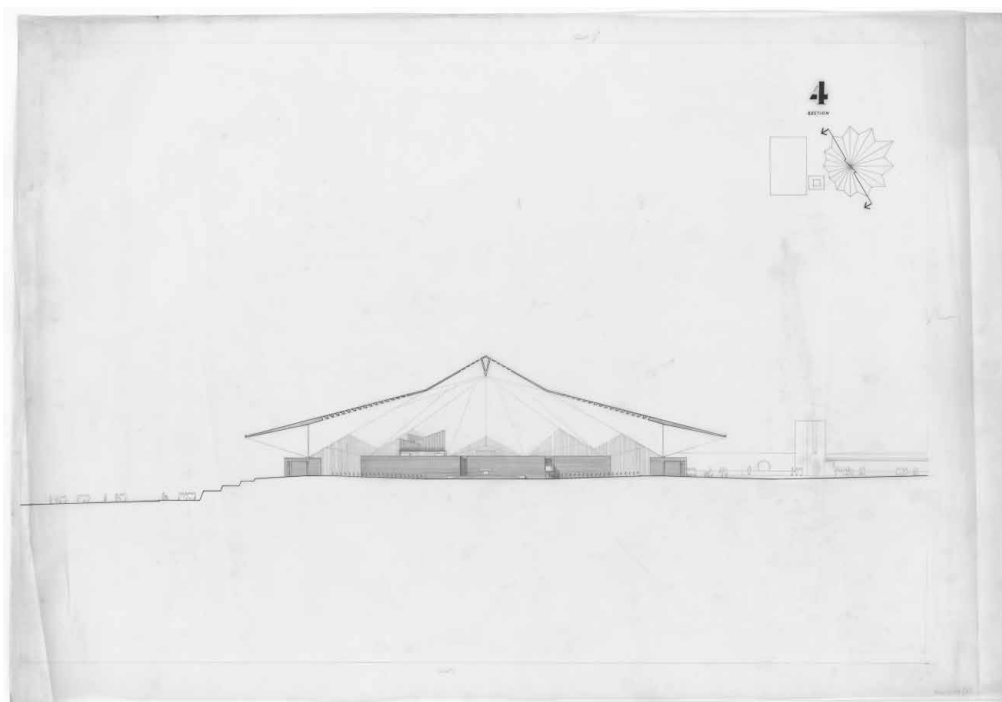


Figure 4. Unsuccessful competition design for Liverpool Metropolitan Cathedral by Denys Lasdun & Partners, 1960. This staggered section shows the way that every other rib of the roof starts low on the perimeter and ends at the apex, whereas the ribs they flank start high on the perimeter and end at a point directly below the apex, the roof between ribs twisting as it rises. (Lasdun Archive/RIBA Library Drawings Collection.)

a *tour de force* of pre-stressing.²⁹ After this, the only time that Lasdun courted serious engineering difficulties was at the National Theatre, where it was problematic ground conditions, and the volume of the two larger auditoria and the scale of the fly towers above which imposed the challenges, not architectural shape-making.³⁰ Lasdun's other 1960s' buildings tended to stand on concrete structures chunky enough and with enough columns to leave room to build-in substantial amounts of steel reinforcement wherever required. He indulged in

few histrionically slim cantilevers, curvaceous vaults or unnecessarily large spans. Instead, by using similar structural ideas for a sequence of buildings, Lasdun and his team did not need to discuss with their engineers every tweak to each design. The major such sequence in Lasdun's work begins with the Charles Wilson Building (Fig. 5), goes on through libraries at UEA (Fig. 6) and SOAS (Fig. 7), his second-place-winning competition scheme for the Burrell Collection (1970), and eventually into the European Investment Bank in Luxembourg

Figure 5. Charles Wilson Building, University of Leicester, Denys Lasdun & Partners, built 1964–7. This was the first to be built of Lasdun's sequence of university buildings largely constructed and clad in specially designed concrete components cast off-site, and tied into an *in-situ* concrete core. (Photograph by Barnabas Calder.)



(1974–80, Fig. 8). By designing in substantial service runs Lasdun also sought to protect his buildings from unsightly additions by mechanical and electrical installers, although some of his clients' facilities management teams have not availed themselves of these in subsequent years.

At a period which gloried in technological innovation, Lasdun almost always resisted the lure of being first to apply exciting new construction technologies, concrete or otherwise. Admirers and opponents of James Stirling or Gillespie Kidd and Coia argue over the culpability or otherwise of



their adoption of untried techniques and technologies which led to major technical problems in some of their buildings. Lasdun largely avoided the issue by waiting until a technique was successfully established before he would use it. His recurrent use of similar claddings ensured good technical performance, with drainage details, for example, becoming so well handled that the exposed faces of Lasdun's late 1960s' buildings tend to weather strikingly well. A handful of his buildings have had water penetration problems from poor execution or failed waterproofing technologies on joints, and in a few cases his *in-situ* concrete has spalled from bad work on the building site, but this is the entire extent of Lasdun's building failures. His work is, for a leading architect of his time, strikingly lacking in technical problems. This caution can be seen as

another layer of defence, in this case of his all-important reputation. Prominent building failures, as Stirling discovered, harm even the most artistically admired career.

Another way in which Lasdun used concrete to protect his architectural art from interference or marring lay in his general preference for pre-cast concrete surfaces over *in situ*. As early as 1955 he wrote of pre-cast as a way of gaining control over the potential unpredictability of the building site: at Hallfield School the pre-cast would 'discipline and industrialise' the building process.³¹

Lasdun's pre-cast structural claddings developed increasing sophistication and accomplishment in the 1960s, starting with the Charles Wilson Building, Leicester. In Autumn, 1963, just as preparations for construction began, the University's Robbins Report expansion demanded an increase in capacity from serving 1,700 lunches to serving 2,750.³² The pre-cast panels of the original design are in good condition, but the last-minute *in-situ* addition to the roof shows extensive patching where reinforcement rods too near the surface have rusted and the concrete above them has spalled. The pre-cast, made in an off-site prefabrication facility, was cured much more carefully, its temperature controlled by cold water and steam. The depth of surface concrete protecting the reinforcement bars from the rainwater and air that would corrode them could be more reliably controlled, and then tested after casting with an electronic meter. Any pieces which were not good enough could simply be rejected rather than requiring partial demolition on site.³³ UEA's concrete shows a similar difference: Teaching Wall panels—cast off site in a specialised

Figure 6. The University of East Anglia (UEA), Denys Lasdun & Partners, built 1965–70. The library shows the increasingly rich modelling of Lasdun's pre-cast façade systems. (Photograph by Barnabas Calder.)

'The sweetest music you will ever hear':
structural and programmatic uses of
concrete by Denys Lasdun & Partners
Barnabas Calder

Figure 7. The School of Oriental and African Studies (SOAS), library extension, Denys Lasdun & Partners. Part of the University of London redevelopment on site from 1969. Comparison with UEA and the Charles Wilson building shows the variations in corner details, depth of window positions and proportions. After the Charles Wilson building the others make a clearer expression of the slab-like perimeter columns which free the floor-plate to be partitioned non-structurally. (Lasdun Archive/RIBA Library Photographs Collection.)



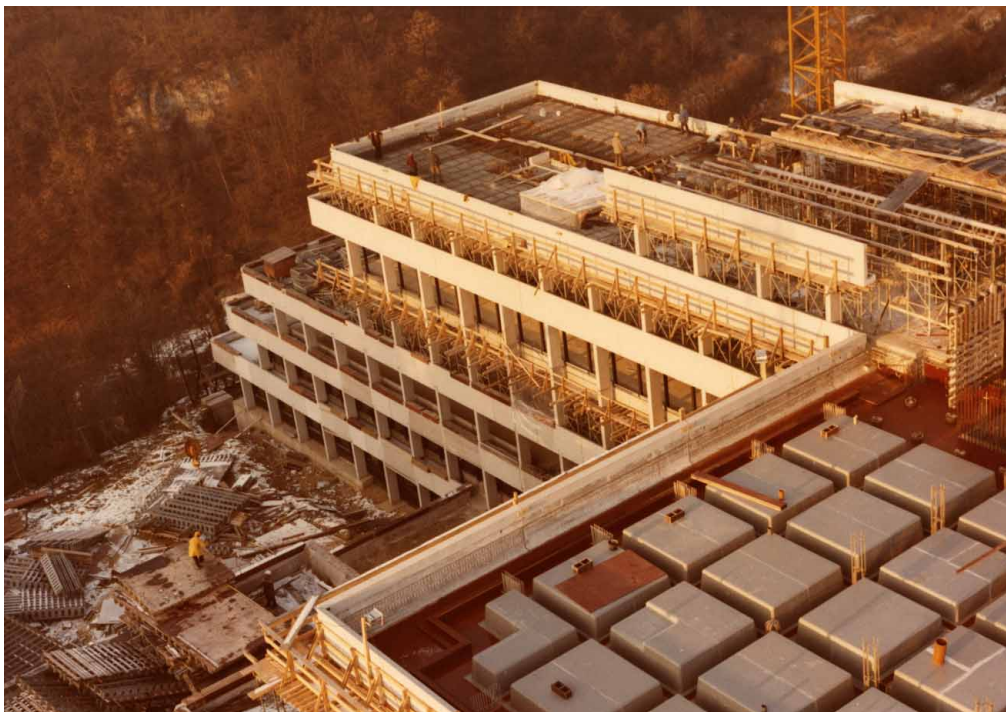


Figure 8. European Investment Bank, Luxembourg, Denys Lasdun, Redhouse & Softley, 1974–80: construction photograph. The ends of the wings are stepped—relatives of the terraces of the National Theatre—but the long elevations are closer to the previous two illustrations. In the foreground can be seen the fibreglass trays into which the concrete waffle grid was to be poured. (Lasdun Archive/RIBA Library Photographs Collection.)

facility—remain impeccable (Fig. 9), but *in-situ* walkways and plant towers, and the panels of the residences pre-cast (uncharacteristically of Lasdun) with an innovative on-site technique, spalled in places and have required repair.

The only building on which risky *in-situ* concrete dominates as an exposed surface is the National Theatre. The decision was not taken lightly, with a full and cautious specification, careful site monitoring, trial panels, galvanised reinforcement to prevent rust stains or spalling and the thickness of

concrete cover before the first reinforcement bar was an inch greater than the normal specification of the period. The bonding of the unusually white concrete mixture with the galvanised reinforcement was then tested, and 20% precautionary extra strength built in.³⁴ By 1968–9, when the choice of finishes for the National Theatre was finalised, the building industry was experienced in producing really good-quality *in situ*, and Lasdun's former assistant, Derek Potter, recalls driving Lasdun round London to inspect finishes to see how they

Figure 9. A detail of the Teaching Wall at the University of East Anglia (UEA), c. 2008, showing the good condition of the off-site pre-fabricated concrete, well-detailed and well-made to resist weathering. (Photograph by Barnabas Calder.)



Figure 10. Keeling House, Claredale Street, Bethnal Green, London, Drake & Lasdun of Fry, Drew, Drake & Lasdun, 1956–9. The hefty, mid-grey *in-situ* concrete of the structure, showing the marks of its wooden formwork, is clad for the balcony fronts and gable ends in smoother, lighter-coloured pre-cast panels cast into the structure as permanent shuttering. Lasdun referred to these panels as 'reconstituted stone'. The building has since been coated in a thick paint which covers the textures and colours. (RIBA Library Photographs Collection.)

were weathering.³⁵ Even with all this care, and despite the high quality results obtained at the National Theatre, this use of exposed, board-marked *in situ* for the most important parts of a building was almost a one-off in his work. After the National Theatre was completed Lasdun's remaining concrete buildings use very little exposed *in-situ* concrete. Although the National is his masterpiece, Lasdun was predominantly a pre-cast concrete architect, relishing the control it gave him.

The final way in which concrete interacts with Lasdun's defence of the reputation which won him good commissions, and the artistic freedom which enabled him to respond with good buildings, lies in the interaction between Lasdun's materiality and other people's attitudes towards concrete. This is covered in the following two sections.

3) Lasdun's attitudes to exposed concrete, and the influence of Le Corbusier

The next two sections investigate the intertwined issues of Lasdun's own attitudes towards exposed



concrete, and his willingness or otherwise to be influenced by the attitudes of others to the material. To put it another way, they ask how far Lasdun's finishes were part of the mechanism by which Lasdun defended his artistic vision, and how far they were part of the artistic vision which he worked so hard to defend.

The hypothesis stated in the Introduction, that Le Corbusier was the key influence for post-war British architecture, unsurprisingly receives support from the career of Lasdun, who explicitly recognised the influence of Le Corbusier but of almost no other contemporary architects.³⁶ One can tell the tale of Lasdun's developing use of exposed concrete through the 1950s and 1960s as increasingly courageous echoes of Le Corbusier's *Unité d'habitation*, but later in this section a nuancing of this view will be proposed.

Lasdun's early 1950s' concrete (Hallfield Estate, Hallfield School, Usk Street housing) is almost entirely clad in pre-cast permanent shuttering and

brick. At Keeling House, Claredale Street, built 1956–9 (Fig. 10) pre-cast and brick still predominate but have been joined by quite substantial amounts of board-marked *in-situ* concrete reminiscent of Le Corbusier's mixture of pre-cast and *in situ* at the *unités* and La Tourette. However, even in a lower-budget building like Keeling House, the board-marked *in situ* appears on secondary elements like the service core, the side walls and the base, whilst the balcony fronts, access decks and main gables were clad in smooth white pre-cast panels laid in a pattern reminiscent of Le Corbusier's cladding at the Pavillon Suisse, which Lasdun reported as the single biggest influence on his own work.³⁷

At Lasdun's luxury flats overlooking Green Park, in St James's Place, Westminster, built 1958–61, the use of exposed concrete is even more suggestive of a growing personal predilection for the material: the site, next to Vardy's eighteenth-century Spencer House, was sensitive even in the climate of the 1950s.³⁸ What looks from a distance like exposed concrete on Lasdun's exterior is mostly polished grey granite, but on the roof, where Lasdun and his multi-millionaire client escaped the eyes of planners and neighbours, Lasdun indulged in a little Corbusian fantasy (Fig. 11): the roof garden echoes from the roof of the Marseille *unité* a zigzag concrete staircase with simple metal hand-rail, and exposed board-marked concrete walls.

With the university commissions of the early- to mid-1960s, Lasdun's attitude to concrete seems to have become bolder or more positive: their budgets were considerably tighter than those of the RCP or the St James's Place flats, and their con-



Figure 11. Flats at 26, St James's Place, London, Drake & Lasdun of Fry, Drew, Drake & Lasdun, completed by Denys Lasdun & Partners, 1958–61. Above the granite, brick and bronze of the luxury flats below, the penthouse roof-garden of the client allowed the tougher Corbusian vocabulary of exposed concrete to emerge. (Lasdun Archive/RIBA Library Photographs Collection.)

texts were typically less historically sensitive than either Green Park or Regent's Park. However, the prestige of university buildings was high at a period when higher education and university research were being expanded in an atmosphere of optimism and positivity, and when new British university buildings were being published internationally as exemplary. At Leicester, Liverpool, UEA, Cambridge and London, Lasdun became increasingly confident and muscular in exposing pre-cast concrete beneath magnificently forceful, over-scaled *in-situ* service towers.

Board-marked *in situ* nevertheless remained a lower-status material in Lasdun's palette until

Figure 12. The National Theatre, Denys Lasdun & Partners, 1969–76. Detail of the strongly textured, wood-shuttered, *in-situ* concrete of the foyers. (Architectural Press Archive/RIBA Library Photographs Collection.)

1968–9, when Lasdun suddenly used it for prestigious parts of two high-budget buildings. We have seen above its predominance at the National Theatre. Where brick appears, in the landscaping and on the workshop block to the rear, it defers to the concrete, and all signage, carpets, fittings and furnishings were rigorously understated to allow the beauty, expressiveness and refinement of the concrete surfaces to dominate. I have suggested elsewhere that the choice of this concrete finish may have been influenced by the aesthetics of the beautiful models of the National Theatre which had been its only physical expression for five years by the time the building went on site: the grainy texture of the concrete resembles strikingly the grainy balsa of the models, especially in the high-contrast black and white photographs Lasdun commissioned both of models and of finished building.³⁹

Whatever the balance of balsa models and Corbusian influence on Lasdun's concrete textures, they were never nearly as rough as Le Corbusier's, and this seems to me to be a qualitative difference not just a quantitative one. Partly through the site conditions of the immediate post-war moment in France, partly through his preference in his later years for workmanship that was *mal foutu* ('messed up') Le Corbusier's finishes at the *unité* and above all at La Tourette are rough, and in the latter case sometimes shockingly so.⁴⁰ Lasdun's concrete never plays with this artistic capability to disconcert and to remind you of the messiness and uncertainty of the building site. I would argue that this is not a failure of courage in Lasdun's work, but a deliberate choice of a



different route: the sensibility of Lasdun's concrete seems closer to that of Mies van der Rohe's steel. For his honeymoon in 1954 Lasdun visited Chicago, not France, meeting Mies and visiting the IIT and the Lake Shore Drive flats. Whilst the influence of Mies is generally less apparent in Brutalist architecture after the Smithsons' Hunstanton School than the obvious concreteness of Le Corbusier, the craft of Lasdun's architecture has considerably more in common with the German perfectionist than the Swiss primitivist. This is seen in the rarity of Lasdun putting his faith in the messy building site to produce his concrete finishes, more often trusting the quality control of factory pre-cast as discussed above.

The Miesian sensibility also appears in the exceptional quality of *in-situ* finishes which Lasdun's team and the contractors, McAlpine's, managed to achieve at the National Theatre: the carpentry for the formwork was so neat, and the mixing, pouring and vibration so good that corners are impeccably sharp and clean, and there is little honeycombing (Fig. 12). Even though the textures of the

wood boards are expressed with exemplary clarity, only in an area of the basement clearly used for experimenting with board-marking techniques have fragments of the wood become inextricably set into the concrete surface so that they pulled off during the striking of the formwork and remain visible now. By the time they got to the superstructure such mistakes were avoided or the work was condemned. The National Theatre's concrete was cured meticulously and for longer than usual under wet fabric to prevent the exothermic setting process from causing crazing or cracking.⁴¹ Joints between one lift (a single session of pouring) and the next were concealed by the formwork carpenters and concrete pourers with the highest craft to produce architectural continuity. This artful building craft resembles more closely Mies's impeccable welded and sanded steel, concealing construction processes in favour of a perfect spatial and structural expression, than Le Corbusier's celebration of concrete construction processes in all their potentially distracting messiness.

Supporting this view of Lasdun as being significantly influenced by Mies as well as Le Corbusier, a group of Lasdun's elevations dating from the 1950s to the 1970s were clad in dark brown, bronze-anodised aluminium and tinted glass reminiscent of Mies's Seagram Building: Peter Robinson department store, built 1957–9 (Fig. 13); University of London spine block, on site 1969, and not unlike the Seagram Building lain on its side on concrete legs (Fig. 14); early-1970s schemes for a Fenchurch Street office building (Fig. 15).

At almost exactly the same moment that Lasdun specified high-craft, board-marked *in situ* for the

National Theatre, he also did so for Hill House, a private country house on a good budget (built 1971–2). If this is a matter of Corbusian influence working its way into Lasdun's design vocabulary, it took its time: Lasdun's two prestigious *in-situ* projects were specified in 1968–9, several years after Le Corbusier's death and twenty-two years after the first *unité* went on site. If Lasdun's finishes were predominantly a matter of personal artistic preference, this slowness suggests either that he was not immediately enamoured of Le Corbusier's concrete or that he took time to gain confidence that *in-situ* work could be produced to a sufficiently resilient and reliable standard for prestigious parts of prestigious buildings.

The danger of regarding Lasdun's materiality as being a slow progression towards full Corbusianism (and most British architects of the period showed similar caution in following Le Corbusier's lead) is that it places Lasdun's other work of the 1950s and 1960s into a second-best category: architecture where Lasdun's nerve failed and he did not muster the strength to push through exposed *in situ*. In fact the different stages of Lasdun's materiality each have their own dynamics and their own strengths. The National Theatre is undoubtedly a remarkable statement of form and texture, but the RCP has its own qualities as the last and most refined expression of Tecton's black-and-white material contrasts (Fig. 16). The RCP has a Mannerist sophistication which Lasdun then abandoned, but which was magnificent: never again would Lasdun achieve such openly artistic effects as the contrast of the taut rectilinearity of the white, apparently floating library, standing on its too-slender

Figure 13. Peter Robinson department store, The Strand, London, 1957–9 (demolished), Drake & Lasdun of Fry, Drew, Drake & Lasdun. The upper façade is clad in a specially made pressed-bronze system, unlike Lasdun's later dark-brown buildings, which exploited the increasing availability of bronze-anodised aluminium. (Henk Snoek/RIBA Library Photographs Collection.)



columns, with the sullen dark brick of the lecture theatre, humped into the ground and distorted in ways which should not be possible for a brick wall. One seems barely to touch the ground, the other barely to surface above it. One is elegant, the other threatening. One allows free entrance below, the other recalls primitive defences or perhaps a high-status stone-age burial. The juxtaposed

elements could be read as the extremes of human experience and achievement: the white library appears as a statement (Lasdun's equivalent of Mies's later *Neue Nationalgalerie*) of what Schinkel or Iktinos and Kallikrates would have done with twentieth-century engineering; the black lecture theatre seems to speak of natural disaster or nuclear holocaust, its melted, twisting walls and

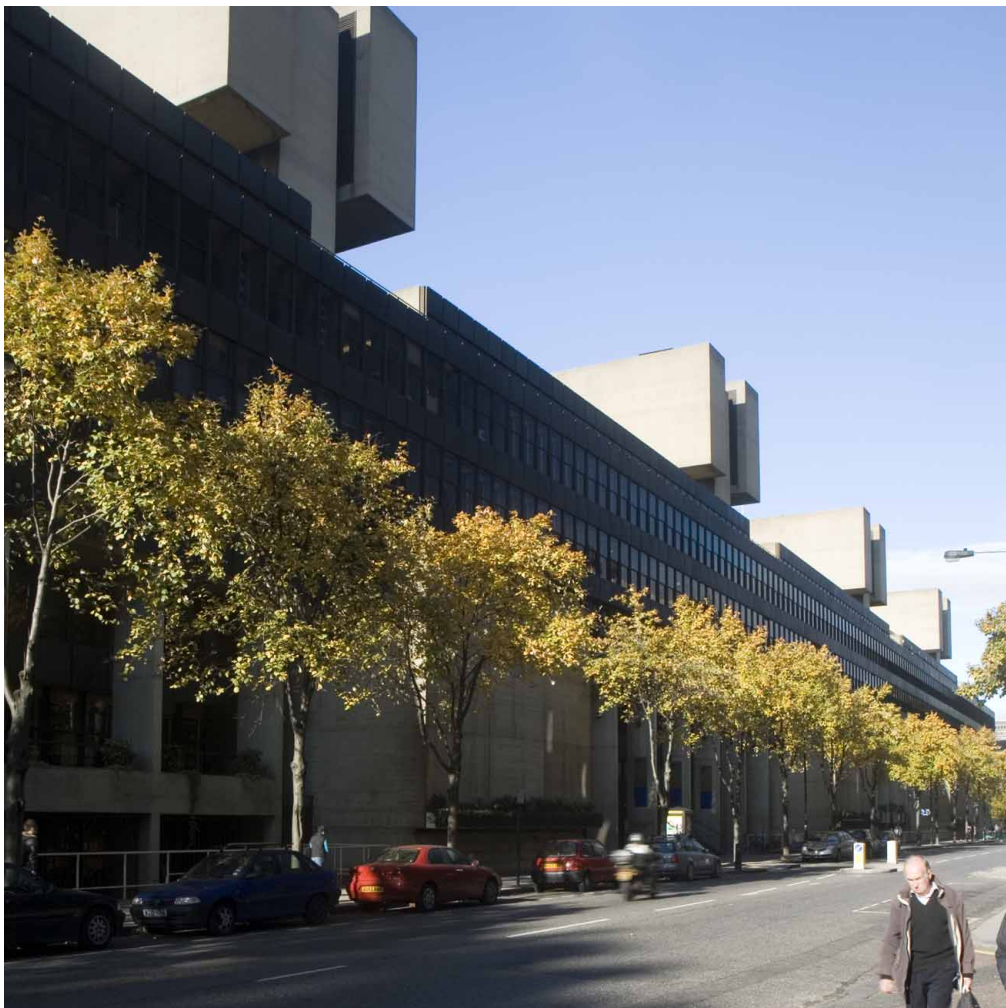
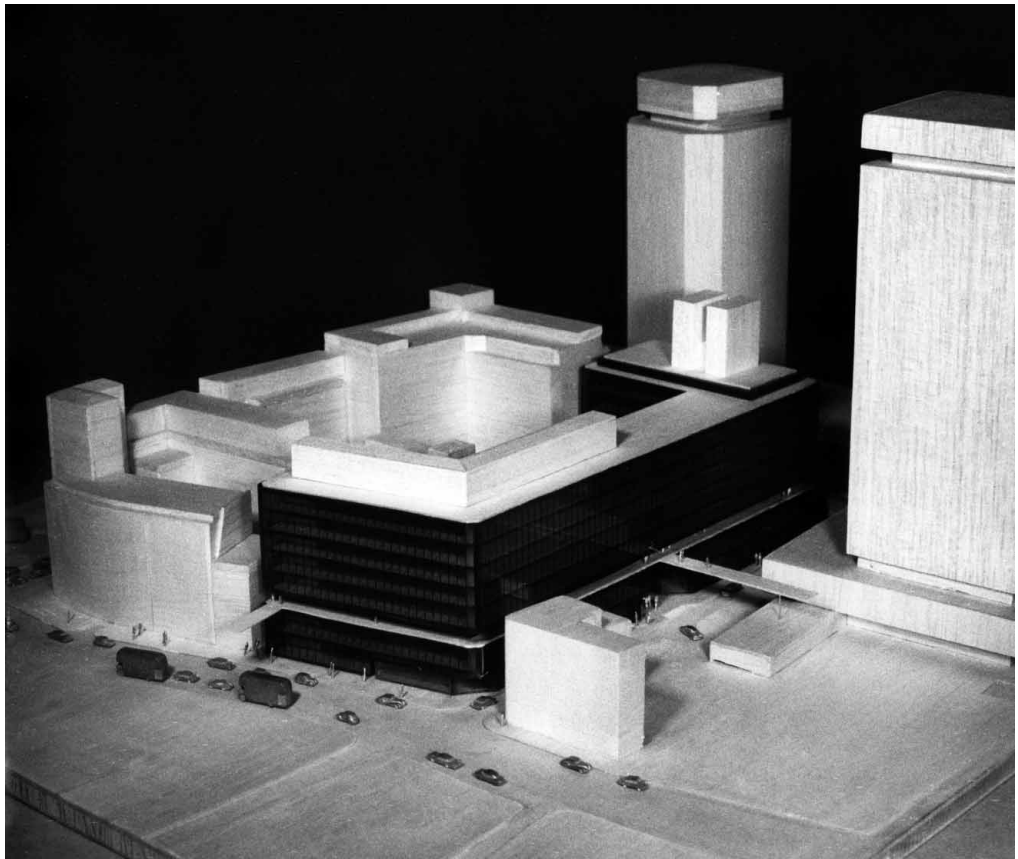


Figure 14. The University of London spine block, Denys Lasdun & Partners, from 1969. Lasdun's use of bronze-anodised aluminium and tinted glass gives the block a Miesian, monolithic appearance. (Photograph by Barnabas Calder.)

Figure 15. Early scheme (not as built) for an office building in Fenchurch Street, City of London, 1970s, Denys Lasdun, Redhouse & Softley. In its dark-glazed monumentality, a clear relative of the University of London block. (Lasdun Archive/RIBA Library Photographs Collection.)



single half-buried window speaking of chaos and catastrophe.

A similarly rich palette of stone, bronze and possibly exposed concrete was contemplated for the unbuilt Royal Institution of Chartered Surveyors (RICS) in Parliament Square as late as 1963 (Fig. 17), but it fell through after long delays caused by

Leslie Martin's Westminster master plan, leaving the RCP as the last Lasdun building until the 1980s to explore materials other than concrete with brick or aluminium. Although the National Theatre or Christ's College New Court (built 1969–70) are hard to beat for rigorous clarity, and expression of structure and construction, the RCP is just as com-



Figure 16. The Royal College of Physicians of London, Denys Lasdun & Partners, 1961–4. The creamy white of the porcelain tiles on the rectilinear, floating-looking library block are offset against the dark, rough engineering brick of the bent-walled lecture theatre to its right. The two materials pick up the stucco and slate of the John Nash terraces beyond. (Lasdun Archive/RIBA Library Photographs Collection.)

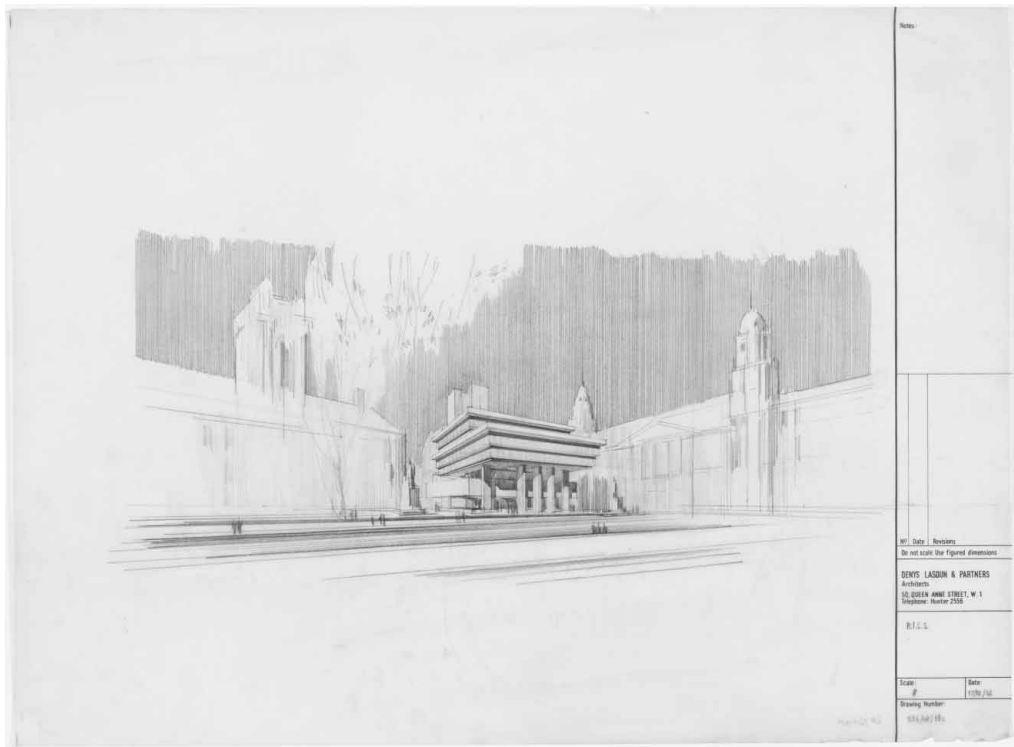
plete and remarkable an achievement in a more openly artistic architecture. Whilst Lasdun's materials at the RCP and St James's Place obviously respond to sensitive contexts and wealthy clients' appetites for prestigious buildings, they should not be read as exposed concrete buildings papered over—against the architect's preferences—in mollifying claddings. Rather their designs exploited ample budgets to explore the artistic possibilities of

coloured and textured surfaces which are openly, unapologetically, claddings to concrete structure.

4) 'Go too far ... and ... you'll not build': Lasdun's finishes and other people's attitudes to concrete

Whatever his internal creative dynamics, Lasdun was certainly influenced in his choice of materials not only by the call of Le Corbusier and Mies, but by

Figure 17. Unbuilt scheme for the Royal Institution of Chartered Surveyors (RICS), Parliament Square, London, Denys Lasdun & Partners, designed from 1963. The purpose of the building was broadly similar to that of the RCP, and the materials would probably have been comparably elegant and opulent. (Lasdun Archive/RIBA Library Drawings Collection.)



the acceptability of given finishes to clients and to architectural commentators. As he said in his 1965 talk, 'go too far beyond society's sanction and you may prophesy, but you'll not build!'⁴² What were the interactions between Lasdun's choice of finishes and the apparent preferences of his clients and of the architectural world?

If the RCP and the Green Park flats concealed their concrete partly out of deference to their historically

sensitive contexts, there are indications in some low-budget schemes of the 1950s that Lasdun did not wish to use much exposed concrete. In the Hall-field School designs he repeatedly appears to have considered the possibility of tiling the concrete parapets (a common Tecton finish for *in-situ* work).⁴³ More strikingly, at Keeling House and elsewhere, Lasdun's drawings label the concrete permanent shuttering 'reconstituted stone', and at his Peter

Robinson department store in The Strand a text refers to 'reconstructed Portland stone'.⁴⁴ Whatever the reasons for these euphemisms (perhaps to please clients or planners, or to indicate an aspiration for high-quality concrete), they are puzzling in a proudly Modernist architect at a moment associated in the historical imagination with the glorification of concrete and the rejection of bourgeois stone veneers.

As late as 1961 Lasdun told an audience at the Bartlett that it was a 'mistake to use bare concrete, laymen invariably consider it unfinished'.⁴⁵ This appears a surprising concession to popular taste in an architect whose buildings seem so courageously themselves, and at a time when opposition to concrete is not generally acknowledged as a major force—the more so because he was talking to a safely architectural audience.⁴⁶ At the time of the Bartlett talk the RCP and St James's Place, with their elegant exposed concrete trimmings, were on site, and he had recently completed the Claredale Street flats with their exposed *in-situ* and pre-cast mix. Months later Lasdun received unwelcome confirmation that public opinion could be anti-concrete: a survey of residents' attitudes to Claredale Street reported the comments of 'Mrs L': 'It looks shocking. It doesn't look as if it's finished off. I don't think I've heard anyone say a good word about the appearance of this building quite honestly.'⁴⁷

Despite this, within the following five years Lasdun was to specify exposed concrete as the most recurrent external finish in his clutch of university buildings. Perhaps the quality of pre-cast he could get for his university buildings put them in the 'reconstituted stone' category, or perhaps his

expectations of aesthetic sophistication amongst students and academics were higher than for the 'laymen' mentioned in his Bartlett talk. The change in Lasdun's attitude to finishes for luxury buildings seems to have come after 1963, when he argued strongly for the RICS not only to stone-clad its building, but to spend £60,500 extra on dark granite rather than Portland stone.⁴⁸ With characteristic *brío* Lasdun argued that the majority of the buildings around were already faced in limestone, so the RICS should in contrast be 'sombre and recessive'.⁴⁹

By 1964 or 1965, Lasdun's conversion to exposed concrete was complete. Earlier luxury buildings' opulent claddings were artistically rich, but also gratified the clients' sense of dignity, keeping Lasdun's powder dry to prevail on other points. From the mid-1960s he seems to have regarded exposed concrete as part of the artistic vision he would fight to protect: in talks with planners about the University of London he referred to concrete evasively as 'a stone-like finish'.⁵⁰ In the case of Hill House it is even clearer that finishes were for the architects to determine: the client 'asked if we had any ideas on materials. DL said it would almost certainly be concrete, precast sections, similar to other work in the office, very light grey, inside and outside, no plaster.'⁵¹

As built, Hill House (Fig. 18) used board-marked *in situ* for structure, with infill walls of concrete blockwork. This was, as now, normally a cheap, utilitarian material. However, at Hill House the surface blockwork was a refined off-white finish laid with considerable craft skill as a cladding to cheap, ordinary blockwork behind (Fig. 19). The clients endorsed the material choices: they were shown the *in-situ*

Figure 18. Hill House, Denys Lasdun & Partners, 1971–2. Blockwork and *in situ* are nearly ubiquitous inside and out, in a scheme where they are perhaps unexpected: a wealthy patron's country house. (Lasdun Archive/RIBA Library Photographs Collection.)



work at the RCP and they threw a bucket of water over a sample blockwork wall to verify that it looked good after rain. However, the initiative for this boldly concrete palette came firmly from the architects.

At the National Theatre Lasdun showed considerable determination and guile in pushing through his concrete finishes. When the materiality of the building came up at the GLC in January, 1968, Lasdun by his own account dodged it:

What would the external material of the building be?

Non committal answer by DL.⁵²

Lasdun's caution about discussing exposed concrete with the GLC suggests that for the clients at least, concrete was not, as Forty suggests, an automatic default choice: a fortnight after the GLC meeting Lasdun was told in a telephone conversation that 'members [of the GLC are] interested in facing materials. Not keen on concrete.'⁵³ Shortly after this Lasdun's partner Peter Softley's memorandum

of a telephone call from Lord Cottesloe, Chairman of the client committee, shows the extent of the confusion caused by Lasdun's earlier 'noncommittal answer':

[Cottesloe] understood you [Lasdun] to have said at the GLC that the building was to be faced in Portland stone. He would like to know the saving if this were reduced to bare concrete, though he fully realised that bare concrete was out of the question. P[eter] S[oftley] told him that the external finish was covered in the cost plan estimate by a sum of money, and that this sum would not allow the use of Portland stone throughout. PS considered it would be most unwise to make any further reduction in this item.⁵⁴

Softley's tactful equivocation suggests that all such discussions were Lasdun's to handle. Lasdun rang Cottesloe back: 'at no time whatsoever have I ever said that the building would be in Portland stone finish, and they have no reason to assume that whatever. No further savings can be made.'⁵⁵

It was early the following month that the final word was given on facings as far as Lasdun was concerned. At a meeting at the Arts Council Lasdun was pressured to reduce the costs of a building which had already received substantial cuts: 'during the meeting DL&P were questioned from various quarters as to what further economies they could make as architects. This included talk about terraces, walkways etc. DL SAID NIL, AND THEY COULD TAKE AS CERTAIN THAT THE FINISH OF THE BUILDING WOULD NOW BE CONCRETE.'⁵⁶

The picture is clear of Lasdun forcing through the decision to use concrete as a finish in the teeth of opposition from one of the two main funders of



Figure 19. Hill House during construction, c. 1971. An ordinary quality of blockwork finishing can be seen on parts of the building which will soon disappear behind the highly refined surface blockwork, very light grey and laid with precision. (Lasdun Archive/RIBA Library Photographs Collection.)

the project (the other being central government). The change from his attitude at the Bartlett seven years earlier, or the RICS in 1963, could hardly be more striking. Between 1963 and 1968 Lasdun went from choosing finishes which would please his clients for his higher-budget buildings, to choosing materials which he felt were architecturally right, even if he had to force through the decision to use

them against client opposition. This change coincides with the five years when he stopped accepting new jobs: perhaps the more conventionally alluring materiality of the Green Park flats, the RCP and the unbuilt RICS was partly a matter of avoiding scaring off other such prestigious clients.

Yet this more assertive attitude to choosing concrete as a finish may not have been straightforwardly

a matter of personal preference either: there are pushes towards a tougher material vocabulary, as well as pulls. The overt artistry of the RCP was probably abandoned partly under pressure from within the architectural world. Looking back on the RCP from a year after its opening Lasdun was to say somewhat ruefully, 'before I forget the bloody struggles of its design, I shall have to return and feed back to myself the devastating lesson that all of us have to accept—that the great art of architecture is the art of concealing the art of architecture.'⁵⁷

Whilst published reviews of the RCP tended to be admiring, there are a few indications that there were criticisms of it in the mid-1960s architectural milieu of London. The most striking is an unpublished review of the building intended for the *Architects' Journal*. It was written by Peter Scher, and it recognises the remarkable artistry of the architecture (the article opens: 'this building is a work of art'). This is repeatedly undercut, however, by implicit and explicit criticisms:

The design has nothing to 'say' about society, the profession of medicine, the client's brief; or about technology, system building, programming or value-for-money [*sic*]; nor does it embody any new architectural idea or concept. [...] It is difficult to see this building as anything other than the sacred palace of a traditionally powerful and wealthy elite. [...] The provision of space, equipment and services, and the quality of materials and finishes are as lavish as anyone could wish, and this seems to raise some architectural eyebrows. [...] There is no 'idea' underlying the design and while it gives great visual pleasure it gives nothing else.⁵⁸

If granite, brick and porcelain tile had been the ways to please clients with the money and sites for high-profile luxury buildings, tough, chunky exposed concrete was the way to please architectural commentators of the later 1960s. Concrete, and particularly pre-cast, opened up the possibility of the architecture speaking more clearly (at the least) of system building and technology. Once Lasdun had more offers of prestigious work than he had time to accept, he appears to have focused more assertively on producing buildings which would be respected by the architecturally sophisticated. In ceasing to clad his concrete he lost some of the rich colour contrast of his earlier schemes, and forewent Mannerist play of materials. His buildings of the late 1960s have about them, instead, an attractive unity of expressed construction and material: 'form, space, structure, and surface made manifest by the nature of concrete'.⁵⁹ This rigour and unity is the beneficiary of the somewhat puritanical critical atmosphere of the 1960s. And if Lasdun had to restrain his instinct to rich curvaceous shapes his expressiveness found its way out instead in the composition of straight lines, in the chunkiness and weight of his components, and in splendid flashes of architectural aggression like the street front of Christ's College, Cambridge (Fig. 20) or the austere massiveness of the unrelieved fly tower profiles at the National Theatre.

In adopting an orthodox Modernist position, Lasdun profited from considerable architectural solidarity. Lasdun's obdurate insistence on exposed concrete at the National Theatre won the support of the GLC's own Chief Architect, Hubert Bennett, who met Lasdun to advise him on how to bully and



cajole Bennett's own employer, the GLC, into accepting exposed concrete:

DL arranged with H[ubert] B[ennett] that DL should appear personally in front of Committee when the subject of finishes was being discussed. HB would support us throughout and suggested that we emphasised that because of noise (helicopters etc) the building had to be a dense, concrete structure. We should elaborate the theme that it is a transparent building where soffites [*sic*] will dominate and where there are walls (unlike the Q[ueen] E[lizabeth] H[all]) they will be faced in high quality

'masonry blocks' or exposed aggregate to match and rhyme with Waterloo Bridge, including bush hammering.⁶⁰

Bennett later advised 'a more appetising description of materials. [...] It was important to mention, among other things, planting, the modelling of the soffits [*sic*] and the type of aggregate to be used. He should avoid referring to "grey" materials and descriptions such as "masonry blocks", "metal roofing" which would suggest breeze and corrugated iron.'⁶¹

This suggests that briefly in the later 1960s exposed concrete was generally approved within the architectural world, but it also underlines that even at this high-point for concrete there were noisy voices against it from outsiders. As for board-marked *in situ*, its period of acceptance as a finish to be seen close up in important parts of a building was strikingly transitory in Lasdun's work. Although the *in situ* is exceptionally fine at both the National Theatre and Hill House, after they were on site Lasdun hardly ever specified exposed board-marked concrete again. This may in part have arisen from difficulties of colour and quality which had involved the demolition of parts of the concrete structure of Hill House. Because of this, or cost, or changing public and client taste, Lasdun's later 1970s' and 1980s' concrete buildings—including the European Investment Bank and IBM's London Marketing Centre: the latter a carefully-composed neighbour to the National Theatre, on site 1983 (Fig. 21)—tended to use pre-cast claddings all over, even on plant rooms and stairs where he might in the 1960s have didactically exposed the *in situ*.⁶²

Figure 20. New Court, Christ's College, Cambridge, Denys Lasdun & Partners, 1969–70. Darker-coloured *in-situ* decks, columns and rooftop service housings contrast with near-white pre-cast panels, a characteristically clear expression of structure and construction in the external architecture. (Lasdun Archive/RIBA Library Photographs Collection.)

Figure 21. IBM Central London Marketing Centre (left), Denys Lasdun, Redhouse & Softley, 1983. Although in its use of terraced decks, blue engineering bricks and concrete, and in its careful massing, Lasdun's IBM was designed as the ideal neighbour for his masterpiece, the National Theatre, its concrete is not in fact the same. The use of pre-cast panels with exposed aggregate demonstrates his move away from exposed *in situ* in the later 1970s and 1980s. (Lasdun Archive/RIBA Library Photographs Collection.)



Of course, the microcosmic approach of looking at a single study cannot rule out the possibility of other cases being entirely different, but in Lasdun's career Forty's picture of concrete as a default material is not supported. On the contrary, the position of exposed concrete in Lasdun's work is a constantly shifting balance, representing his tight-rope-walk between rejection by clients or attacks by the press on the one hand, and on the other accusations from within the London architecture world of crowd-pleasing, opulent irrelevance.

5) Concrete as a metaphor for political 'consensus'

Since the 1980s the idea of the 'post-war consensus' has been under challenge from political historians.⁶³ Yet discussion of architecture from Attlee to Callaghan often seems at least implicitly to accept the notion of a leftist consensus based around an expanding Welfare State. The association between this political tendency and concrete architecture is widely accepted. However, the origins and architecture of the National Theatre—arguably the high water mark both of Welfare State support for the arts and of British exposed concrete architecture—tell a more complicated tale of the politics of the Welfare State. The influential figures who secured funding for the National Theatre over three decades of compromise and negotiation were from apparently opposed political positions, and the building which results embodies more of these contradictions than might at first sight appear.

The National Theatre began as a nineteenth-century private fund-raising campaign amongst wealthy individuals, and remained so until the Second World War, when the LCC incorporated it into plans for a rebuilt South Bank to improve the surroundings of their headquarters at County Hall. From then on the LCC offered site and subsidy to the National Theatre project, bringing it into being. The Leader of the LCC from 1947 until 1965, Isaac Hayward, whose support for the arts saw him eventually giving his name to the South Bank Centre's gallery, had started out in the mines in Wales before making his way up through union politics to the top of the LCC. His story fits the stereotypes of the Welfare State well: a working-class left-winger

supporting subsidised provision of the arts in order to widen access to previously unaffordable high culture.

The central government support was different. The National Theatre was first offered significant government subsidy in 1948–9, thanks in considerable part to energetic behind-the-scenes lobbying by Oliver Lyttelton, who had served as arms minister in Churchill's wartime government. Lyttelton was an old Etonian, a Tory and an aristocrat, and he stated quite openly his reasons for supporting the National Theatre, beginning with national prestige, then continuing:

A national theatre in Great Britain would help to keep undefiled the purity of the English language, the accents in which it is uttered, the grammar and the syntax in which it is cast, by setting a standard springing from the glorious English of Shakespeare of which we are the proud but I must say somewhat negligent heirs.⁶⁴

Lyttelton explains his personal reasons for backing the National Theatre project:

My father and mother were both concerned with the original project nearly 40 years ago, and I am very glad to think that my mother lived long enough to know of the introduction of this Bill. So I support the Bill wholeheartedly on its merits. I support it also out of filial piety and from the association, not a short one, which I have had with the project.⁶⁵

If that smacks of old patterns of familial and personal aristocratic patronage, but pursued now through influence rather than financial donation, it is not something which he attempts to hide, praising Lord Esher's role in negotiating the National Theatre Bill with government:

It has not been Lord Esher's privilege or good fortune to live in an age when, as a Maecenas, he could have supported the drama out of his own resources, but within the limits of the possible in our age no one has worked more devotedly than he.⁶⁶

In other words Lyttelton argued for the same institution as Hayward, but on grounds of nationalism, class and hereditary privilege.

Along with these representatives of the working class left and the aristocratic right, a third faction gave loud support to the creation of the National Theatre: the theatrical *avant-garde*. The likes of the theatre critic Kenneth Tynan campaigned noisily against prolonged delays and recurrent near-cancellations of the National, arguing for it as a crucible for exciting new artistic experimentation.⁶⁷

These three groups made an unlikely coalition, but together they pushed through the funding which brought the National Theatre into being. The LCC and Lyttelton's Tory grandees came together comparatively smoothly, forming a coherent and experienced committee which would steer the National Theatre through long years of planning and campaigning during which cancellation could arise easily from bad publicity or an economic downturn. James Callaghan, having recently stepped down as Chancellor of the Exchequer, advised Lasdun that 'the scheme must be committed, even by stretching all approved facts to their limits. The money will be forthcoming once it is started.'⁶⁸ In other words promise whatever you must to get the building on site, after which it will be much harder to cancel.

The original terms on which the National Theatre and Opera House won parliamentary approval were that two auditoria, one big and one small, would serve both opera and theatre, including merging the Royal Shakespeare Company (RSC) with the nascent NT Company. Within months of starting design discussions under that remit the South Bank Theatre and Opera House Board (abbreviated generally to South Bank Board: SBB) oversaw an increase to five auditoria, accompanied by lavish facilities, with the RSC remaining independent. The discussions show no signs of having ever set out to stay within a brief which the SBB presumably deemed to be merely a temporary political fudge of the sort Callaghan was to recommend.

With such a potentially controversial expansion of their brief, the SBB wished its plans to remain secret until it brought out an architecturally and theatrically stunning scheme which would win public, parliamentary and LCC support across political divisions, despite its much higher cost than the £2.3M or so predicted by the LCC in 1961 when it offered to pay all but the government's £1M of the cost.⁶⁹ Yet this tactic brought intrinsic weaknesses: to avoid bad publicity the SBB was obliged to accept the partial co-opting of the briefing process by a self-appointed Building Committee. Called together originally by Laurence Olivier to draw up an outline brief for the appointment of an architect, this group rapidly assumed the role of *de facto* client, despite the presence on it of Peter Hall and Peter Brook, at the time directors of the National's main rival, the RSC.⁷⁰

Privately, the Secretary of the SBB did not admire the Building Committee: 'as we shall have to try to

carry these chaps with us, I don't think that this further indulgence is anything more than tiresome, although there is little sense behind it'.⁷¹ This is annotated, presumably by the Chairman, Lord Cottesloe, 'Quite right. C'. Lasdun, too, found Olivier's committee problematic; they rarely resolved any point, and periodically exploded into paranoia: 'attack Lasdun—we've been the victims of a sort of confidence trick'.⁷² If the building were ever to become a reality, each side had to try not to trigger an externally visible crisis which might lead to cancellation, even if staying quiet meant putting up with developments they did not welcome.

Although in many respects this made it (and other jobs like it) 'fairly good hell' for the architects, it also opened up certain freedoms.⁷³ At the National Theatre not only the GLC and Lord Cottesloe opposed the use of exposed concrete, as shown above, but Olivier also had his reservations (wondering 'whether finishes of NT would be like those at UEA which he had seen and which he had heard criticised').⁷⁴ Yet with the project in critical final negotiations Lasdun could push it through whatever their views, offering them the choice between an exposed concrete theatre and no theatre at all.

This might at first appear irresponsible: an architect exploiting a delicately balanced political situation to put the wishes of his clients second to the preferences of architecture critics such as Scher. Yet the architecture—and in particular the material expression—of the National Theatre embodies with bizarre accuracy the messy coalition which brought it into being. First, exposed concrete was the material of many of London's most high-profile



housing schemes, schools, leisure centres and hospitals, tying the National Theatre in with the national and local Welfare State. The association between concrete and these publicly provided facilities for all echoes Hayward's preoccupation with universal access to the arts.

Secondly, the cool, sophisticated architecture and free-access foyers of the National Theatre (Fig. 22) pick up not only on Hayward's egalitarianism but also on the *avant-garde* theatre world's 1960s' interest in informal happenings, and in the pro-



Figure 22. The National Theatre, Denys Lasdun & Partners, 1969–76. The architecture mixes grandeur with informality and the concrete combines high craft with apparent economy. (Lasdun Archive/RIBA Library Photographs Collection.)

Figure 23. Offices in Fenchurch Street, Denys Lasdun, Redhouse & Softley, 1985. This building and Milton Court show Lasdun in his late work moving away from external exposed concrete at the height of the material's unpopularity. (John Donat/RIBA Library Photographs Collection.)

vision of non-directive space for people to improvise the dramas of their lives; Joan Littlewood's and Cedric Price's Fun Palace schemes would have provided even more of this sort of space, but the National Theatre still gives plenty of it, indoor and outdoor, with fine views over the Thames. Lasdun referred to the foyers and terraces as the 'fourth theatre' in the complex along with the three enclosed auditoria.⁷⁵ Lasdun's use of concrete aimed to remove the walls of the foyers, extending public spaces out to the river front and Waterloo Bridge, inviting in passers-by, and turning city and foyer alike into a mutual, informal, unplanned theatrical spectacle. Exposed concrete,

'The sweetest music you will ever hear':
structural and programmatic uses of
concrete by Denys Lasdun & Partners
Barnabas Calder

Figure 24. Milton
Court, London, Denys
Lasdun, Peter Soffley &
Associates, 1989.
(Lasdun Archive/RIBA
Library Photographs
Collection.)





Figure 25. Kitchen of Lasdun's house, Denys Lasdun, 1984. Its island unit makes a light-hearted historical reference to a castle, but in its loyalty to blockwork it is a late assertion of Lasdun's ongoing admiration for the material which characterised his career: concrete. (Lasdun Archive/RIBA Library Photographs Collection.)

with its *avant-garde* architectural associations, suited this casual sophistication.

Thirdly, and most surprisingly, Oliver Lyttelton's sense of national prestige and lasting cultural continuity is also provided for in the architecture of the National Theatre, although Lyttelton's death at the start of 1972 deprives us of his verdict on the finished building. The strong axial planning of the Olivier Theatre's foyers and auditorium, with paired symmetrical staircases looping up to

each side of the axis to the high-ceilinged stalls foyer, is a clear echo of the grand tradition of the Paris Opéra and many like it. Concrete's industrial connotations perhaps undercut the high formality of these spaces, but both the quality of the concrete surfaces (employing the highest craft) and the monumentality which monolithic *in situ* imparts, support this sense of a great public building for a grand and culturally important function.

Perhaps the complex multiple purposes of concrete in the National Theatre have been one of the causes of its mixed critical fortunes: those looking for formal grandeur can be put off by the concrete; those looking for informal event space can be overwhelmed by the monumentality, and so on.⁷⁶ However, by whatever mixture of intuition and calculation, Lasdun's architecture produces an impressively coherent architectural synthesis of the mixed motives and competing political and artistic positions of his clients. A building brought about through political and financial compromise has a monumentality which is anything but compromising, whilst embodying and expressing the contradictions of its clients' ambitions for it.

Overall, the effect of the National Theatre's mixed patronage and curious briefing is a building which inverts the patterns of the commercial theatres which had gone before. Frank Matcham's Edwardian playhouses energetically display opulence with marble, alabaster, mirrors, gilded plasterwork, celebratory lighting and terracotta façade mouldings, yet every facility other than the revenue-earning auditorium is squashed as tightly as possible into left-over spaces in the plan and section. Thanks to generous public subsidy, Lasdun's National Theatre has ample foyers, a superbly-equipped factory for scenery and costumes, and maximum scenic flexibility afforded by vast back- and side-stages and fly towers. Yet Lasdun's architectural language is muted, recessive and very discreet about the refined, expensive craft which made it. Matcham's ostentation blinds the customers with maximum spectacle for their ticket price, economising secretly all the while, where Lasdun's discretion reassures

tax-payers that their money is not being wasted, whilst quietly providing a first-class facility in first-class architecture. Concrete was the ideal material for the inconspicuous consumption, casual monumentality, timeless modernity and conservative radicalism of the subsidised arts.

Conclusion

To conclude this exploration of the role of concrete in Lasdun's architectural art, how far is each of the three narratives of British architectural history from 1945 to 1979—outlined in the Introduction—supported by the case study of Lasdun?

First, there was the narrative of stylistic influence from Le Corbusier, and here it is clear that Lasdun to some extent supports this. His designs repeatedly borrow from Le Corbusier's architecture. Nevertheless the partial similarity of materials is offset by a different sensibility. Lasdun's concrete exhibits greater sympathy for the perfectionism and purity of Mies's steel and bronze than for Le Corbusier's gloriously contingent concrete.

Whilst the correlation between Lasdun's growing use of concrete and his increasing professional success suggests that one factor may well have been a reduced feeling of a need to please future clients in his material choices, this cannot be read teleologically as evidence that his non-concrete finishes were reluctant compromises on the road to 'mature' exposed concrete buildings. Rather the clad buildings have their own artistic richness and their own creative dynamics. Moreover, in the gradual progression towards larger amounts of exposed concrete in his work, Lasdun can be seen to be responding not exclusively to personal admiration

for Le Corbusier, but also to pressure from his architectural peers, for some of whom the open luxury and undisguised art of the RCP was too far from the worthy Welfare State norm.

Second, Lasdun's career strongly supports the hypothesis that economic and practical factors made concrete the obvious structural choice for medium- and large-sized buildings after around 1950. Lasdun used concrete as his default building material from his work with Tecton in the 1940s right through to his last works before his death. In Lasdun's case, however, this did not make concrete an *anaesthetic* choice, as Forty proposes was the case for some architects, escaping materiality by the ordinariness of a standard material. With the possible, partial exception of UEA, this was never the case in Lasdun's work. His use of exposed concrete was always acutely visually considered, and above all the result of decisions carefully balanced between various factors of acceptability to client and planner, acceptability to his architectural peers, achievable quality in the building conditions of the moment and his own aesthetic preferences. The evidence of Lasdun's archive suggests that finishes were one of the aspects of his designs over which he maintained close personal control, supporting the unsurprising conclusion that finish mattered very much to Lasdun, both aesthetically and in terms of durability and weathering.

To these considerations can be added Lasdun's use of concrete as a means of reducing the aesthetic influence of consultant engineers in the aesthetics of his buildings, and his use of pre-cast concrete as a means of escaping the contingency of the building

site and guaranteeing a reliable quality and appearance of finish.

Third and finally, it is clear that within the architectural world in the 1960s, as in some recent historiography, exposed concrete was seen as a fitting material for the leftist consensus of the post-war period. Yet the case-by-case pattern within Lasdun's career can be more complex than is generally represented. Continuity of conservative establishment power through the so-called 'post-war' period of 1945–79 was considerable. Whilst the Attlee government saw genuinely substantial movement to the left in national politics, by the 1950s and 1960s the old right had made a strong recovery, and projects such as the National Theatre embody in their genesis and their architecture a much wider range of motives than has generally been appreciated. Concrete had its own roles in this pattern of complex, chaotic political compromise and expedient bodging. First, it is characteristic of the patchy and inconsistent briefing process of big public jobs that Lasdun was able to determine the materiality and architecture of the National Theatre's foyers and exterior with remarkable freedom whilst the various factions tussled and struggled over other priorities, and threats to the project. Second, however, concrete at the National Theatre and elsewhere had the effect—sometimes sought, sometimes accidental—of camouflaging the conservatism underlying aspects of some 'Welfare State' projects. The Thatcherite characterisation of the period 1945–79 as a broadly consistent period of leftist statism, and the casual association of exposed concrete with the left, obscure the complexity of the political context which gave rise to the great national projects

of the Welfare State. If there was a broad consensus which dominated the years between the Second World War and the Thatcher government it was not leftist but large-state.

Ironically, the pressure from within the architecture world to have something to "say" about society, intended to unite all architectural effort in the leftist project, has had on occasion an almost opposite effect, disguising the continued potency of the right.

Whatever the political and critical contexts in which Lasdun used concrete at the height of his career, he was to suffer for it in the 1980s, with the Prince of Wales's criticism of the National Theatre being only the best known of a great many similar attacks.⁷⁷ Partly because Lasdun was associated with concrete, he had a thin time of it professionally as well as critically in the 1980s, getting much less interesting work than he had been offered in the 1960s. In projects he did execute in this period, exposed concrete of any type became rare, with new experiments in glass and metallic claddings in two City of London office blocks, for example: Fenchurch Street, 1985 (Fig. 23) and Milton Court, 1989 (Fig. 24).

Even at the nadir of the material's popularity Lasdun never apologised for his earlier use of concrete, unlike some of his architectural contemporaries and even some of his associates who stress poverty or necessity as reasons for concrete's dominance.⁷⁸ Whilst the circumstances of the 1980s typically forced him away from exposed concrete, in two late projects his admiration for it is still detectable.

The first was an indoor swimming pool added to Hill House in 1985. Lasdun's confidence cannot

have been unaffected by the climate of rabid criticism of 1960s' Modernism, and the Hill House pool reflects this externally by being buried beneath a mound of grassed earth: perhaps the least self-confident architectural statement possible. Internally, too, the Hill House pool shows a 1980s' sensibility, with a travertine cladding which reflects the period's return to proud opulence of materials. There may also be a historical reference in the travertine and vaulted ceiling, together recalling the bath-houses of ancient Rome.

There is, however, a small amount of board-marked *in-situ* concrete visible, too. This may also evoke Rome, whose grand public buildings from the early decades AD were increasingly structurally dependent on concrete beneath the travertine and marble claddings. However, the way in which the Hill House pool concrete is handled, its grain reflecting and abutting with the grain of the travertine, reads (at least to a concrete-lover's eyes) as a statement of ongoing faith in board-marked *in situ*. The travertine, in itself elegant, looks somewhat overslick next to the restrained solidity of the concrete, and the light grey of the concrete looks cleaner and more beautiful next to the yellow tones of the travertine.

Lasdun also brought concrete to the heart of his own home. In the 1980s he moved from the house in Bayswater where he had lived most of his life into a pleasant Victorian terrace in Hammersmith. To give its ground floor more sense of space Lasdun extended the back of the house across its whole width into a handsome kitchen/dining-room, and connected it to front and back living rooms *en enfilade* (Fig. 25), making an ele-

gantly classical sequence of spaces divisible by sliding doors. The substantial island unit which divides kitchen from dining area is supported at each end by a pleasantly jokey chess-like castle. Lasdun had considered at one point trying to find a castle in Scotland to move to, and this, his widow Susan recalls, was his London version.⁷⁹

The explicit castle design is one of a number of indications that by the 1980s Lasdun had relaxed his Modernist hostility to the use of historical motifs. The materiality, however, is a firm statement of ongoing commitment to his 1960s' palette: as at Hill House in the 1960s, so at home in the 1980s, Lasdun used high-quality light-grey blockwork. Here, with complete freedom of material and finish, and when concrete was at its all-time lowest reputation, Lasdun chose blockwork. Whatever else concrete meant for Lasdun, when it was well-designed and well-executed, it meant beauty.

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76. For the possibility that it is partly 'resistance to classification' that makes many dislike concrete, see A. Forty, *Concrete and culture*, *op. cit.*, pp. 10–11.
77. Charles, Prince of Wales, *A Vision of Britain: A Personal View of Architecture* (London, Doubleday, 1989).
78. Gordon Forbes, comment in discussion at Barnabas Calder's talk 'Sir Denys Lasdun RA: The Architects Who Made London with Maxwell Hutchinson', Royal Academy (9th March, 2009); recording available online: <http://feeds.royalacademy.org.uk/~r/royalacademyevents/~3/9EQLCN5a4Jg/lasdun-458.mp3>).
79. Personal communication to the Author by Susan Lasdun, 27th July, 2014.