

# LE CORBUSIER'S KANSEI OF 'WALL' —THE JOURNEY AND THE ARCHITECTURAL CONCEPT BY THE MODERN ARCHITECT—

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## ABSTRACT

The purpose of this paper is to consider the process that Kansei (sensitivity) of 'Wall' on Le Corbusier's journey is converted into the modern architectural concept from the viewpoint of Kansei-philosophy. We analyze Le Corbusier's descriptions extracted from Le Corbusier's records of the journey *Voyage d'Orient Carnets* (1911) and *Le Voyage d'Orient* (1965), and his work collection *Le Corbusier's Pierre Jeanneret Œuvres complètes*, vols.8. We can extract 5 non-modern themes of 'wall' ('Material', 'Opening', 'Color', 'Ornament' and 'Light'), and that Le Corbusier modernizes these 4 themes except 'Ornament' in the earlier stage of his architectural activity, and afterwards, he transforms them into ambiguous (modern and non-modern) concepts. On the other hand, Le Corbusier makes 'Ornament' to the theory in the later stage of his activity. We can say that the memory of Le Corbusier's hand in journey is not simply referred and quoted, or rather than being forgotten, the Kansei of journey is converted into the Kansei of architectural creation beyond his intention.

**Keywords:** *Architectural KANSEI, Le Corbusier, Voyage d'Orient, Wall, Architectural Concept*

## 1. INTRODUCTION

### 1.1. Purpose

The purpose of this paper is to consider the process that Kansei (sensitivity) of 'Wall' of the architect in the journey is converted into the modern architectural concept. We focus on Le Corbusier (1887-1965) as one of the Modern architects, to clarify the architectural Kansei from the viewpoint of Kansei-philosophy [1].

It is pointed out that the journey in his youth has the very important meaning [2]. Especially, a lot of records have been left in the journey to the east (*Voyage d'orient*)<sup>1</sup> in 1911. We already focused on the themes of 'Wall' in the journey to the east to analyze Le

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Corbusier's Kansei in physical travel. We compared the descriptions of *Voyage d'Orient Carnets* [3] directly from the records of the journey with the descriptions of *Le Voyage d'Orient* [4] of the travel that was edited after the journey, analyzed them and extracted 5 themes ('Material', 'Opening', 'Color', 'Ornament', and 'Light') from them.

There was the characteristic that there were many descriptions of things as records in comparison with the descriptions of *Voyage d'Orient Carnets* and that there were many phenomenal descriptions added to the expression of Le Corbusier's feeling in *Le Voyage d'Orient*. In a word, when Le Corbusier described 'Wall' on *Voyage d'Orient Carnets*, he recorded the physical characteristic of 'Wall' that could be replaced for language immediately with descriptions of things from the objective viewpoint, and tried memorizing the phenomenon of 'Wall' that could not be replaced for language into his body by sketching. We consider that Le Corbusier tried to make the non-verbal or the tacit rememberer of 'Wall' and the memories of 'Wall' that was replaced into the body language with phenomenal description for his recollecting journey<sup>2</sup>.

Then, in this paper, we analyze the relation between the themes of 'Wall' in journey to the east and Le Corbusier's modern architectural conceptions, and consider about the creative of an architect concerning Kansei.

## 1.2. Method

In this paper, we use Le Corbusier's pocketbook *Voyage d'Orient Carnets* that spells the record of the journey and his travel *Le Voyage d'Orient* as the primary sources of the analysis concerning the journey to the east<sup>3</sup>.

Afterwards, we use *Le Corbusier et Pierre Jeanneret (Œuvres complètes, vols.8* [5] (in this paper, it is written *Œuvres complètes*) as a primary source for the analysis of a modern, architectural theory in the Le Corbusier's architectural production activity.

We extract Le Corbusier's architectural concepts based on the themes of 'Wall' that were already clarified by our study, and we analyze the difference between 'Wall' in the Le Corbusier's architectural production activity and 'Wall' in the journey by the above-mentioned method.

## 1.3. The significance of this study to the past studies

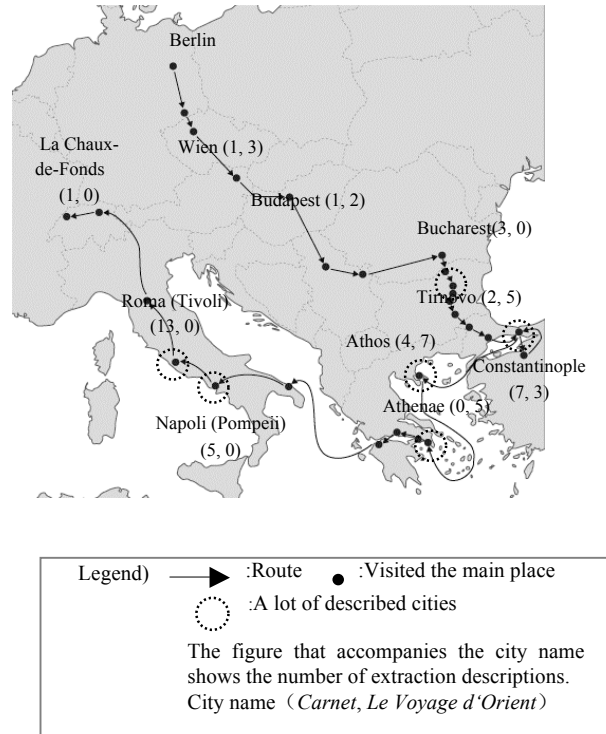
There are a lot of studies that focus on Le Corbusier's journey to the east and analyze the sketches and description in *Voyage d'Orient Carnets* and *Le Voyage d'Orient* and that took up other journey of Le Corbusier. Assuming that it is typical, there are studies to analyze the influenceable ideas that the experience of the journey gave to Le Corbusier's architectural design afterward, and the reference system to architectural design in historical architecture found in the journey [8] [9]. Moreover, there is a study to analyze concerning Le Corbusier's self-awareness through the empirical study on the route and the record of the journey [10]. These past studies are inclusive proof of self-awareness and the idea formation through the journey of Le Corbusier; so to speak, these are considerations concerning Le Corbusier's intellect. Our study focuses on Kansei in the architect's body journey for these past studies.

Moreover, Mr. Satoshi Terunuma and Mr. Shinya Nagasawa did a series of study that quantitatively analyzed value of architecture [11] [12]. Mr. Nagasawa's studies regard the

Kansei evaluation of architecture from the viewpoint of user, but this paper especially the main point to the Kansei of architecture from the viewpoint of designer (architect).

#### 1.4. The themes on the description of 'Wall' in the journey to the east

Le Corbusier traveled along the route shown in Fig.1, and left many descriptions and sketches about 'Wall' in various cities. We already referred that there are 'Material' and 'Opening' as the direct themes about the physical characteristic of 'Wall', and 'Color' and 'Ornament' as the attendant themes about 'Wall'. Moreover, we find that there is 'Light' as the non-physical theme in contrast to these 4 physical preview themes<sup>2</sup>.



**Figure 1:** Route of the journey to the east

**Table 1:** Characteristic of the description and themes of 'Wall' in the journey to the east

Theme	Material	Opening	Color	Ornament	Light
City					
Time	After Turkey	Entire travel	Entire travel	After Athos	Turkey
Building Type	Private house	Private house Religious facilities	Scenery in town Various building types	Man of power's residence Religious facilities	Religious facilities
Contents of description	Finish Existence	Composition of facade Cutting landscape Lighting	Composition of color Contrast and harmony between nature and artificial	Display of picture and sculpture Effect of space formation	Sun shine Symbolic

## 2. THE MODERN ARCHITECTURAL CONCEPTS AND THEORIES OF 'WALL' IN *LE CORBUSIER & PIERRE JEANNERET ŒUVRES COMPLÈTES*

### 2.1. Material

In the first stage of Le Corbusier's architectural production activity, he makes the building frame with 'The rein-forced concrete (Le béton armé)' and the iron frame, and makes 'Wall' from the brick etc, but he gives painting on the surface of 'Wall', and erases the color and the material of a natural material of 'Wall'. However, since the project of «Maisons Loucheur» in 1929, Le Corbusier plans a lot of works with the facade of the stone volume in the first half of the 1930's (Fig. 2).



**Figure 2:** Outside of «Maison aux Mathes»

About the design of the facade with such non-modern industrial method and a native material, Le Corbusier describes the lesson in Pessac as follows.

Toutefois, l'expérience de Pessac a conduit à un petit stratagème de diplomatie opportune: il est prévu la construction d'un mur d'appui de la maison ou d'un mur mitoyen entre deux maisons, en maçonnerie de moellons, de briques ou d'agglomérés, matériaux du pays, réalisé par le maçon du pays.<sup>4</sup>

On the other hand, Le Corbusier describes about «Maison Errazuriz» in 1930 as follows.

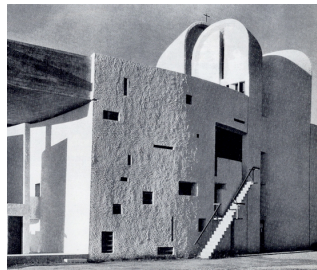
La rusticité des matériaux n'est aucunement une entrave à la manifestation d'un plan clair et d'une esthétique moderne.<sup>5</sup>

In a word, the modernness in architecture for Le Corbusier is not the one that it is influenced by "Material", rather Le Corbusier finds forming modernness through local construction and industrial production without limiting it to a modern artificial material like concrete, etc. A natural material is not made a theory. However, afterwards, the number of architectural works with 'Wall' of 'The rein-forced concrete (Le béton armé)' increases after the 1940's, but the 'Finish' in the surface is not a smooth one like in the modern architectural works. Le Corbusier gives 'Wall' very rugged 'Finish' by showing the grain of the centry as it is, and spraying cement, like the wall of «La chapelle de Ronchamp» (1950).

Thus, Le Corbusier describes about the gate of the Parthenon in Athens as follows and focuses on 'Finish' and 'Existence' of 'Wall' that made the best use of material feeling of nature.

Le mur aux trois portes, ouvert plus largement en son milieu pour qu'aux Panathénées les chars puissent, est un pan de marbre aux mille moellons ajusté au point qu'il provoque la caresse et que la main largement étalée voudra pénétrer le mirage de ses assises millénaires : la surface aussi lisse qu'une glace joue des veines opposées que chaque moellon propose...<sup>6</sup>

At the first term of Le Corbusier's architectural production activity, he denies them. He uses the rein-forced concrete and erases the material of a natural material by artificial paintings. However, at the latter term of his architectural production activity, he uses natural material product from the region origin. Moreover, he adopts the 'Finish' of 'Wall' that material feeling of nature is expressed in the façade as it is. In that sense, it is an affirmative of the journey. However, at the same time, he makes 'The rough concrete wall (Le béton brut)' (Fig. 3) from the modern artificial material and adds nature to the wall. The comparison between it and the smooth concrete 'Wall' or the 'Wall' from that 'Color' is given creates the esthetic effect. In that sense, we consider that 'Material' of 'Wall' becomes into an ambiguous concept.

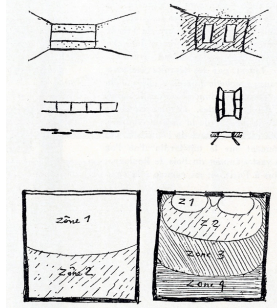


**Figure 3:** The outside wall of «La chapelle de Ronchamp»

## 2.2. Opening

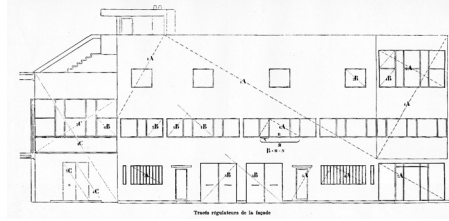
'Opening' becomes a theme for Le Corbusier during the first period of his architectural production activity. The one made a theory first is 'The strip window (La fenêtre en longueur)'. 'The strip window' is the one of 'The 5 points of a new architecture (Les 5 points d'une architecture nouvelle)' that Le Corbusier advocated in 1926. Le Corbusier describes as follows and explains it is a big theme to solve the problem of 'Lighting' in a conventional portrait window (Fig. 4).

à surface de verre égale, une pièce éclairée par une fenêtre en longueur qui touche aux deux murs contigus comporte deux zones d'éclairage: une zone, très éclairée; une zone 2, bien éclairée.<sup>7</sup>



**Figure 4:** The 5 points of a new architecture, The strip window

Moreover, Le Corbusier focuses on the formation of the panoramic view from the room by 'The strip window', in addition to effect of lighting, in a real work such as «Petite villa au bord du Lac Léman» in 1923. On the other hand, Le Corbusier considers the arrangement in the form or the wall of 'Opening' by using the concept 'The reference line (Les traces régulateurs)' in 1923.



**Figure 5:** The reference line of «Maisons La Roche=Jeanneret»

Afterwards, Le Corbusier designs 'The glass wall (Les pans de verre)' as development of 'The strip window'. 'Wall' and 'Opening (Window)' assimilation. Though in the 1920's, Le Corbusier planned works that 'The strip window' and 'The glass wall' used together, the plan that adapted only 'The glass wall' were increases gradually. Le Corbusier comes to request securing more efficient lighting and more bold view. In addition, he comes to request the air-conditioning function by the theory of 'Neutralization walls (Murs neutralisants)'. Moreover, 'Louver (Brise-soleil)' and 'Loggia' are added to outside of 'The glass wall', and 'Wall' comes to have spatiality. On the other hand, 'Claustra' is used in «L'Unité d'Habitation à Marseille» in 1945, and demonstrates the effect of feature lighting in «La chapelle de Ronchamp».



**Figure 6:** Claustra of «La chapelle de Ronchamp»

Thus, about 'Opening' of 'Wall', Le Corbuiet describes as follows about 'Wall' of the private house in Tirnovo on the journey to the east and points the problem in relation between 'Wall' and 'Opening'.

Ces chambres sont si petites que la fenêtre tient tout le mur et toujours une galerie s'accroche, domonant l'avalanche des maisons<sup>8</sup>

Moreover, in one side, Le Corbusier describes as follows and focuses on 'Cutting landscape' by 'Opening'.

Et, à cause de la situation unique de cette ville, un profil hardi et brutal de mont, et un torrent jaune, viennent s'encadrer dans la géométrie du fenêtrage.<sup>9</sup>

To similar, at the first term, Le Corbusier thinks that he settles the problem of 'Composition of facade', 'Cutting landscape', and 'Lighting' by 'The strip window'. Also, on the journey to the east, Le Corbsier describes as follows and focuses on the effect of Lighting by the clerestory of religious facilities in the mosque of Turkey etc.

Un plafond d'étoiles s'étendait, formé de zones concentriques, sur des gens en prière. C'était comme une gaze quiète, formée du scintillement de mille petites veilleuses et les quatre murs en carré du sanctuaire en étaient démesurément éloignés.<sup>10</sup>

Le Corbusier does not touch the effect at the first term of his architectural production activity. However, at the latter term of his architectural production activity, Le Corbusier makes the phenomenon effect of Lighting in the mosque that he saw in journey to the east as 'Claustra' to the concept. 'Claustra' creates the effect of Lighting with metaphysics meaning that exceeds mechanical Lighting.

### 2.3. Color

It is 'Architectural camouflage (Camouflage architectural)' that Le Corbusier made to the theory for the first time about 'Color' of 'Wall'. The first practice is «Maisons La Roche=Jeanneret» planned from 1923 to 1925 in Paris. Le Corbusier describes as follows.

A l'intérieur, les premiers essais de polychromie, basés sur les réactions spécifiques des couleurs, permettent le «camouflage architectural», c'est-à-dire l'affirmation de certains volumes ou, au contraire, leur effacement.<sup>11</sup>



Figure 7: Inside of «Maisons La Roche=Jeanneret»

In an architectural work before «Maisons La Roche=Jeanneret», Le Corbusier's concern in 'Wall' regards the problem of "Opening" and "Lighting". Le Corbusier does not make "Color" a problem. However, before «Maisons La Roche=Jeanneret», in his works that are planned in the 1920's, called Le Corbusier's 'White age', until «Villa Savoye» finished in 1931, Le Corbusier plans 'Variegated color (Polychromie)' with white and comparative pastel colors in room. Moreover, Le Corbusier gives 'Variegated color' to the outside wall in the plan of «Quartiers Modernes Frugès» of Pessac, describing as follows, and suggesting harmony with the ambient environment.

Les maisons grises en ciment faisaient un insupportable amas compressé, sans air. La couleur pouvait nous apporter l'espace. Considérer la couleur, comme apporteuse d'espace.<sup>12</sup>

In a word, 'Color' of 'Wall' is a forming act of creating not finishing by mere processing but the space for Le Corbusier, and 'The architectural camouflage' is a psychological operation that gives the extension and the depth to the architectural space, and brings harmony with the ambient environment. Afterwards, Le Corbusier designs the method of using the rough concrete wall that came into being by accident for defective construction compared the 'richly-color (Polychromie violente)' in «L'Unité d'Habitation à Marseille» in 1945.

j'ai dit: «J'en ferai une beauté par contraste, je trouverai la contre-partie, j'établirai un dialogue entre la rudesse et la finesse, entre le terne et l'intense, entre la précision et l'accident. Et je conduirai ainsi les gens à observer et à réfléchir.»<sup>13</sup>

This is a concept that aims at a comparative esthetic effect by 'Material' feeling and 'Color', and the 'The comparison of material feeling and richly-colored' is frequently adopted within Le Corbusier's works in the active latter term including a series of main facilities of Chandigarh of India.

Thus, in the journey to the east, Le Corbusier analyzes 'Composition of color' in detail about the town in Prague as follows and holds the much interest in it.

Prague sont putz. Mais peintes du jaune prisé de l'Empire, et du puis aussi de verdâtre sale très beau, et enfin souvent d'un gris mat très riche poussant jusqu'à 1 gris fonte très sombre qui fait vivre tout ce modelé baroque et qui devient formidable à cause des fenêtrées blanches qui sont absolument à fleur de mur et qui s'ouvrent en dehors font 1 joli ornement<sup>14</sup>

At the first term of Le Corbusier's architectural production activity, Le Corbusier is negatively compared with the color of a natural material while makes 'Composition of color' by the artificial paints of light color to the concept. However, at the latter term of Le Corbusier's architectural production activity, 'Color' of 'Wall' changes from the harmony beauty by the artificial paints of light color to the comparison beauty between the artificial violent color and the color and material feeling of nature. In a word, the Kansei to 'Contrast and harmony between nature and artificial' of 'Color' is reflected in the architectural expression more immediately. Le Corbusier affirmatively makes 'Color' of 'Wall' found by the journey to the east a concept.

#### 2.4. Ornament

In the works of the architectural production activity initial of Le Corbusier, 'Ornament' to 'Wall' was indirect and passive extent where the painting hung to the indoor wall was a response to the demand of his client. It is because 'Ornament' must be removed in theory of 'Purisme' [13]. However, Le Corbusier is engaged in the art production in parallel with architectural production, and in «Projet Porte Maillot» in 1950, Le Corbusier interprets the painting, the sculpture, and construction, etc. overall by using the term 'Synthesis of the arts (Synthèse des Arts)', and advocates the theory of considering them to be one large art. After this, Le Corbusier comes to give 'Ornament' to 'Wall' immediately, like the wall painting drawn in inner wall of «Maison d'habitation de Mrs. Manorama Sarabhai» of Ahmadabad in India and the enamel picture given to revolving door of «Assemblée» of Chandigarh (Fig. 8), the tapisserie hung on the wall of the court in «Haute Cour», and the relief of the outside wall of «Palais des Congrès à Strasbourg».



**Figure 8:** The enamel picture given to revolving door of «Assemblée»

Thus, in the journey to the east, Le Corbusier describes about the monastery of Athos as follows and focuses on 'Effect of space formation' by 'Ornament'.

aux murs lisses du quadrilatère terlin et aux quatre fûts porteurs de la voûte, dans une atmosphère de sombre argent noirci par la présence innombrable des fresques tapissantes, nimbées d'ors éteints, tissées d'ocres rouges, d'outremer, de verts, de cobalt, et raconteuses de fortes légendes.<sup>15</sup>

At the first term of Le Corbusier's architectural activity, Le Corbusier negatively thinks about 'Ornament' to 'Wall' and does not make it to the concept in his architectural



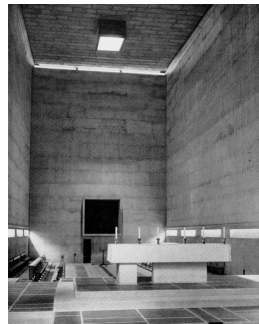
production. However, at the latter term of Le Corbusier's architectural activity, Le Corbusier advocates the theory that embraces both at architecture and artistic work (painting and sculpture) as one body, positively unites architecture and artistic work, and affirmatively makes 'Effect of space formation' of decorated 'Wall' found by the journey to the east on architecture to the concept.

## 2.5. Light

Le Corbusier describes as follows about «Maisons Citrohan» in 1920.

Simplification des sources lumineuses: ue seule grande baie à chaque extrémité;<sup>16</sup>

In a word, the main problem of 'Light' of 'Wall' in the work of the architectural production activity initial of Le Corbusier is hygienic environment 'Lighting', and Le Corbusier plans the creation of a comfortable indoor condition by the best lighting. However, in three religious facilities; «La chapelle de Ronchamp» that was designed in 1950s, «Couvent Sainte-Marie-de-la-Tourette à Eveux» that was finished in 1953, and «L'Eglise de Firminy-Vert» that was planned in 1960, Le Corbusier plans phenomenon 'Lighting' with 'Opening', and tries the creation of 'Space not made language (espace indicible)' by a phenomenon effect of the 'Light' [12].



**Figure 9:** The church of «Couvent Sainte-Marie-de-la-Tourette à Eveux»

Thus, in the journey to the east, Le Corbusier describes about the graveyard in Turkey that the wall shines in white, and he focuses on 'Light of sun' that shine on 'Wall' and makes it as the functional Lighting a concept. In one side, Le Corbusier describes about the mosque in Constantinople as follows.

On voit alors scintiller la couronne lumineuse des mille petites fenêtres de la coupole. Au-dessus, c'est un espace vaste dont on ne saisit pas la forme;<sup>17</sup>

Le Corbusier does not make 'Symbolism' of the phenomenon effect of 'Light' concerning 'Wall' that he focuses. However, 'Light' shown in Le Corbusier's religious, architectural works at his architectural production activity latter term gives the effect similar to the effect of Lighting of the star ceiling that he saw in the mosque in Constantinople in the journey to the east to the internal space. In a word, Le Corbusier adds a metaphysical meaning that exceeds the meanings for architectural environment academic to 'Light'. Le Corbusier affirmatively interprets 'Symbolism' of 'Light' again and applies it to own architectural works.

### 3. RESULT

We bring together the process that the Kansei to 'Wall' in Le Corbusier's journey is converted into a modern, architectural theory as shown in the following Table 1.

Neither of the 5 themes of 'Wall' in the journey to the east is a modern, architectural language. The artificial material such as concrete and iron that are the main materials in modern architecture is not contained in 'Material'. 'Opening' indicates the one that makes the hole for 'Wall' that is the building frame, and is not free opening of non-structure like 'Glass wall' in modern construction. Also, about 'Color', a lot of those are the colors of the material, and none of them in modern ages is with artificial paintings. Moreover, it is denied that the modern architecture has 'Ornament' like wall painting and sculpture, etc. About the effect of 'Light', it is not scientific light in the modern architecture from which a metaphysical meaning is stripped off.

Le Corbusier plans 'Wall' related to each 5 themes of the description concerning 'Wall' in the journey to the east in his own architectural works, but there is a time difference in the creation of the modern concepts or theories. 'Opening', 'Color' and 'Material' in the journey to the east are converted into the modern industrial methods and the artificial construction materials, and about 'Light', we think that Le Corbusier's approach of achieving lighting that values functionality from environmental side is planned at the early stage because it is an important problem in modern architecture. However, 'Opening', 'Color', 'Material' and 'Light' that planned in the first stage of Le Corbusier's architectural production activity come to show the pre-modern feature that Le Corbusier experienced by the journey to the east. Through the entire architectural production activity of Le Corbusier, they change into the ambiguous concepts had both modern and non-modern ages

### 4. CONCLUSION

On the other hand, we think that it was slowly that 'Ornament' was planned in 'Wall' to exclusion as a general, non-modern existence in modern architecture. In a word, Le Corbusier made the themes that wore non-modern ages found through journey that has pocketbooks the theories by the context of the modernization through his own architectural production activity, and moreover sublimed them to the ambiguous concepts or the architectural theories with modern and non-modern ages.

Anyway, the memory that is made a body through working of the hand [13] of the pocketbook in the site of journey makes it to the theories by crossing time in own architectural production activity. If it is understood otherwise, the memory of the hand is actualized when being do latent rather than being referred, being quoted or being forgotten. In actualizing it when it is, the Kansei of travel is converted into the produced Kansei. We think that the case study concerning the process of more concrete architectural production might be necessary to clarify the factor.

**Table 2:** Transition of making the themes of ‘Wall’ to the concepts and the theories

Themes of ‘Wall’	Journey of the east	Architectural production activity	
		The early period	The latter period
Material	Finish Existence	.....→ Béton armé	→ Béton brut
Opening	Composition of facade Cutting landscape Lighting	→ Fenêtre en longueur Pans de verre Tracés régulateurs	→ Brise-soleil Loggia Claustra
Color	Composition of color Contrast and harmony between nature and artificial	→ Camouflage architectural Polychromie	→ Polychromie violente
Ornament	Display of picture and sculpture Effect of space formation	.....→ Purisme	→ Synthèse des arts
Light	Light of sun Symbolism	→ Sous la lumière	→ Espace indicible

.....→ Denial of the journey      → Affirmation of the journey      → Denial and Affirmation of the journey

## SOURCES

Table. 1 : made by the authors

Table. 2 : made by the authors

Figure. 1 : made by the authors

Figure. 2 : Le Corbusier, Willy Boesiger: *Le Corbusie e³ Pierre Jeanneret Œuvres complète*, vol.3, p.134

Figure. 3 : Le Corbusier, Willy Boesiger: *Le Corbusie Œuvres complète*, vol.6, p.31

Figure. 4 : Le Corbusier, Willy Boesiger: *Le Corbusie e³ Pierre Jeanneret Œuvres complète*, vol.1, p.129

Figure. 5 : *ibid.*, p.68

Figure. 6 : Le Corbusier, Willy Boesiger: *Le Corbusie Œuvres complète*, vol.6, p.39

Figure. 7 : Misa Hayashi & Shoichiro Sendai (supervised): *Le Corbusier et le patrimoine de lumière*, p.20

Figure. 8 : Le Corbusier, Willy Boesiger: *Le Corbusie Œuvres complète*, vol.8, p.63

Figure. 9 : *ibid.*, vol.7, p.51

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## ANNOTATION

1. It is an architectural pilgrimage travel of about six months from May to October, 1911 that Le Corbusier of the draft man at Petter Behrens's atelier came round the city and architectural of Constantinople and East Europe including the Parthenon with Auguste Klipstein who was the friend. The journey of this travel was decided by the intention of two people in travel.
2. Shoichiro Sendai, Ryo Hagino: *Le Corbusier's Kansei (Sensibility) of 'Wall' in Voyage d'Orient*, The Proceedings of the 11th Annual Conference of JSKE 2009, 1B1-2\_J11-090519-7.pdf
3. Le Corbusier carries a camera with him, and takes photographs. The photo data exists. However we don't use them as the data for our study in this paper because we analyze mainly about *Voyage d'Orient Carnets* in this study.
4. Le Corbusier, Willy Boesiger: *Le Corbusier e Pierre Jeanneret Œuvres complètes*, vol.1, p.199
5. *Ibid.*, vol.2, p.48
6. Le Corbusier: *Le voyage d'Orient*, p.164-165
7. Le Corbusier, Willy Boesiger: *Le Corbusier e Pierre Jeanneret Œuvres complètes*, vol.1, p.129
8. Le Corbusier: *Le voyage d'Orient*, p.55
9. *Ibid.*, p.55
10. *Ibid.*, p.79
11. Le Corbusier, Willy Boesiger: *Le Corbusier e Pierre Jeanneret Œuvres complètes*, vol.1, p.60
12. *Ibid.*, vol.1, p.86
13. *Ibid.*, vol.5, p.190
14. Le Corbusier (Ch.-E.Jeanneret): *Voyage d'Orient Carnets*, vol.1, p. 38
15. Le Corbusier: *Le voyage d'Orient*, p.142
16. Le Corbusier, Willy Boesiger: *Le Corbusier e Pierre Jeanneret Œuvres complètes*, vol.1, p.31
17. Le Corbusier: *Le voyage d'Orient*, p.76