

Dulwich Picture Gallery

In contrast to the spatial, visual exploration at Lincoln's Inn Fields, Soane investigated thermal issues at Dulwich Picture Gallery in a sensory, nonvisual manner. Thermal zones at Dulwich differentiated the building's three elements: the gallery was heated centrally with steam, the six almshouses had fireplaces, and the mausoleum was unheated. As Soane intended Dulwich visitors to experience a tension in the juxtaposition of gallery and mausoleum, the public components of Dulwich, he used lighting and materials to reinforce further the thermal difference between the two realms. Environmental issues at Dulwich were carefully manipulated in a sophisticated, expressive orchestration of the architectural program.

Dulwich Picture Gallery houses a painting collection originally formed by Noel Desenfans and his close friend, the painter Sir Francis Bourgeois. On Desenfans's death in 1807, his wife, Margaret, and Bourgeois jointly received the collection of 370 works with instructions that the painter find an institution that would preserve them as a group for public view. Bourgeois, in turn, bequeathed the paintings to Dulwich College on his death in 1811. Bourgeois did not leave the works to Dulwich because it was a rich or distinguished institution. Rather, he suffered a serious fall from a horse, sustained injury, and was pressed to decide his affairs rapidly. The college already had a small picture gallery, which he felt could accommodate his bequest. He left an additional gift of £2,000 "for the repairing, improving and beautifying" of the space.⁹²

Desenfans and Bourgeois would have preferred that the collection remain at their residence at Charlotte (now Hallam) Street. The problem was that Bourgeois, though he tried, could not negotiate the freehold. As the lease would expire in 1874, it was not suitable to leave the collection there. An additional complication was the mausoleum in the back yard of the residence, designed by Soane to house Desenfans's remains.⁹³ Clearly, a mausoleum on leased property is contradictory. Bourgeois resolved this problem by stipulating that the college build a mausoleum for the remains of Desenfans, his wife, and Bourgeois, allocating £1,000 for this structure. For the gallery and mausoleum projects, Bourgeois recommended Soane, a fellow member of the Royal Academy and friend of Bourgeois and the

92. Reprint of Bourgeois's will in E. Cook, *Catalogue of the Pictures in the Gallery of Alleyn's College of God's Gift at Dulwich*, London, 1914, 319. The Dulwich section owes much to the following works: C. Davies, "Dulwich Picture Gallery," in D. Cruikshank, ed., *Timeless Architecture*, London, 1985, 69-87; G. Mellinghoff, "Soane's Dulwich Picture Gallery Revisited," in *John Soane* (Academy Editions), London, 1983, 76-99; and Waterfield, *Soane and After*. See also Bolton, *Works of Soane*, chap. 6. See Davies, "Dulwich," 85, and Waterfield, *Soane and After*, 23, 33, for discussion of gallery heating. Mellinghoff, "Dulwich Picture Gallery," is particularly thorough on the evolution of the Gallery design.

93. See Waterfield, *Soane and After*, 8-9, and Mellinghoff, "Dulwich Picture Gallery," 88, for discussion and images of this structure.

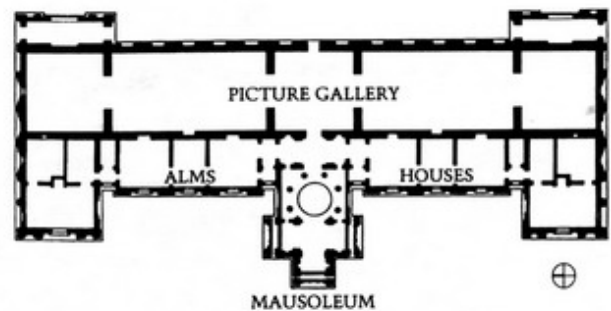


Fig. 35. John Soane, Dulwich Picture Gallery, London, 1811-1813. Plan (author, based on Dulwich documentation).

Desenfans. Soane was selected without question; and on 8 January 1811, the day after Bourgeois's death, he visited the site at the college.

As Soane undertook feasibility studies, it became clear that refurbishing the existing gallery was not possible. The college's west wing, which housed the gallery on an upper floor, was in a "ruinous state" and "the whole must be taken down."⁹⁴ In fact, all the college buildings were in disrepair. Only three years earlier the college had arranged an Act of Parliament to raise funds for the repair or rebuilding of its structures. Soane was intrigued by the prospect of essentially rebuilding the college: by May 1811, he had developed five schemes, not only for a new gallery and mausoleum, but for a new college quadrangle as well. The plans were rejected, the Napoleonic Wars rendering them too ambitious. Soane's attention next turned to rebuilding only the west wing. If this building were replaced, however, six almswomen housed in the ground floor of the west wing, beneath the old gallery, would have to be accommodated. The program for the new building, an amalgam of picture gallery, mausoleum, and six almshouses, was thus formulated. Mindful of this new brief, Soane produced three successive design variations, one of which won approval when presented to college officials on 12 July (Fig. 35).

The funds left by Bourgeois, £2,000 for the gallery and £1,000 for the mausoleum, were not sufficient for a new building, even combined with the £5,800 the college had available for rebuilding the west wing. Because of his friendship with Bourgeois and the Desenfanses, Soane considered the project personal and accordingly charged no fees. Public galleries were also a novel idea in early 1800s, meaning that Soane had an opportunity to influence a new building type. Perhaps these factors contributed to Soane's offer to make up the deficiency between his construction cost estimate of £11,270, submitted on 5 August 1811, and the £8,800 available. Dulwich officials, while grateful for Soane's

94. Minutes for the Private Sitzings of the Master, Warden, and Fellows of Dulwich College, 1805-1829, 12 July 1811. The old college buildings, erected in 1619, were "shoddily constructed." See Waterfield, *Soane and After*, 5.

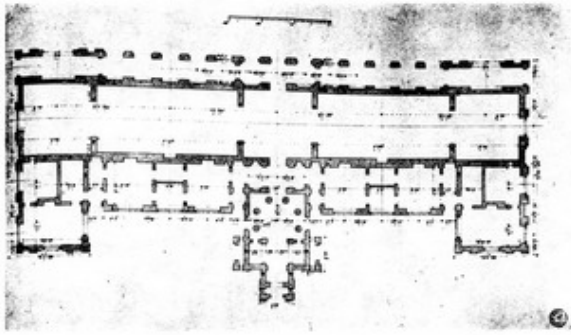


Fig. 36. Dulwich Picture Gallery. Plan with fireplaces in gallery. This drawing was most probably part of a record set executed after 1815, possibly for Soane's lectures. This illustration is idealized, as the east front did not receive an arcade (by courtesy of the Trustees of Sir John Soane's Museum).

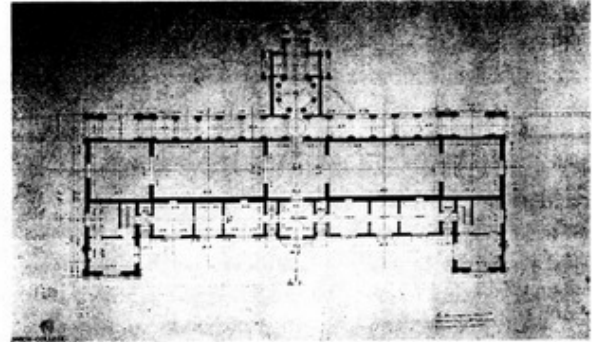


Fig. 37. Dulwich Picture Gallery. Plan without fireplaces in gallery. Dated 19 July 1811, this is the final extant plan before construction began. The Mausoleum was switched from the building's east front to its west in November 1811, after the foundation was started. Other more minor variations were made as well (by courtesy of the Trustees of Sir John Soane's Museum).

generosity, could not accept. Funds had to be assured before the start of construction. The project was delayed until Mrs. Desenfans, wishing to see Bourgeois's intentions carried out (and no doubt worried about what she would do with the paintings and bodies), contributed £4,000 toward building costs.⁹⁵

Between the architectural program's formulation in May 1811 and ground breaking on 19 October 1811, Soane explored design and heating options. Plans clearly illustrate that Soane always intended that the almshouses would be heated by fireplace (Figs. 36 and 37). Because they were domestic spaces, this heating approach would be expected. There is less certainty concerning gallery heating. Steam heating was used in this space, and Matthew Boulton and James Watt (sons and namesakes of the pioneers of steam heating) were commissioned in June 1812 to build a system costing £270,⁹⁶ but fireplaces may have been intended to provide additional heat. Fireplaces are included in the two large gallery rooms in some plans (Fig. 36), but they are not in others (Fig. 37). In the plans without fireplaces, flues are rendered in their places, in a further manifestation of indecision; although there are no fireplaces, Soane hedges by including flues (Fig. 37). Soane apparently carried this indecision with him long after the Dulwich project was complete. In his *Designs for Public and Private Buildings* (1828), one Dulwich plan

illustrates gallery fireplaces, but the next plate, a combination of site and building plan, portrays none.⁹⁷

The whole idea of a public museum was novel when Dulwich was built. Soane's gallery, deriving in part from the tradition of long galleries in English country houses, was one of England's first purpose-built galleries.⁹⁸ Soane might have used the Dulwich fireplaces to remind visitors of the gallery's domestic origins or simply to convey a sense of richness. The tension involved in appropriating and pushing a domestic prototype to serve as a public space, coupled with the novelty of the building type, makes Soane's indecisiveness about the gallery fireplaces more understandable. Ultimately, it is not known whether the gallery had fireplaces, but they certainly would not have been the sole means of heating the gallery. Plans illustrating gallery fireplaces show them only in the two large gallery rooms, seemingly insufficient to heat all five rooms. The central steam system was obviously the main means of heating the space.

At Dulwich, Soane might have intended to heat with a combination of central system and fireplace, a method he later used in his own picture room behind number 14. The room contained a fireplace and was heated centrally. Of course, using this com-

95. According to Waterfield, Mrs. Desenfans was "in frequent and friendly communication with the architect" during this time, and Soane "was active in assisting with Mrs. Desenfans' affairs before and after her death." She wrote to Soane that her "only consolation . . . in this life will be to see the wishes and intentions of her dear friend Sir Francis Bourgeois carried out in the most complete and expeditious manner." Waterfield, *Soane and After*, 23, 8.

96. Minutes for the Private Sitzings of the Master, Warden, and Fellows of Dulwich College, 5 June 1812. Boulton and Watt both retired in 1800, leaving their sons, James Watt, Jr., and Matthew Robinson Boulton, to take over the firm of Boulton and Watt. Boulton died in 1809, Watt in 1819. See *Dictionary of National Biography*, II, 916, and XX, 963.

97. J. Soane, *Designs for Public and Private Buildings*, London, 1828, pls. 43, 44. For images of these plates, see Mellinghoff, "Dulwich Picture Gallery," figs. 27, 42.

98. In Lecture 8, Soane wrote that it was appropriate to use steam heat in the "halls, galleries [and] corridors" of residences. See Soane, *Lectures*, 124. In this context, a gallery is a circulatory, utilitarian space, perhaps the long, narrow room used for exercise and recreation in large homes. Of course, the word also means a room for art. These uses probably overlapped in residences. It would not be inappropriate to use fireplaces along with central heat in these rooms. For the meaning of the term *gallery*, see E. Lucie-Smith, *The Thames and Hudson Dictionary of Art Terms*, London, 1984, 87. The history of the gallery as exhibition space is considered in Waterfield, *Soane and After*, 10-13; and in Mellinghoff, "Dulwich Picture Gallery," 82.

bination was also advocated, for domestic applications at least, by Richardson and Tredgold. The central heating provided thermal comfort while fireplaces were present for aesthetic, symbolic, and psychological reasons. The interpretation that Soane used both fireplaces and steam heating is reinforced by a sketch of the gallery under construction (Fig. 38). In this view, taken from the southeast corner of the center gallery room, the mausoleum lies beyond the smaller arched opening and a gallery room lies beyond the larger. In the background, it appears that a fireplace opening is drawn on the center of the gallery wall, the fireplace location in plans. If the sketch does not confirm whether or not the gallery contained fireplaces, it does address clearly the design of the gallery's under-floor steam heating. The brick duct that would receive the steam pipes is clearly visible in the foreground. A timber floor eventually spanned the duct.⁹⁹

Soane's intentions for the mausoleum can be evaluated in a comparable construction sketch (Fig. 39). In this view of the mausoleum at a similar stage of completion, there is no excavation for a duct channel nor is there the duct itself. The mausoleum's stone floor was placed on grade, apparently without under-floor heating.¹⁰⁰ Linking the pictorial documentation with the written record gives a more complete sense of the construction sequence and heating installation. According to his journal, on 22 April 1812 Soane went to Dulwich and "began setting stone plinth." This entry must refer to the mausoleum because three days later he "set out plinth of Mausoleum." On 16 May, Soane "walked to Dulwich to meet person about warming the Gallery," and in June the system was commissioned. The chronology suggests that the mausoleum base was complete well before the heating system was commissioned, let alone specified and installed. In other words, it is unlikely that ducts reached the mausoleum, a space Soane apparently intended to leave unheated.¹⁰¹

There are questions as to whether the mausoleum was heated and whether the gallery had fireplaces. There is no question that the gallery was heated by a steam system, but given the troubles associated with it, Soane might have wished he had investigated alternatives. Within one year of installation, the system had caused an attack of dry rot. A consultant, John Rennie, was called to investigate it. In a report of 26 July 1813, Rennie had "no hesitation in giving it my opinion that the

99. Grates in the floor would probably be placed intermittently above the pipes, permitting heat to rise more easily.

100. If steam pipes reached the mausoleum, grates most likely would be placed above the pipes to allow their heat to rise. As Richardson wrote, pipes placed "in channels about two inches deep in the stone floors of halls or offices, and covering such openings with iron or brass trellis-work, has a very ornamental appearance, and is very effective." Richardson, *Popular Treatise*, 46-47.

101. G. Waterfield has kindly written that he has "no information as to whether there were heating ducts under the mausoleum—this is certainly not suggested by recent sections of the building."

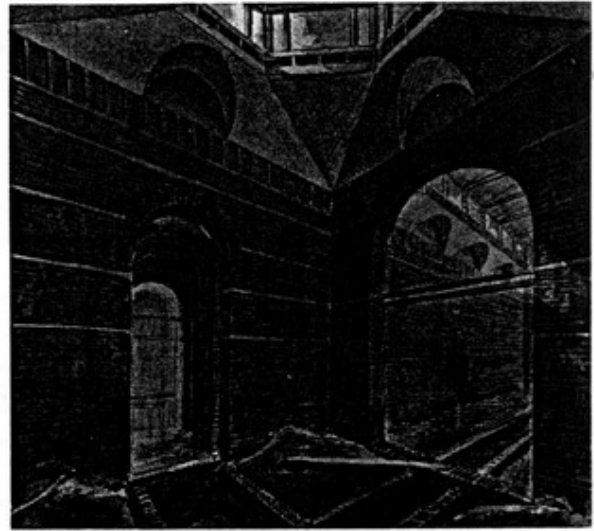


Fig. 38. Dulwich Picture Gallery. Gallery under construction. The heating pipe channels are clearly visible (by courtesy of the Trustees of Sir John Soane's Museum).

gallery may be kept in a proper state of warmth by means of this apparatus."¹⁰² Since the system was tested in summer, the endorsement might be questionable, but Rennie thought the installation gave "ample" heat. In his estimation, the problems resulted from leaks in the heating pipes' sliding expansion joints, which allowed escaping water to cause dry rot in the floor timbers.

Rennie thought the dry rot could be remedied. More troubling to him was the fire risk posed by the boiler. "Placed in one end of the building," according to his report, "its flue is carried up a thin brick wall which forms one side of the gallery." The boiler must have been in the almshouse section, adjacent to the gallery wall. The flue mentioned might correspond to one at either end of the building, in the common wall between gallery and almshouse (Figs. 36 and 37). Rennie was worried that the brick around the flue was not substantial enough. He thought it a contradiction that valuable property, the building proper and its collection, should be exposed to a fire threat. As such, he recommended that the boiler should be relocated to an adjacent structure. The steam pipes could be extended to reach its new location.

It is not known whether the boiler was moved, but the dry rot problem was apparently resolved for a few years. On 30

102. Bourgeois Book of Regulations, Dulwich College; Rennie's report was appended under 20 June 1820. Rennie was an important civil engineer of the late eighteenth and early nineteenth century. He is particularly known for his bridge, harbor, and dock work in the London area. He worked for Boulton and Watt between 1784 and 1791. See his entry in the *Dictionary of National Biography*, XVI, 905-906.



Fig. 39. Dulwich Picture Gallery. Mausoleum under construction, dated 10 August 1812 (by courtesy of the Trustees of Sir John Soane's Museum).

March 1819, however, another consultant, Mr. Rowles, reported that a second case of dry rot resulted from two causes. The first was steam escaping from "several joints and corks" in the pipes.¹⁰³ The second, the worse in his estimation, was the heat given off by the steam pipes underneath the floor. He advocated that "the pipes that are now below the floor" should be substituted with others "placed level with the floor." He had no doubt that steam could be "made effectual in warming the galleries." Because of the expense involved in moving the pipes, however, he advised that the "two chimneys that were provided at the building of the galleries" should be opened up and the whole steam system should be taken out and sold "at the best market."

Soane's indecision concerning gallery fireplaces comes to the fore in Rowles's commentary, which suggests that fireplaces should be used as a substitute for the gallery's steam system. Though indicating the presence of chimneys, the comments do not mention gallery fireplaces. Rowles's reference to "chimneys" might be to the flues found on some plans (Fig. 37), in the position occupied by fireplaces on other plans (Fig. 36). Perhaps he recommends that fireplaces be constructed using these existing flues. Alternatively, fireplaces might have been built but were bricked up; or inoperable, symbolic fireplaces were present. In either of these cases, construction would be necessary to create a functioning fireplace.

While steam heating apparently caused maintenance difficulties, which Rowles proposed to resolve by heating with fireplaces, Dulwich College minutes chronicle additional problems

103. *Bourgeois Book of Regulations*, Dulwich College; report was appended under 20 June 1820.

that may or may not be related to the steam heating. In the interval from 1817 to 1821, considerable expense was "incurred in consequence of the dry rot making its appearance, first in the mausoleum, and then, in the wainscot work of the gallery."¹⁰⁴ The report, dated March 1822, states that all the rooms were repainted. "The dry rot, it is hoped, will not recur." The dry rot investigated by Rennie in 1813 and Rowles in 1817 occurred in the timber flooring of the gallery. They did not report maintenance or technical problems in the almshouses or the mausoleum, making it difficult to comprehend how the gallery's steam heating caused dry rot in the mausoleum. It is more plausible that the wainscoting problems in the gallery were tied to it.

Soane addressed dry rot in Lecture 12, commenting on a number of factors that may have contributed to the problem in the mausoleum:

In modern works some of the walls, from false economy, or rather from improper parsimony, are so thin that the weather beats through them, and others, though in damp situations, are left unprovided with vacuities to resist the effects of damp, as particularly directed by Vitruvius. The stone, instead of being, as that great architect recommended, two years out of the quarry before it is used, and the timber, instead of being felled for years before it is worked, are hurried from the quarry and the forest into the building. The finishings, frequently begun, even before the building is secured from the weather, are continued to its completion, without intermission and with all possible expedition. Thus the damp is shut up in the walls, and the moisture in the timbers. Structures, that would have occupied the attention of our forefathers years in raising, are now built, finished, and inhabited in as many months, and thus the foundation of speedy decay is laid by the original sin of construction. Probably the rot has made considerable progress, even before the house is fit for habitation.¹⁰⁵

The problems of unseasoned materials and inadequate ventilation, the two causes of dry rot Soane discussed, were great. "After fire [dry rot is] the next great enemy to buildings."

Soane's comments, delivered in 1815, after the first manifestation of dry rot at Dulwich, can be construed as answering for the structure's problems. In fact, Soane mentioned the "Picture Gallery and Mausoleum" in the lecture, using drawings of it under construction (similar to Figs. 38 and 39) to illustrate construction principles.¹⁰⁶ After the dry rot section, Soane con-

104. *Bourgeois Book of Regulations*, Dulwich College, 30 March 1822. There are no further records addressing the gallery's heating problems or any major work on the building between 1822 and the 1850s. See Waterfield, *Soane and After*, 33. A new heating system was installed in the 1950s, in the course of restoration after war damage. Air-conditioning was also installed at this time; *ibid.*, 51. According to G. Waterfield, the Gallery was extended in the 1880s and again around 1910. He speculates that new heating systems were installed in the course of these construction phases. There are currently no fireplaces in the building.

105. His comments on dry rot in are found in Soane, *Lectures*, 189–190.

106. *Ibid.*, 188. Figure 36 might also have been used in the lecture.

tinues with two paragraphs outlining the inferiority of modern construction, mainly due to "false economy." He then writes:

It behoves therefore the architect to employ the most attentive and unremitting exertion of his talents and experience to avoid all such defects in the works with which he is entrusted, remembering that despite all his care and diligence, his efforts cannot always be successful. Let all of us, before we censure, distinguish between the unavoidable failings of the intelligent and scientific, the ingenuous and modest, artist (whose best exertion of his talents and experience have been diligently called into exercise in the honest discharge of the great trust reposed in him), and the gross carelessness of the ignorant and the uninformed.¹⁰⁷

Soane was certainly conscious of the Dulwich maintenance difficulties. While he just alluded to them in the previous remarks, he directly confronted the issue in 1835, two years before his death:¹⁰⁸

Every part of the edifice was intended to have been warmed and ventilated in the most efficient manner; but it is to be regretted that only a portion of this plan has been carried into effect, to the daily increasing injury of the mausoleum, and other parts of the structure.¹⁰⁹

Soane's remarks, spanning twenty years, explain that despite his best efforts, there were failings at Dulwich.

Dry rot posed problems at Dulwich, no doubt contributing to, in Soane's word, "injury." Soane properly linked some dry rot manifestations with environmental factors. Unfortunately, the paucity of surviving evidence at Dulwich makes it impossible to determine if the failure of environmental ideas to be "carried into effect" caused dry rot. While funds were tight at Dulwich, the project eventually came in under budget, so that one would think there were adequate funds to carry out all of his environmental plans.¹¹⁰ In spite of Soane's statement, Dulwich records suggest that his intentions, at least those relating

107. *Ibid.*, 190.

108. Soane was not appreciated by all his contemporaries, but the criticism toward Dulwich was particularly severe. The idiosyncratic façades, with their curious blend of classical and picturesque elements, were ridiculed: "Now for the Picture Gallery! For a minute gentle reader pause we only for a moment of this minute on the exterior. What a thing! What a creature it is! A Maeso-Gothic, Semi-Arabic, Morospanish, Anglico-Norman, a what-you-will production!" (Rev. T. F. Dibdin, quoted in J. Soane, *Designs for Public and Private Buildings*, 2d ed., London, 1832, 47.) For other criticism of the building's interior and exterior, see Waterfield, *Soane and After*, 70-73; and Mellinghoff, "Dulwich Picture Gallery," 91-93. The Picture Gallery was conceived in terms of a future college quadrangle, with the gallery forming one element. Against comments that Soane's design looked out of place, he defended himself by answering "that the gallery made only one side of the edifice." Soane displayed a want to answer criticism. See Mellinghoff, "Dulwich Picture Gallery," 78; and Soane, *Public and Private Buildings*, 1832, 47.

109. Soane, *Description*, 70.

110. The actual cost of the Gallery was £9,788, against Soane's final estimate of £11,270. See Mellinghoff, "Dulwich Picture Gallery," 99, for a good list accounting for all construction costs. The cost of the steam system is not included in this list.

to heating, were executed. Perhaps all his provisions for ventilation were not implemented. As adequate ventilation retarded dry rot, this is plausible. Soane's claim that "every part of the edifice was intended to have been warmed," however, is contradicted by the mausoleum, which appears to have been intentionally unheated.¹¹¹

One explanation for the dry rot, in fact, reinforces the interpretation that the mausoleum was unheated. The gallery dry rot is plausibly explained by moisture escaping from the steam pipes' expansion joints, as the consultants thought, but the mausoleum dry rot is likely due to other factors, perhaps those Soane discussed, such as inadequate ventilation. An additional consideration is that the mausoleum dry rot might have been due to a temperature differential between it and the other building elements. In Soane's original design, air could pass freely from the gallery to the mausoleum. If the mausoleum were cooler than the gallery, as the gallery's warmer air found its way into the mausoleum, the moisture in the warm air might have condensed in the mausoleum, causing or contributing to dry rot.

The mausoleum dry rot possibly indicates that there was a temperature difference between it and the gallery. To create tension between these realms, Soane highlighted the difference between these two spaces by juxtaposing the heated gallery and its timber floor with the apparently unheated mausoleum and its cooler stone floor.¹¹² When lighting is considered, Soane's full exploration of his architecture's environmental aspects is manifest.¹¹³ Both gallery and mausoleum are top-lit spaces, but the former is "brilliantly lighted" with clear glazing for the display of pictorial art, while the latter is glazed with yellow

111. Of course, Soane's comment might, in fact, be literally true. There is no way to know if the mausoleum was heated or unheated.

112. Soane learned about materials and their thermal capacities early in his career. In 1781, in a primitive dairy project, Soane illustrated an ability to grapple with such issues. A thatch roof appealed to his primitivism and had insulating properties, thus helping create appropriate conditions for milk products. The all-stone construction of floors and counter surfaces ensured an even temperature that enabled cream to rise properly. Soane's client for his first dairy project, Lady Craven, only wanted to pay milk maid, but she took it seriously. See Du Prey, *John Soane*, 247, 252. In the lectures, Soane noted "the qualities, powers, and choice of materials" and said that "the architect must acquire a thorough knowledge of the qualities of the different species of material he has to use." Soane, *Lectures*, 105, 108.

113. At 13 Lincoln's Inn Fields, the museum-office spaces are top lit, while the library and dining room are side-lit. Apart from these differences that correspond to distinct heating strategies, no correlation similar to that evident at Dulwich was found. For an introduction to Soane's use of light at Lincoln's Inn Fields, see Thornton, "Lit Up with Gorgeous Hues." In the article (p. 1980), Thornton notes Soane's early use of gas lighting, another technology Soane grasped readily. For this study, he adds, "I believe gas lighting was only used 'below stairs' and not in the polite rooms above." Soane evidently used more traditional lighting in the library and dining room, similar to using traditional heating in those rooms. Gas "was also used to fuel a lamp on a wall-bracket in the Monument Court, presumably in order to illuminate the antiquities there."

glass to produce a "dull religious light" of "funereal grandeur."¹¹⁴ The different lighting strategies evoke feelings appropriate to their respective spaces as well as addressing the issue of solar gain. The sunlight passing through the gallery's clear glazing warms the gallery more than the "dull religious light" would the mausoleum.

A mausoleum—a building type that fascinated Soane throughout his career—is novel because the architect does not need to accommodate occupants' conventional needs of heat, light, or ventilation.¹¹⁵ Soane took advantage of these factors, developing the Dulwich mausoleum environmentally to reinforce the idea of death. The gallery's warmth, ensured by central steam heating, was critical to Soane's design intentions in this regard. Since the mausoleum was apparently unheated and exposed to the elements on three sides, the temperature disparity between gallery and mausoleum would be especially profound in winter, the season most closely allied with death. In other seasons, the temperature difference between the two realms would not be so great, but the mausoleum glazing makes it a darker, cooler space year-round. Finally, the mausoleum's stone floor, when juxtaposed with the gallery's timber floor, creates a thermal disparity underfoot irrespective of the season.

In Lecture 8, delivered the same year Dulwich opened, Soane touched on the sensory aspects of architecture, ideas he explored in the gallery and mausoleum. For instance, in the Italian climate, Soane asks, what is "more grateful to the senses in warm and sultry weather than the sight of fountains playing in various directions?" But in a northern climate, the "elegant and classical fountains would tend rather to make the beholders shiver with cold, than create pleasing sensations."¹¹⁶ In another passage, he extolls the virtues of "variety, intricacy, and movement,"¹¹⁷ issues seemingly addressed at Dulwich through his attention to detail in creating environmental realms. Of course, these comments are general, but they are nonetheless relevant because in Lecture 8 Soane also considers heating methods. His consideration of architecture's sensory aspects is juxtaposed with his discussion of heating methods.

Environmentally, the mausoleum and gallery are separate zones, with a sensory experience appropriate to the character of each space. Soane also made each space distinct in form. For instance, from the gallery, the Dulwich visitor steps down into the mausoleum anteroom and then up into the mausoleum itself, observing a distinction between the two major program elements. While Soane sought to create realms through both form

and environmental articulation, there is unity to the building. The mausoleum is not an appendage to the gallery but, rather, integral with it. The juxtaposition of tomb and art, and their corresponding forms of mausoleum and gallery, was meant to evoke "powerfully the recollection of past times, [so] that we almost believe we are conversing with our departed friends who now sleep in their silent tombs."¹¹⁸ Soane wrote personally of the three Dulwich benefactors as "friends," but in immortalizing their remains by placing them alongside the art collection they assembled, a central idea to the scheme, he addressed issues still relevant today.¹¹⁹ Obviously, the juxtaposition of tomb and earthly works goes beyond the limited relevance of Soane's friends' remains. Circulation between the realms of gallery and mausoleum was an experience Soane intended all visitors to undertake.

With this intention in mind, Soane objected when he later found a door blocking entry to the mausoleum. "In the centre of the picture gallery, as originally constructed, was an arched opening, looking into the chapel and sepulchral chamber, connecting together the two parts of the structure . . . and adding to the importance of the whole. This opening is now filled up with a door."¹²⁰ Without the view into the mausoleum, a vista "calculated to produce in the spectator a sentiment of solemn awe and deep respect," the relationship of the parts to the whole was not established. The visitors' circulation between the realms of gallery and mausoleum—an experience Soane reinforced through the manipulation of lighting and thermal articulation—was therefore disrupted.

Conclusion

Soane's artistic legacy is in part dependent on his awareness of heating methods and his expertise in addressing the architectural opportunities they offered. There is a compelling dialogue between Soane's architecture and its thermal concerns. In the professional rooms at 13 Lincoln's Inn Fields, Soane explored fully the spatial possibilities of central systems. Central heating enabled Soane to express directly the multiple boundaries of layered space, concepts he previously investigated through illusion in the library and dining room. The necessity of fireplaces in these residential rooms limited their explicit complexity. At Dulwich Picture Gallery, Soane took a different approach to thermal issues. Dulwich was not a spatial explo-

114. Soane, *Memoirs*, 39.

115. For a discussion of Soane and mausoleums, see J. Summerson, "Sir John Soane and the Furniture of Death," *Architectural Review*, CLXIII, Mar. 1978, 147–155. For background on the building type, see Waterfield, *Soane and After*, 15–19.

116. Soane, *Lectures*, 132.

117. *Ibid.*, 133.

118. Soane, *Memoirs*, 39.

119. The Desenfans-Bourgeois residence in Charlotte Street "was hung from top to bottom with paintings." The mausoleum Soane designed in its small back yard "might be considered both eccentric and pretentious, but it indicates how central to Bourgeois' scheme the linking of burial place and picture collection had to be." The interior of the Dulwich mausoleum was similar to the original at Charlotte Street. Waterfield, *Soane and After*, 8.

120. Soane, *Description*, 1835, 70. The "chapel" is the mausoleum's anteroom.

ration like Lincoln's Inn Fields, but an investigation of environmental concerns and architectural program in a nonvisual, sensory manner. The mausoleum, through lighting and thermal differences, was distinct from the gallery.

In realizing his environmental ideas, Soane embraced both traditional heating and modern, central systems. The essential conservatism of English domestic life in Soane's era—and public life as well, if his work at the Bank of England is used as a measure—dictated that traditional heating methods were an important component of any architect's vocabulary. Soane's fireplaces were innovative in their flat, understated design, perhaps reflecting the impact of the new central heating systems, but he was not ready to do without them. Nor did Soane ignore the emerging central systems. He used steam heat at Tyringham at the dawn of the technology's development, and Perkins's pressurized hot water system heated 13 Lincoln's Inn Fields

soon after it was patented. Even when Soane had difficulties with modern systems, like Boulton and Watt's steam system at Dulwich Picture Gallery in 1813, he still praised their accomplishments later in lecture and was not deterred from trying steam again, at number 13 in 1820.

Soane was an eager and aggressive user of these emerging central heating technologies. While the central systems he embraced were modern, he carefully framed them in the context of the classical tradition, finding parallels with the ancients' knowledge of similar technologies. When Soane compared Perkins's apparatus to one Seneca described or noted that the ancients knew of steam's power, he reminded himself that the modern innovations should not be seen in isolation. Soane looked forward, exploring the capabilities of heating technologies still in use today, but he carefully looked back, mindful of the artistic traditions from which he drew inspiration.