

## Eileen Gray and the influence of Cubism

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Eileen Gray's design approach, resulting in the production of her two houses E.1027 and *Tempe à Pailla* as complete works, could have been influenced by the revolutionary effects of Cubism, in particular Marcel Duchamp's version "Elementary Parallelism" and some of his later art practices. There are parallels between Gray's use of purpose-made and standard fittings and Duchamp's adaptations of mechanisms and his "readymades". This is discussed in the multiple design fields in which Eileen Gray worked. There is a similarity in her approach to transformable fixed and loose furniture and architecture in the means by which she transforms space.

### Introduction

Eileen Gray (1878-1976) was a prodigious designer of everything associated with her working life, from furnishings and interiors, to the invitation cards sent from her gallery, Jean Désert, while she experimented with collage, sculpture and photography. Respected for her furniture and interiors, she also designed speculative public building projects and a few built works, of which the still existing houses E.1027 at Roquebrune-Cap-Martin (1926-1929) and *Tempe à Pailla* at Castellar (1931-1934) were the most complete<sup>1</sup>. Although the houses reveal an affinity with contemporary architectural developments, they are unique fusions of building and interior space which are difficult to categorize within architectural convention. This essay on the relationship between Eileen Gray's furniture and architecture suggests how her approach might have emerged from contemporary art movements. Its main focus is on her first complete and extant house, E.1027, and the interiors, furniture and fittings that she was producing simultaneously. The essay will speculate on her design methods, considering conceptions of space based on changing contemporary artistic practices, which in turn arose from momentous events and scientific discoveries. The essay is based on the available evidence of her artistic work, book ownership and known acquaintanceships. The two houses as they remain<sup>2</sup>, and the records, Eileen Gray's sketches, drawings and photographs, demonstrate how the buildings and their external spaces, were uniquely developed through the design interdependency of the architecture and all their fixed, movable and loose furnishings<sup>3</sup>. They are exceptional works of complete design<sup>4</sup>, resulting from Eileen Gray's conceptual approach and working practices. In the period between 1922, when her furniture design changed, and 1929, when she completed E.1027, there was an intense interaction between the fields and techniques in which she was working. There is a similar structural approach to each component, whether

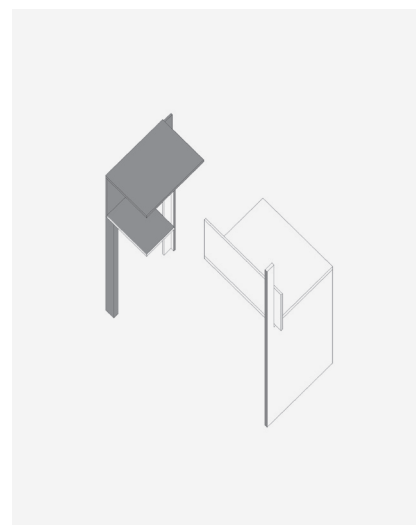
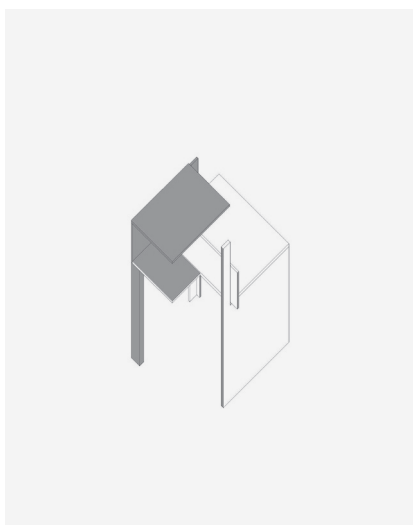
a pivoting piece of fixed furniture or a spatial composition, resulting in a condition in which they are interdependent, a vision of both the individual and social living conditions on which the houses depend.

This essay proposes that the development of Gray's furniture and house designs was influenced by new ways of perceiving space in art and photography, and by the revolutionary effects of Cubism. Exceptionally, Eileen Gray worked to an equal extent in the fields of art, interior design and, eventually, architecture. The chronology of her designs and architectural experiments is relevant because she was working on interior commissions, furniture, carpet designs and lighting at the same time as her first known architectural studies, the purchase of the land at Roquebrune-Cap-Martin and the design of E.1027. It is difficult to be precise with regards to the evolution of her designs for furniture and fittings, although various items have been dated<sup>5</sup>. At some stage, her approach altered with regards to three-dimensional form and fabrication. The pieces remained of consistently high material quality, while her designs began to change, discarding social and spatial conventions that had previously affected their forms. Tables became multi-sided and freestanding, without fixed orientation. Chairs were designed to be moved to suit the user, with curved forms or adjustable back rests that precluded them from being formally positioned in rooms, or against walls. They supported a way of sitting concerned more with individual occupation than appropriate posture. Simultaneously, Eileen Gray developed different fabrication methods, designing a new kind of transformable or portable furniture which could respond to contemporary living conditions and smaller spaces. This partly arose from her interest in the compact design associated with luxurious train and boat travel, camping, and British Campaign furniture. To alter space and its inhabitation, she designed the jointing components for semi and fitted furniture and her block screens.

**01** Eileen Gray, *De Stijl* table, 1922–1924, oak and sycamore, paint. © Virginia Museum of Fine Arts, Gift of Sydney and Frances Lewis, INV: 85.114.



**02** Drawings of Eileen Gray, *De Stijl* table whole and dismantled. © Amy Glover, Rosamund Diamond (ed.).



She used unique pivoting systems in loose and later fixed furniture as early as 1919<sup>6</sup>. How this transformation happened is an important question. It affected her approach to furniture and building design, resulting in a unique architecture.

### Cubism, spatial movement

As a sophisticated member of creative Parisian society starting in the early 20<sup>th</sup> century, Eileen Gray was exposed to artistic and technical developments that could have affected her singular design methods. She was not trained in a conventional sense as a furniture designer or as an architect. Through her own efforts, she became highly skilled, notably in lacquerwork. She attended the Slade art school in London for two years, and then made a transformative move to Paris in 1900, where she attended the *Académie Julian*, overlapping with Marcel Duchamp (1887–1968)<sup>7</sup>. This coincided with a period of revolutionary development in the visual arts. One of the most significant was Cubism, developed in the period between 1907 and 1914, by Georges Braque (1882–1963), Juan Gris (1887–1927) and Pablo Picasso (1881–1973)<sup>8</sup>. The Cubists' painting reappraised subjects, materials, their assembly in space and ways of seeing. In the period between the turn of the century and WWI, a freedom and an awareness of promise in the fields of art, science and technology permeated their work. Their still lifes, composed of paint and other random materials, assembled everyday objects, often manmade and of ephemeral use, and presented these simultaneously from different viewpoints, acknowledging scientific discovery, investigations of the human mind and the social change that was restlessly disrupting the formal conventions of bourgeois life. Their works conveyed the transitory. They were not trying to represent modern life or form, but physical presence, investigating human spatial perception. "Cubism changed the nature of the relationships between the

painted image and reality"<sup>9</sup>. They composed random collections of objects, as if their mental assemblage and the spaces between them mattered more. It was the same space that Albert Einstein (1879–1955) and later Werner Heisenberg (1901–1976) were discovering. "If we use the word 'space' purely diagrammatically, we can say that they realized that it was in the space 'between' phenomena that one would discover their explanation"<sup>10</sup>. This also changed perceptions of physical matter. Heisenberg's Uncertainty Principle (1927) suggested the impossibility of dividing the potential from the actual. The Cubists "created a system by which they could reveal visually the interlocking of phenomena. And thus they created in art the possibility of revealing processes instead of static states of being"<sup>11</sup>. Cubism could have offered Eileen Gray a new approach to furniture and building design. She developed pieces which altered the spaces they occupied, with a transience associated with contemporary life, responding to changing needs.

Eileen Gray used the same spatial techniques in furniture, interiors and architecture. Her black-and-white "*De Stijl*" occasional table 1922–1924<sup>12</sup>, described as such because of its relationship to the Dutch group with whom she was in contact, is the first where she creates a dynamic interaction with space that has been associated with Neoplasticism. The table, composed of two horizontal surfaces with two legs, and interlocking supporting slabs, alters from each visual angle, as if describing its multiple and changing use. The components dismantle any conventional reading of a table, occupying space with an ambiguity of support. The table's surface planes construct multiple spatial layers. She had a similar approach to architecture in E.1027, with a method of layering space by means of the extruded volumes of intermediate spaces, illustrated in her schematic diagrams for the house's spatial concept, in a special edition of *l'Architecture Vivante*<sup>13</sup>. One example is the guest niche in the main salon extruded from the house's external form and

as a separate space within it, which Eileen Gray described as “C Divan — could be used as a temporary room screened off”<sup>14</sup>. This method of layering space by means of the volumes of fixed furnishing pieces, results in a small house of great spatial richness.

It is Marcel Duchamp’s interpretation of Cubism in his short period of painting and later his three-dimensional work, that seems to reflect more closely how Eileen Gray’s interior spatial design developed. His *Nu descendant un escalier no. 2*, 1912, [Nude Descending a Staircase, No. 2], his earlier work *Nu [esquisse], jeune homme triste dans un train*, 1911-12 [Nude [Study], Sad Young Man on a Train], and other related works, differ from the earlier Cubist paintings of Braque and Picasso because the starting point for their subjects is the body in space instead of the composition of still life objects or buildings and geographic forms. *Nu descendant un escalier* represents the actions of movement in space in a way that is more reminiscent of photography or the cinema. It presents figurative temporality, recording movement by repetitive representation. Distinguishing his work from the earlier Cubist works, Marcel Duchamp introduced his idea as “elementary parallelism”<sup>15</sup>, using repetitive movement such as the bodily actions of descent which had been recorded by the photographer Etienne-Jules Marey (1830-1904), whom he later acknowledged as an influence<sup>16</sup>. Referring to *Nu descendant un escalier*, Marcel Duchamp later described “keeping only the abstract lines of some twenty different static positions in the successive action of descending”<sup>17</sup>. The spaces separating the positions are painted as equivalents and the figure’s movement is discernible catching the light at different angles.

Marcel Duchamp withdrew *Nu descendant un escalier* from the *Salon des Indépendants*, which took place in Paris from March 20, 1912, and where the Cubists exhibited. It was, however, shown at another Cubist exhibition in Paris, organized by the Puteaux Group later that year, so it is possible that Eileen Gray saw it. Alternatively, since the painting achieved notoriety in 1913, when it was shown at the Armory Show in New York, she may have seen it published. Eileen Gray owned a copy of the book

*Du Cubisme et des moyens de le comprendre* [Cubism and ways to understand it] by the artist Albert Gleizes<sup>18</sup>, who was a member of the Puteaux Group. Eileen Gray also knew Guillaume Apollinaire (1880-1918) and owned a copy of his book *Les Peintres Cubistes*<sup>19</sup> [The Cubist Painters], which she had purchased in 1913. This was a collection of essays written between 1905 and 1912 on various artists, several of whom she also knew<sup>20</sup>. It included the following commentary on Marcel Duchamp, which he later condemned: “It will perhaps be reserved for an artist as disengaged from aesthetic preoccupations, as occupied with energy as Marcel Duchamp, to reconcile Art and the People”<sup>21</sup>.

Eileen Gray’s furniture designs, interiors, and houses seem to translate the artistic development of Cubist art into three dimensions. Her designs for transformable furniture were concerned, as with Cubism, with the spaces between, and the pieces’ ability to change the rooms they occupied. She constructed spaces from fixed furniture with moving parts, conveying the changes she identified in contemporary life: no longer structured formally, for example by predetermined meeting times for meals and social engagements. New ways of treating space and its occupation in her loose and subsequently fitted furniture must have appealed to her rejection of bourgeois conventions in Paris, and previously of her family’s lifestyle and pretensions. The changes are apparent in her loose furniture designs, the interiors she designed for clients, notably Madame Mathieu-Lévy, her own and Jean Badovici’s (1893-1956) apartments, and her two completed houses. These works were more than explorations of ordinary or exotic materials, the jointing methods used in her works were original and sophisticated spatial investigations, with the capacity to transport their users. Eileen Gray’s transformable loose furniture, and her fixed furniture with moving parts activated by use, reproduced the temporality of human habitation.

In 1919, she began a scheme for Madame Mathieu-Lévy’s apartment in *rue de Lota*, which was completed in 1924. In the first stage she concealed the traditionally plastered main salon walls behind large butted lacquer panels with abstract designs in tarnished silver, which were described in a *Harper’s Bazaar* 1920 review:

*the walls might pose as studies from the latest Cubist exhibition. At least one panel might be Nu descendant un escalier but, in fact, the design is achieved by streaking the black lacquer with over-tones of silver, slightly tarnished in places*<sup>22</sup>.

Eileen Gray’s block-screen technique for lining the hall to the principal bedroom and her designs for the freestanding block screens marked a point of exceptional transformation in her design system, an equivalent to Cubism’s spatial shifts and Marcel Duchamp’s representation of movement, together with his interest in the mechanical rotary actions of everyday appliances.

Her first freestanding block screens were made around the same period as the *Rue de Lota* hall<sup>23</sup>, with the spatial concepts for them and the transformable room linings developed simultaneously. The hall consisted of 450 brick



03 E.1027, view from the west, 2014. © RD.

configured reflective lacquer panels, linked together with “brass or chrome rods” so that they pivoted<sup>24</sup>.

The freestanding block screens were composed of seven or eight rows of black or white lacquer units rotating in opposing directions. Instead of enclosing or dividing, these screens conveyed a critical spatial ambiguity that is also discernible in Marcel Duchamp's works. Their partial transparency created by the pivoting mechanism and the highly reflective lacquer blocks, meant that they were capable of dematerializing, depending on their orientation, or by the setting of lines so that the blocks were counteracted or reflected. The block screens were sophisticated and highly crafted items. Later, in E.1027's and *Tempe à Pailla*'s design, Eileen Gray used refined pivoting mechanisms, whilst she simultaneously adapted standardized building fittings for the terrace doors and pivoting windows and shutters. Through devices incorporated in the buildings' fabric and in their fixed furniture, a complex spatial layering was developed that seemed to expand the houses' modest footprints.

### Mechanisms and "readymades"

At the same time as Marcel Duchamp was making his Cubist paintings, his preoccupation with rotating mechanisms was represented two dimensionally in his *Coffee Mill* 1911 and his rotating machine, *Chocolate Grinder* (No. 1), 1913. *Coffee Mill* 1911 which is painted with direction lines in a flattened spatial representation, conveys the space in which the machine stands, its operating mechanism, and a suggestion of the hand which turns the mill. Eileen Gray used elaborate jointing, rotating and pivoting mechanisms in loose and fixed furnishings in E.1027 and then *Tempe à Pailla*, as metaphors for the inhabitation she envisaged. Rotation appears as a practical device and an expressive one, in the fittings that were built into her houses. In E.1027, this is notable in the bedside table armatures for the guest-divan niche off the living room, as well as those for the principal and guest bedrooms. Rooms and areas in E.1027 are subdivided by means of furnishings that bespoke the specific use of particular areas. In the guest-divan niche, Eileen Gray uses pivoting and rotational devices in the headboard and the glazing at the foot of the bed, to construct an additional, individually inhabited space. A side table pivots from the wall and can be rotated and tilted for reading, while a small opening in the window shutter allows someone lying on the divan a private view out to the sea. In the guest bedroom area on the lower floor, the satellite mirror with its projecting armature holding another circular, pivoting magnifying mirror; a device for personal observation, is another example of a semi-rotating spatial manipulator. In *Tempe à Pailla*, a ceiling aperture in the principal bedroom could be obscured by a circular disk that is controlled from the bed using a pivoting armature. These are not concealed but expressive mechanisms. The two techniques, one involving purposed designed fittings for specifically conceived locations and the other adaptations of standard fittings, recall Marcel Duchamp's combination of his highly developed metaphorical works, notably *The Large Glass* of 1915–1923 with its machines and rotating structures, and

his “readymade” artworks composed of familiar everyday objects, such as the *Bicycle Wheel*, 1913<sup>25</sup>. Duchamp transformed daily equipment into fantastic rotating mechanisms – *Chocolate Grinder* (No. 1), 1913, is later incorporated into his *Large Glass*.

In his *Nu descendant un escalier*, Marcel Duchamp shows rotational movement as three partially dotted circles indicating repetition<sup>26</sup>. This method of indicating motion appears in some of Eileen Gray's drawings of furniture in plans for her house<sup>27</sup>. In *Tempe à Pailla*, Eileen Gray invents an expanding cabinet to alter her bedroom space, alongside a chest of pivoting drawers, drawing the motion onto the floor plan. Eileen Gray's assemblages of readily available electrical parts into lights and switches for bed panels, a combination of bespoke and standard fittings, are equivalent to Marcel Duchamp's “readymades”, serving the occupant, as is the loose double-socket unit, a strange unique object used on E.1027's external terrace and in her apartment. The mechanisms in Eileen Gray's houses never seem to be purely functional. The suspended mosquito netting contraptions over the beds in E.1027 and *Tempe à Pailla* and the shower curtain holders are simultaneously finely balanced, materially spare, and humanly suggestive.

### Complete Works

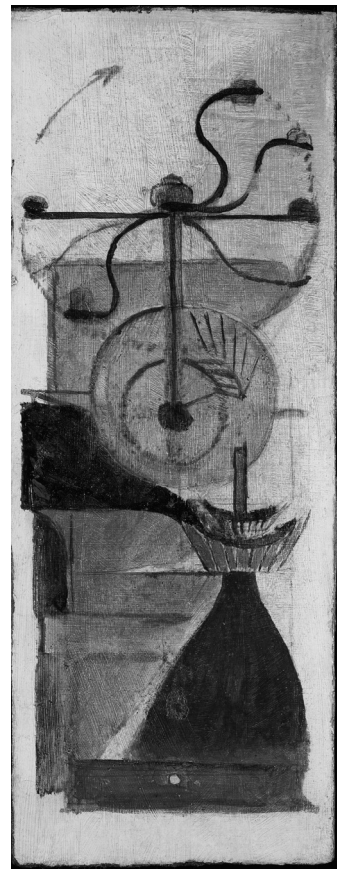
In E.1027 and *Tempe à Pailla*, Eileen Gray constructed multiple layers of space through the interposition of intermediate partitions, fixed and loose furniture. Pivoting and rotating tables, stands, and drawers, juxtapose unstructured communal life with personal inhabitation. In the main living space of E.1027, the intermediate partitions are not at full height, so that the ceiling presents a continuous plane over spaces which may be constantly transformed by occupation. Loose furniture adaptable for different activities, expands space through its transparency and the reflectance of its nickel plated steel framing. Into these pieces of furniture, Eileen Gray embedded the potential for the house to be inhabited in non-programmed ways, whereby the occupants, collectively and individually, could pursue their own momentary needs, desires and dreams. If the Cubism of George Braque, Juan Gris, and Pablo Picasso differed from Marcel Duchamp's “elementary parallelism” in that the former was the representation of static objects from different viewpoints while the latter was that of human form in movement, then a similar distinction could be discerned in Eileen Gray's practice between repose and action. The fixed furniture responding to physical sensations, personal thoughts, and memory, encouraged mobility and personal engagement. Analysis and the mental condition were significant components of contemporary art revolution, notably the Dada and Surrealist movements.

Eileen Gray's concurrent experiments with photography and light, as well as her familiarity with artists who had an interest in glass and photography, such as Marcel Duchamp and Man Ray (1890–1976), whom she knew personally, could have informed her use of glass and hinged mirrors as elements for layering and admitting light into E.1027, as with the mirror with a pivoting section above





**04** Marcel Duchamp, *Nude Descending a Staircase*, No.2, 1912, oil on canvas. Credit Philadelphia Museum of Art, The Louise and Walter Arensberg Collection, 1950, 1950-134-59. © Association Marcel Duchamp / ADAGP, Paris and DACS, London 2019.



**05** Marcel Duchamp, *Coffee Mill*, 1911, oil and graphite on board. © Association Marcel Duchamp / ADAGP, Paris and DACS, London 2019. Photo: © Tate Gallery London, 2017.



**06** Eileen Gray, black block screen, 1923, lacquered wood, with brass rods. © Aram Designs Ltd, holder of the worldwide license for Eileen Gray designs.



**07** Eileen Gray, E.1027, guest niche with rotating bedside table. Photo: © RD.

the basin in the main bedroom dressing area. In E.1027, she used mirrors as devices to multiply the complexity of the spaces, and as tools to draw the exterior of the house inside. The idea that light and its admittance and reflective qualities can generate spatial layers continues through her work. Marcel Duchamp experimented with glass and optical devices as part of his departure from painting and conventional art forms. One of the first art “machines” he constructed was the *Rotary Glass Plates* (Precision Optics) of 1920<sup>28</sup>. Another example of a similar genre, *Rotary Demisphere* (Precision Optics), was made for the collector Jacques Doucet (1853–1929), for whom Eileen Gray had made furniture. Marcel Duchamp constructed his complex, elusive work *The Bride Stripped Bare by Her Bachelors, Even* (*The Large Glass*) from mixed material conveying physical and psychological actions, held flat between glass sheets in metal frames<sup>29</sup>.

*Among the reasons that he gave for using glass was the fact that it eliminated the need for background. The transparency of the glass meant that its emptiness was always filled with whatever its surroundings were*<sup>30</sup>.

Why did Eileen Gray write on the walls of E.1027? Her application of texts could also refer to Marcel Duchamp. The statements or instructions on walls and fittings, recall Dadaist language and Marcel Duchamp’s attachment to wordplay with its double meanings that he ascribed to his “readymades” and other works. In E.1027 “*Entrez Lentement*” [enter carefully] is stencilled by the main entrance, “*Defense de Rire*” [laughing prohibited] on the lobby partition, and “*Sens Interdit*” [forbidden direction] on the door to the private spaces, all carrying multiple meanings regarding the use of the house within the context of modernist and architectural preoccupations. Inside the building, Gray’s texts are either matter-of-fact or ironic: “*Oreillers*” [pillows], inscribed on E.1027’s guest alcove headboard is a generous act for a guest’s comfort, or an admonishment to silence. Marcel Duchamp later stated:

*One important characteristic was the short sentence which I occasionally inscribed on the “readymade”. That sentence instead of describing the object like a title was meant to carry the mind of the spectator towards other regions more verbal*<sup>31</sup>.

Most of the remaining contemporary records of the houses, the drawings, presentation images, and photographs, were made by Eileen Gray herself. Her techniques for imagining E.1027 and *Tempe à Pailla*, and developing their detailed design, include a series of drawings in which interior sectional elevations are projected around room plans. They are versions of an 18<sup>th</sup> century type of orthographic projection, also used by some members of the *De Stijl* movement. In the 18<sup>th</sup> century they would have depicted decoration with furniture arranged against walls with its implied socialization. In Eileen Gray’s versions, the building enclosure, apertures, linings, fitted parts, transformable fixed furniture, pictures, and carpets, are line drawn with equal emphasis

as if interdependent, flattened onto the elevations, whilst generating layers of subsidiary spaces within the rooms. They recall on the one hand, 18<sup>th</sup> century projected drawings, and on the other, Cubist space, with its repetition of objects viewed from different angles. In Eileen Gray’s drawings, the imagined spaces between objects, and the dynamic actions of placement and use, are presented with the concomitant relationship of the furniture to the spaces between, which is sometimes depicted as flattened or floating. The abstract layering of Eileen Gray’s projection drawings is realized in the house’s spaces, and often shown in her photographs, using a constant play of tone, flattening conventional depth of field so that distant planes do not necessarily recede.

Should one envisage E.1027 as a receptacle without furniture, or could the fixed furniture exist without its enclosing space? Eileen Gray’s drawn plans are never empty. The three beds of the salon, guest niche and the master bedroom are shown in her floor plans and the stylized plan designating sun paths, views and routes. Marcel Duchamp stopped painting. Discarding it as a medium, he developed the “readymade”, and created *The Large Glass* from several of his investigations and artistic practices including drawing, painting, sculpture, language, rotating mechanisms, photography, glass and transparency. In this work, he developed a non-conventional form of artistic representation to evoke modern human experience in all of its transience, in both physical and psychological terms. Eileen Gray’s unique architecture in E.1027 and *Tempe à Pailla* can be explained as the construction of entire environments in which the different fields of art and design associated with contemporary existence and its space could be developed. In designing the components simultaneously, with equal emphasis, she produced an entirely coherent architectural solution.

#### Notes

- 1 Unfortunately, her design method cannot be fully examined with regards to her public architecture as none of those projects were built.
- 2 I refer to the houses and records of them in their original forms.
- 3 Eileen Gray worked alone as a designer, with the collaboration of makers, producing furniture and fittings, and solely on the houses producing her own design drawings, supervising the construction, and taking most of her own photographs.
- 4 Architecture has adopted the term *Gesamtkunstwerk* associated with opera (particularly Wagner) to describe a “total work”, in which a whole project, typically but not always a house, has been designed and executed as a whole. The original term is defined for example by the Oxford English Dictionary, as “a work in which drama, music and other performing arts are integrated and each is subservient to the whole”. Twentieth century architectural examples include Gerrit Rietveld: *Schroder house* (1924–1925), Josef Hoffman: *Palais Stoclet* (1905–1911), Adolf Loos: *Villa Müller* (1929–1930), Mies Van der Rohe: *Tugendhat house* (1928–1930).
- 5 It is difficult to be precise on the evolution of her furniture and fitting designs although various items have been dated. See the catalogue *raisonné* of furniture and fittings in Peter Adam, *Eileen Gray: Architect/Designer*, London, Thames and Hudson, 1987. Adam states that it is very difficult to date the furniture. A chronology of Eileen Gray’s work: Table in black and white *De Stijl* (1922–1924) Galerie Jean Désert opens (1922) Block (Brick) screen, prototype blackened wood, metal (c.1918) Block screen, white, painted wood (1922) Block screens, black lacquer, white lacquer (1922–1925) Rue de Lota apartment (Madame Mathieu-Lévy) (1918–1922)

- Rue de Lota hall (1922–1924)
- Transat chair (1925–1926)
- Non-conformist chair (1926–1928)
- Folding table, tubular steel and painted wood (1926–1929)
- Dressing table with pivoting drawers (1925–1928)
- Adjustable circular table, chromed tubular steel frame (1925–1928)
- Satellite hanging lamp (1919–1925)
- First architectural studies: three-storey house, after Adolf Loos's Villa Maïssi (1923)
- E.1027 (1926–1929).
- 6 Examples include the dressing table with pivoting drawers from 1919–1925, the Transat Chair with pivoting headrest from 1925/1926, pivoting bedside tables and pivoting drawers for the fitted wardrobe from 1926–1929, and the block screens from 1922/1923 (prototype from 1918).
- 7 Eileen Gray attended the Slade School of Art in London from 1898 to 1900, the *Académie Julian* in Paris from 1902 to 1906. Marcel Duchamp also attended the *Académie Julian* between 1904 and 1905.
- 8 John Berger dates the period of Cubism from 1907 to 1914. See John Berger, *The Success and Failure of Picasso*, London, Penguin, 1960, 48–73, and John Berger, “The Moment of Cubism”, in John Berger, *The Moment of Cubism and Other Essays*, London, Weidenfeld and Nicolson, 1969, 1–32.
- 9 Ibid., 51.
- 10 Ibid., 67.
- 11 “... Cubism is an art entirely concerned with interaction: the interaction between different aspects: the interaction between structure and movement: the interaction between solid and the space around them: the interaction between the unambiguous signs made on the surface of the picture and the changing reality which they stand in for”. Ibid., 68.
- 12 The description is from a Sotheby's catalogue from 1980 and is reflected in Peter Adam's catalogue *raisonné*, see note 5.
- 13 Jean Badovici, Eileen Gray, “E.1027, Maison en Bord de Mer” in *L'Architecture Vivante*, Hiver 1929, Albert Morancé, Paris, Reprint Édition, 2006, Imbernon Marseille.
- 14 Description on a page from Eileen Gray's portfolio showing exterior photograph, plan, typed legend, 1956, 21.
- 15 “First, there's the idea of the movement of the train, and then that of the sad young man... who is moving about; thus there are two parallel movements corresponding to each other. Then there is the distortion of the young man – I had called this elementary parallelism. It was a formal decomposition; that is, linear elements following each other like parallels and distorting the object. The object is completely stretched out as if elastic. The lines follow each other in parallels, while changing subtly to form the movement... I also used this procedure in the *Nude Descending a Staircase*”. Marcel Duchamp in Pierre Cabanne, “2. A Window onto Something Else”, *Dialogues with Marcel Duchamp*, London, Hachette UK, 2009, 29.
- 16 Pierre Cabanne, *ibid.*, 37–38.
- 17 “Painted, as it is, in severe wood colors, the anatomical nude does not exist, or at least cannot be seen, since I discarded completely the naturalistic appearance of a nude, keeping only the abstract lines of some twenty different static positions in the successive action of descending”. Michel Sanouillet, Elmer Petersen (eds.), *Duchamp du signe*, Paris, Flammarion, 1975, 222.
- 18 Albert Gleizes, *Du Cubisme et des moyens de le comprendre*, Paris, Editions les Cibles, 1920, see Jennifer Goff, *Eileen Gray, Her Work and Her World*, Dublin, Irish Academic Press, 2015, 22.
- 19 Guillaume Apollinaire, *Méditations esthétiques; les peintres cubistes*, Paris, Eugène Figuière et Cie., 1913, and see Jennifer Goff, *ibid.*, 22.
- 20 See Chapter 3, “The Artist: Painting, Sculpture, Photography,” in Jennifer Goff, *ibid.*, 83.
- 21 Pierre Cabanne, *op. cit.*, 37–38.
- 22 Unknown author, “Lacquer Walls and Furniture Displace Old Gods in Paris and London” *Harper's Bazaar*, London, September 1920.
- 23 A wood and metal prototype was made in 1918.
- 24 Peter Adam, *op. cit.*, 52.
- 25 “Please note that I didn't want to make a work of art out of it. The word ‘readymade’ did not appear until 1915, when I went to the United States. It was an interesting word, but when I put a bicycle wheel on a stool, the fork down, there was no idea of a ‘readymade’, or anything else...” Marcel Duchamp in Pierre Cabanne, *ibid.*, 47–48.
- 26 Eileen Gray may also have seen the version of Duchamp's first glass and optical device *Rotary Glass Plates* made for the collector Jacques Doucet, for whom she had made furniture.
- 27 Section and plan of the principal bedroom in *Tempe à Pailla*, Castellar, ca. 1934.
- 28 It consisted of five glass plates with kinetic black lines spun on an axle.
- 29 Its development is recorded in Marcel Duchamp, *The Green Box*, Paris, 1934, and Richard Hamilton, George Heard Hamilton trans., *The Green Book*, London, Percy Lund Humphries, New York, George Wittenborn, 1960.
- 30 Dawn Ades, “Camera Creation”, in Jennifer Mundy, (ed.), *Duchamp, Man Ray, Picabia*, London, Tate Publishing, 2008, 94.
- 31 Marcel Duchamp, “Apropos of ‘Readymades’”, in Michel Sanouillet, Elmer Petersen (eds.), *Salt Seller: The Essential Writings of Marcel Duchamp*, London, Thames and Hudson, 1975, 141–142, quoted in Gavin Parkinson, *The Duchamp Book*, London, Tate Publishing, 2008, 154–155.

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