

EPsn  
330

CHANDIGARH: A CORBUSIAN ICON.



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CHANDIGARH: A CORBUSIAN ICON.

NAME: WALID SULAYMAN.

CLASS OF 1991: 3rd YEAR.

COURSE: A224 - MODERN ARCH.

DATE: JUNE 18th, 1991.



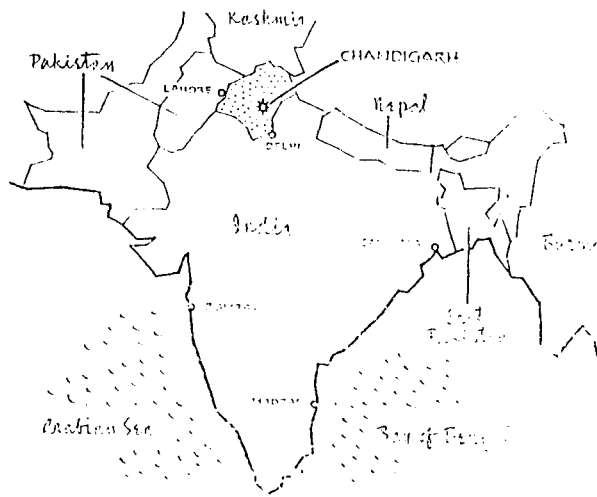
" Let this be a new town, symbolic of the freedom of India, unfettered by the traditions of the past... an expression of the nation's faith in the future." <sup>1</sup>

Pandit Nehru.

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1. EVENSON, Norma: Le Corbusier: The Machine and the Grand Design - pp.98

The town was actually a city, Chandigarh, the birth of which came after a series of tragedies and massacres. In 1947, India gained its independence from the British. The following year, when Pakistan was being formed, the Indian state of Punjab was divided in two, making its capital Lahore part of the Pakistani side. The town of Simla was used as a temporary capital, but it was inadequate. The demand then was for a new capital for the Punjab. <sup>2</sup>



2

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2. CURTIS, William JR: Le Corbusier: Ideas & Forms - pp. 188

The site was chosen carefully by P.L.Varma, chief engineer for the Punjab, and P.N.Thapar, state administrator of public works. <sup>3</sup> It was an 8918 acre plateau 1300 ft. above sea level. <sup>4</sup> Bounded by two river valleys, it was close to the main Delhi - Simla line, far enough from the Pakistani border, at the foothills of the Himalayas. Its name was chosen after the Hindu Goddess of power "Chandi". <sup>5</sup>

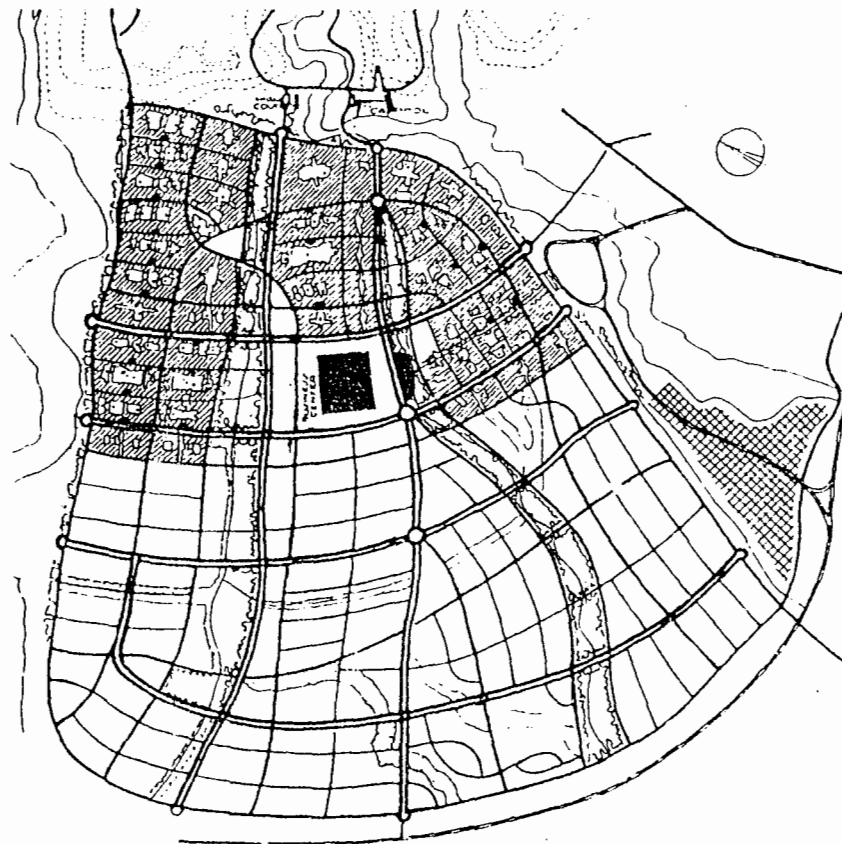


3. Ibid - pp.188

4. SANDERSON, G.A.: "Chandigarh", Progressive Architecture, March 1956 - pp.130-137

5. CURTIS, William JR: Le Corbusier: Ideas & Forms - pp.188

Due to lack of trained local technicians, the project was commissioned to foreign planners: Albert Mayer and Matthew Nowicki. The result was influenced by western urban design theory. The plan incorporated for a system of residential units with houses, schools, shops and parks. Motor circulation was separated from pedestrians. The government buildings were placed at the upper part of the city, the commercial district was at its core, and the industrial zone lay to its right. <sup>6</sup>

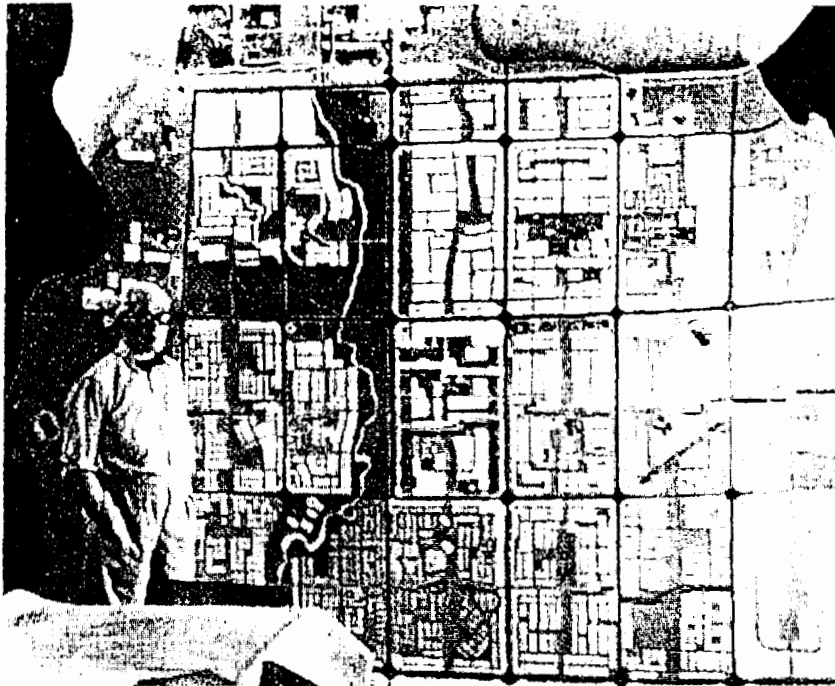


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6. EVENSON, Norma: Le Corbusier: The Machine and the Grand Design - pp.98

The death of Nowicki in spring 1950 in a plane crash in Egypt made Thapar and Varma search for a new architect. Feeling that noone in India could handle the task, they went to London to Maxwell Fry and Jane Drew, who recomended Le Corbusier. After refusing at first, L-C changed his mind and agreed to be chief architectural consultant as a whole and exclusive designer of the capital buildings. The main work could be done in L-C's studio in Paris allowing for two months long visits yearly. Drew and Fry were employed on three year contracts for the design and construction of the residential sectors and their facilities. All three, with Pierre Jeanneret- "The knots and bolts man on site", who later on became the chief architect of the government -were the imported foreign team in India.<sup>7</sup>



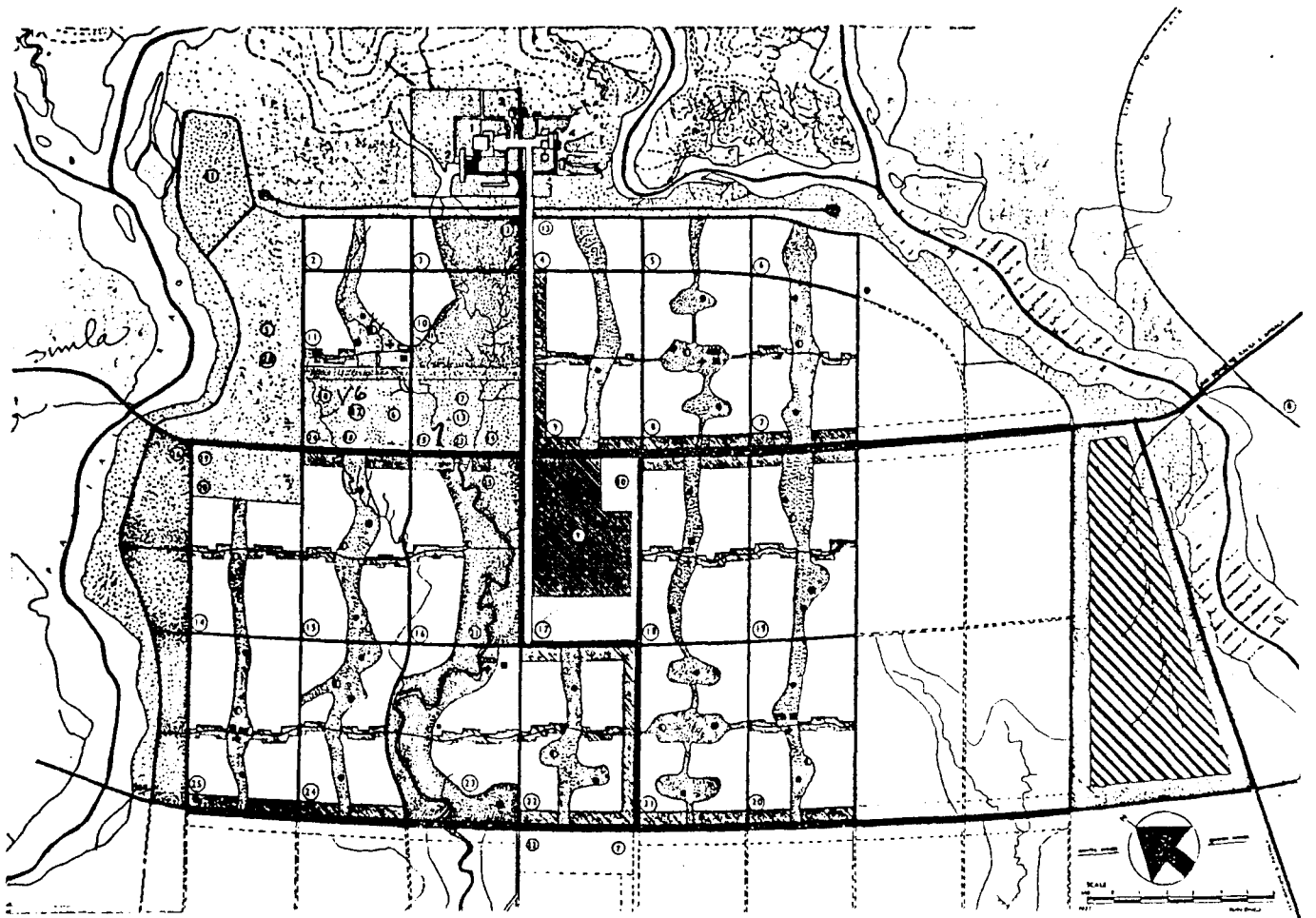
In 1951, in a resthouse on the road to Si<sup>ni</sup>la, the team worked together for about four weeks, but the guidelines for Chandigarh were put down in four days. Being truthful to the contract, they derived the plan from that of Mayer. Curved roads were replaced by an orthogonal grid, with a few of slightly curved lateral roads for variety.<sup>8</sup> The result, an anthropomorphic diagram - as L-C visualizes it - with the Capitol forming the head, the sectors the body, the city center the heart, the park belts are lungs, the educational area is the left arm while the industrial area signifies the right.<sup>9</sup>



8. Ibid - pp. 190

9. SANDERSON, G.A.: "Chandigarh", Progressive Architecture, Mar. 56 - pp. 131





Chandigarh mai 1952. Plan définitif d'urbanisme de la première étape de réalisation comprenant des habitations et services pour 150 000 habitants et le Capitol

1 Assembly chamber  
2 Secrétariat

3 Capitol  
4 High Court  
5 University  
6 Stadium  
7 General Market reservation  
8 Railway Station  
9 Main Commercial Centre  
10 Town Hall

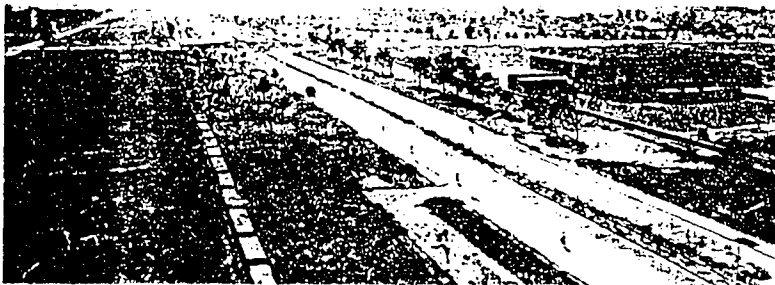
11 Engineering College  
12 Chief Minister's Residence  
13 Chief Justice's Residence  
14 Public Library  
15 Museum  
16 School of Arts & Crafts  
17 Govt. College for Men  
18 Govt. College for Women

19 Dental College & Hospital  
20 Hospital  
21 Maternity Hospital  
22 Sarai  
23 Theatre  
24 Polytechnic Institute  
25 Red Cross Offices  
26 Boy Scouts

1 Arterial Roads (V2)  
2 Sub Arterial Roads (V3)  
3 Local Roads (V5 + V6)  
4 Open Spaces & Parks  
5 Business & Commercial  
6 Industrial Area  
7 Pedestrians

8 Elementary Schools  
9 Middle Schools  
10 High Schools  
11 Health Centres  
12 Community Centres  
13 Swimming Pools  
14 Sectors Numbers  
15 Internal Open Spaces

L-C's plan conforms to the theory of the 7Vs (Les Sept Voies),"a system dividing traffic into a series of categories comprising a hierarchy of circulation ranging from arterial roads to apartment house corridors."<sup>10</sup> V1, the national road, connects to Simla on one side and to New Delhi on the other. V2 is the most important, it comes from both right and left and intersects the main axis of the plan - a 100 m wide avenue heading towards the Capitol - at the commercial center.<sup>11</sup>



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10. EVENSON, Norma: Le Corbusier: The Machine and the Grand Design - pp.100  
11. BOESIGER, W.: Le Corbusier: Oeuvre Complete 1946-1952 - pp.114

The sectors used by L-C are suitable for the Indian classes; each sector is occupied by a different class, and surrounded on four sides by V3 roads, which are dedicated solely to fast moving traffic. No doors open on V3 roads, furthermore, no car-stops are provided except every 400 m, where they could access to different sectors.<sup>12</sup>



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11

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12. Ibid - pp. 114

The V4 is a shopping street which provides for all the needs of the society, through shops and tradesmen.<sup>13</sup> Thus it becomes like a bazaar, providing interaction between sectors. Traffic slows down over here. V5 connects to V4 to the interiors of sectors. V6 connects extremities of the network to the doors of houses. lastly the V7 is for entertainment and sports. The 7Vs have been carefully designed to facilitate the circulation throughout the city.<sup>14</sup>

After setting down the main guidelines and zones of the city plan, L-C turned his efforts towards tackling the project of the governmental complex, the Capitol.

The program was to house the three powers of the state: Judiciary, Legislative, and Executive, in addition to the governor's Palace .<sup>15</sup> Moreover, since " Chandigarh was the product of political crisis, embodying the desire of a new nation, poor, technically undeveloped, and torn with inner dissention, to create a city symbolic of permanence and order, a focal point for the incipient nationalist spirit. As L-C has sought to redefine the master plan of the city to achieve a suitably monumental scale, so he struggled to give the Capitol the imprint of unity and power appropriate to its symbolic function."<sup>16</sup>

The problems he faced while designing the Capitol, as well as the whole city, were twofold. First are the problems stemming out of the nature of the site and its governing weather conditions. Secondly, the problems arising from the primitive technology of India and the scarceness of certain new building materials like steel.

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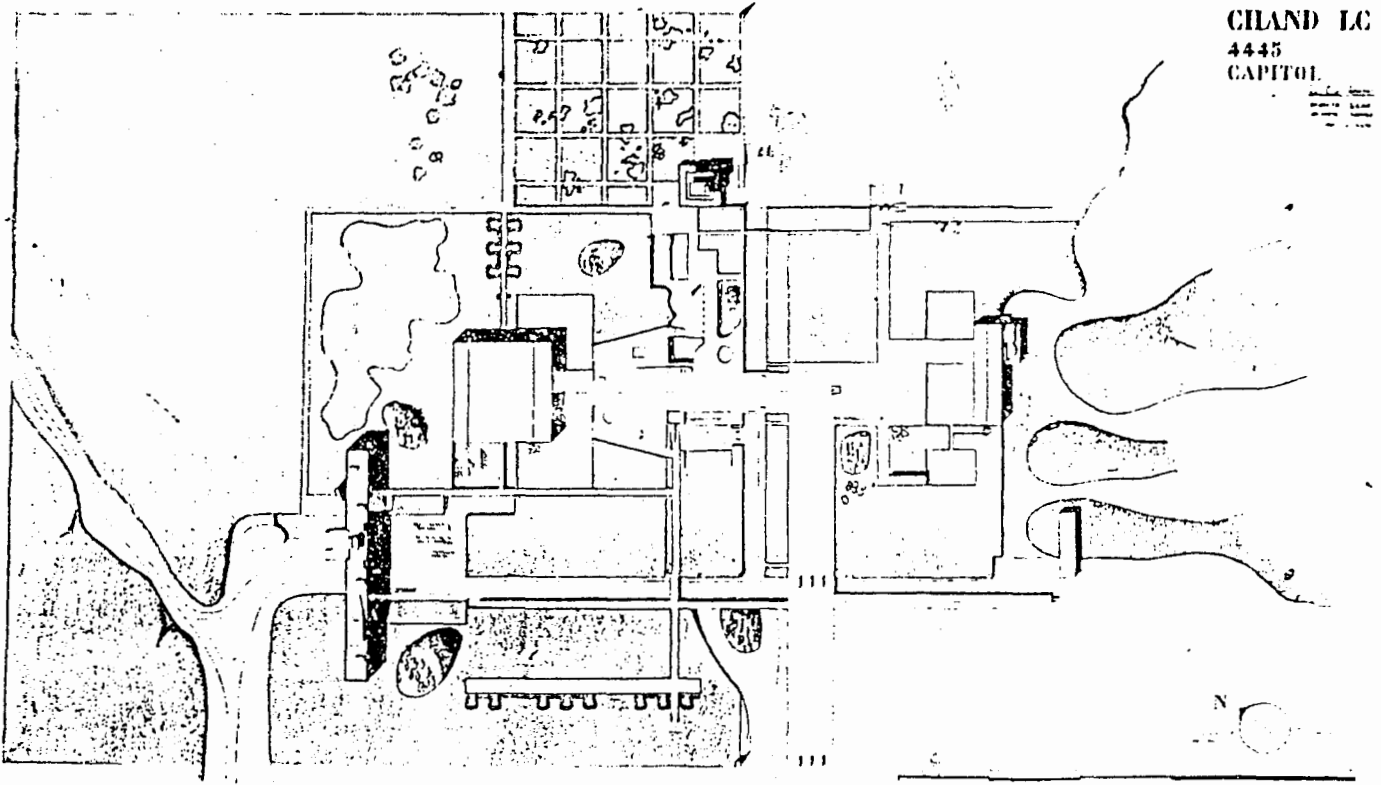
13. Ibid - pp.114

14. Ibid - pp.114

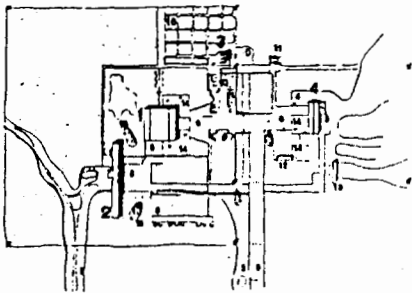
15. VON MOOS, Stanislaus: Le Corbusier: Elements of Synthesis - pp.255

16. EVENSON, Norma: Le Corbusier: The Machine and the Grand Design - pp.103

**CILAND LC**  
4445  
**CAPITOL**



Plan définitif du Capitot



- 1 L'Assemblée
- 2 Le Secrétariat (Ministères)
- 3 Le Palais du Gouverneur
- 4 La Haute Cour
- 5 Arrivées et parking des autos
- 6 Circulation des piétons
- 7 La Vallée des Loisirs
- 8 Rideau d'arbres
- 9 Les signes
- 10 Les bassins devant le Palais
- 11 La Fosse de la Considération avec «La Main Douvrière»
- 12 Bâtiment réservé
- 13 Le bâtiment des avocats
- 14 Les grands bassins
- 15 Les collines artificielles
- 16 Les jardins privés du Gouverneur

Les éléments concrets du projet sont:

- |                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |               |                        |                        |                 |
|---------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|------------------------|------------------------|-----------------|
| <p><b>A Les bâtiments</b></p> <p><b>B Les circulations</b></p> <p><b>C Les éléments paysagistes</b></p> | <table border="0"> <tr> <td>1 L'Assemblée</td> <td>3 Palais du Gouverneur</td> </tr> <tr> <td>2 Palais des Ministres</td> <td>4 La Haute Cour</td> </tr> </table> <p>Les voitures en tranchée vont directement au pied des bâtiments. Toute l'étendue du Capitot est libre du va-et-vient de la circulation mécanique. Le piéton est maître.</p> <p>La grande esplanade entre la Haute Cour et l'Assemblée. Les grands bassins de l'Assemblée et de la Haute Cour. Le jeu des terrasses et bassins aux différents niveaux intégrant à l'ensemble le Palais du Gouverneur, les jardins privés du gouverneur, les montagnes artificielles.</p> | 1 L'Assemblée | 3 Palais du Gouverneur | 2 Palais des Ministres | 4 La Haute Cour |
| 1 L'Assemblée                                                                                           | 3 Palais du Gouverneur                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |               |                        |                        |                 |
| 2 Palais des Ministres                                                                                  | 4 La Haute Cour                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |               |                        |                        |                 |

The Indian climate is very varriable. The short winters have approximately freezing temperatures. From March to June the weather is hot and dry, then come the territorial monsoon rains, hot and humid, encouraging the growth of insect life. Then comes September with a following period of dryand warm weather before the cold winter comes again.<sup>17</sup>

Arriving at the site of the Capitol, L-C saw it as "... united with the inexpressible, the imperceptible, and the inexplicable."<sup>18</sup> In his Modulor II he wrote: " The question of optics became paramount when we had to decide where to put the government buildings (or Palaces). We made some masts, eight meters high, painted alternately black and white, each bearing a white flag. We tried for the first time to apportion the site. The corners of the palaces were fixed by black and white masts. It was found that the intervals between buildings were too large. There was anxiety and anguish in taking the decisions on that vast limitless ground. A pathetic soliloquy! I had to appretiate and to decide alone. The problem was no longer that of reasoning but of sensation. Chandigarh is not acity of lords, princes or kings, confined within walls, crowded in by neighbours. It was a matter of occupying the plain. The geometrical event was, in truth, a sculpture of the intellect. No potter's clay in your hands to experiment with. No maquette that could have ever served as a genuine aid to a decision. It was a tension, mathematical in nature, which would bear fruit only when the buildings were completed. The right point. The right distance. Appreciation. Groping, we brought the masts closer to one another. It was a battle of space, fought within the mind. Arithmetic, texturique, geometrics: it would all be there when the whole was finished. For the moment, oxen, cows and goats, driven by peasants crossed the sun-scorched fields."<sup>19</sup>

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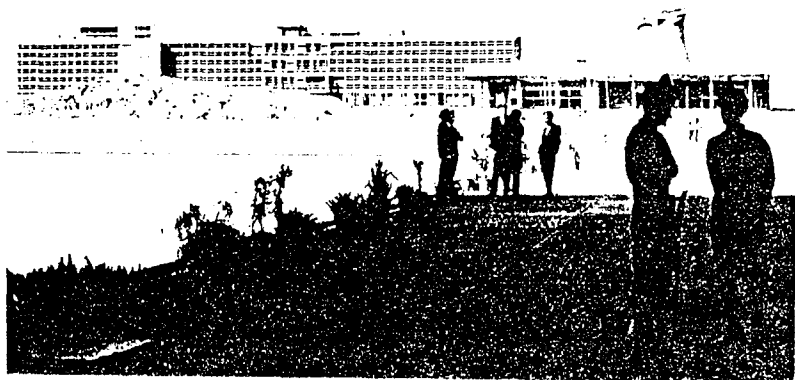
17. SANDERSON, G.A.: "Chandigarh", Progressive Architecture, March 1956 - pp.131-132

18. FRANCLIEU, Françoise de: Le Corbusier Sketchbooks: Vol.3 - pp.190

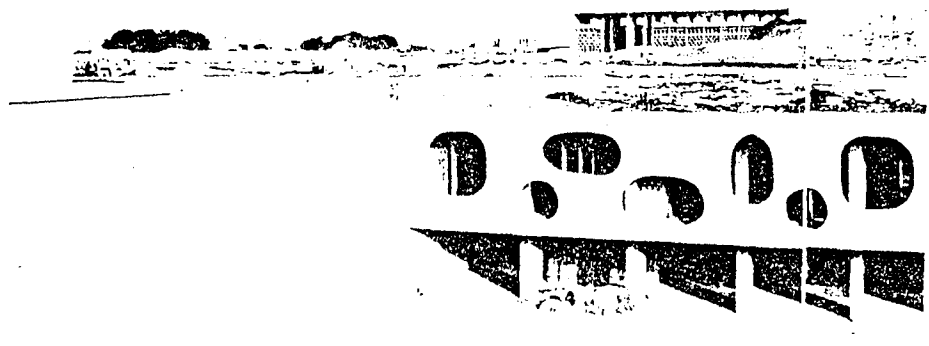
19. LE CORBUSIER: Modulor II - pp.214-215



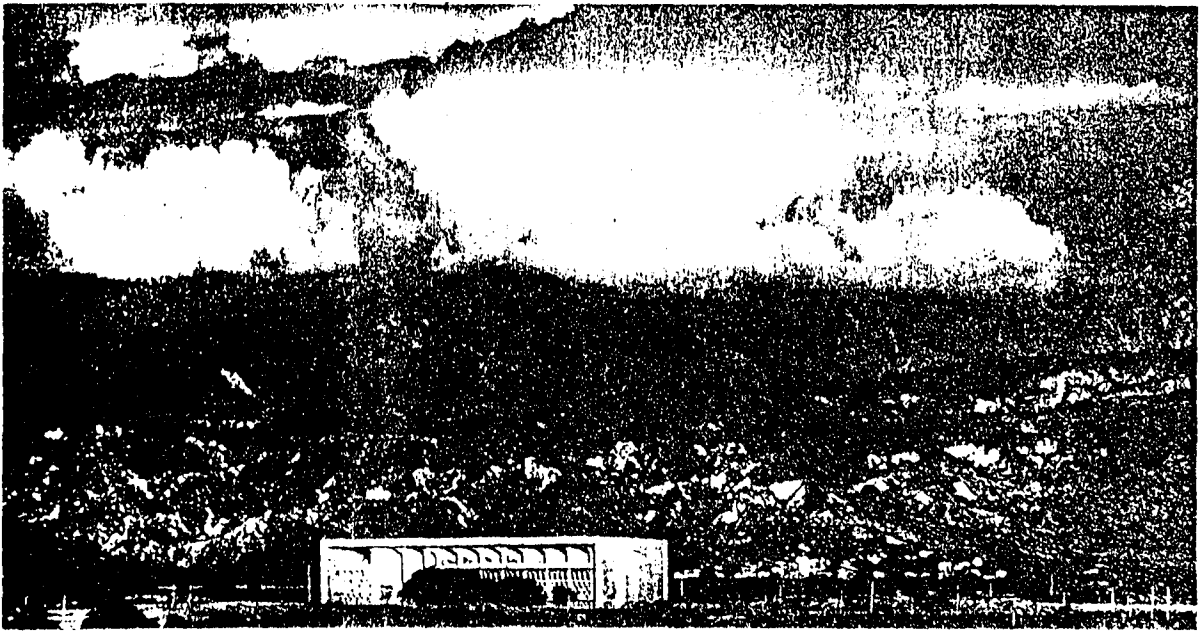
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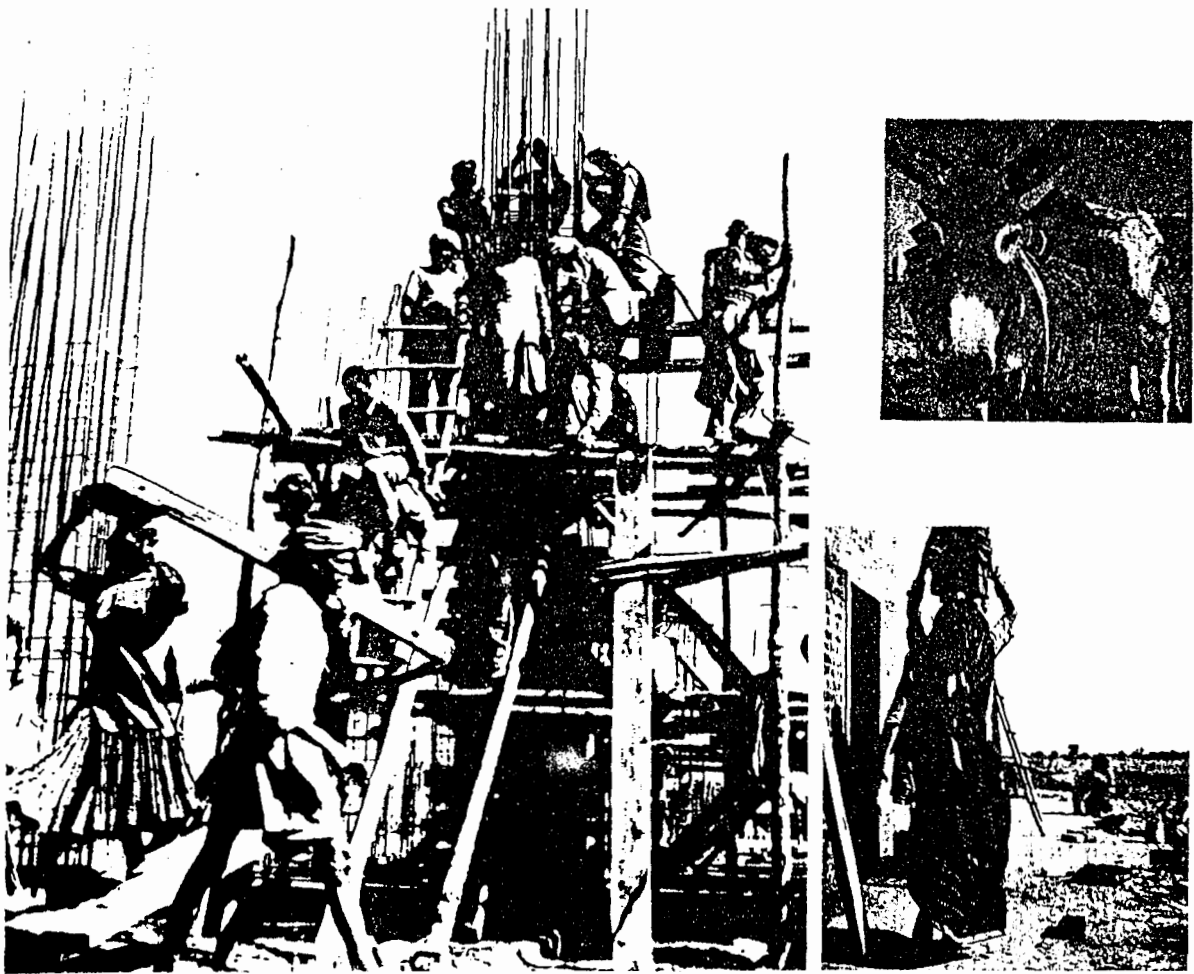
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16

The Capitol buildings were erected by a rather untrained workmanship, using poor building materials and little machinery.<sup>20</sup> However, in one of his sketchbooks, L-C states that building in Chandigarh with little mechanical power was advantageous to the design; he benefited from the slowness of construction and took design decisions on site. It was more flexible than designing in an advanced country where the design had to be complete before the construction starts.<sup>21</sup>

17.a



17.b

17.c

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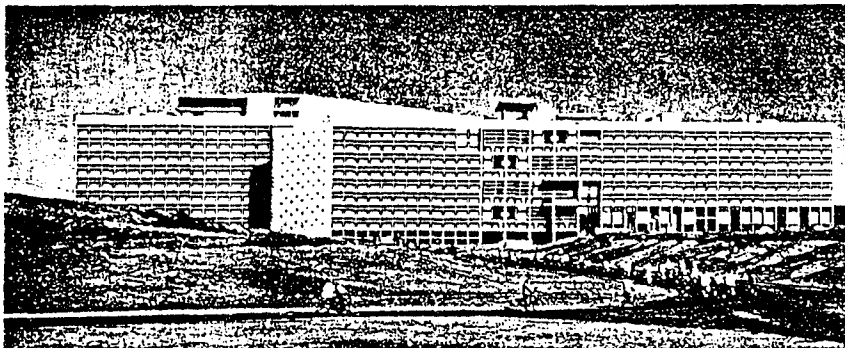
20. BOESIGER, W.: Le Corbusier: Oeuvre Complete 1946-1952 - pp.114

21. FRANCLIEU, Françoise de: Le Corbusier Sketchbooks: Vol.3 - pp:195



L-C's solution to these problems stemmed out from the understanding of the problem per se. The sun, wind, and rain factors were solved by use of the parasol or umbrella, a shading device that hangs over the building. Its function is to channel the air flow to the building, to cast a shadow over the building, and finally to receive rain water and transfer it to water basins that were placed on the ground level; in other words, it acted as a huge gutter. Another problem, that of the sun penetrating the facades, was solved by use of the brise soleil which works like the window overhangs, but instead, occupies the whole facade influencing its structure.<sup>22</sup> The regulating lines and proportions were given by the Modulor.

The Chief material used in Chandigarh is rough, unfinished concrete, in addition to brick, which, being fabricated on site and transported on the heads of women and on donkey-backs, was the cheapest building material available.<sup>23</sup> The parasol, brise-soleil, the expression of rough concrete and brick, in addition to other elements like the esplanade of signs, the pools, different trees and hills of landfill that were placed here and there, all combined together give the Capitol buildings a certain character which helps unite them into an entity which overwhelms the vastness of the site and breaks down its scale.



18

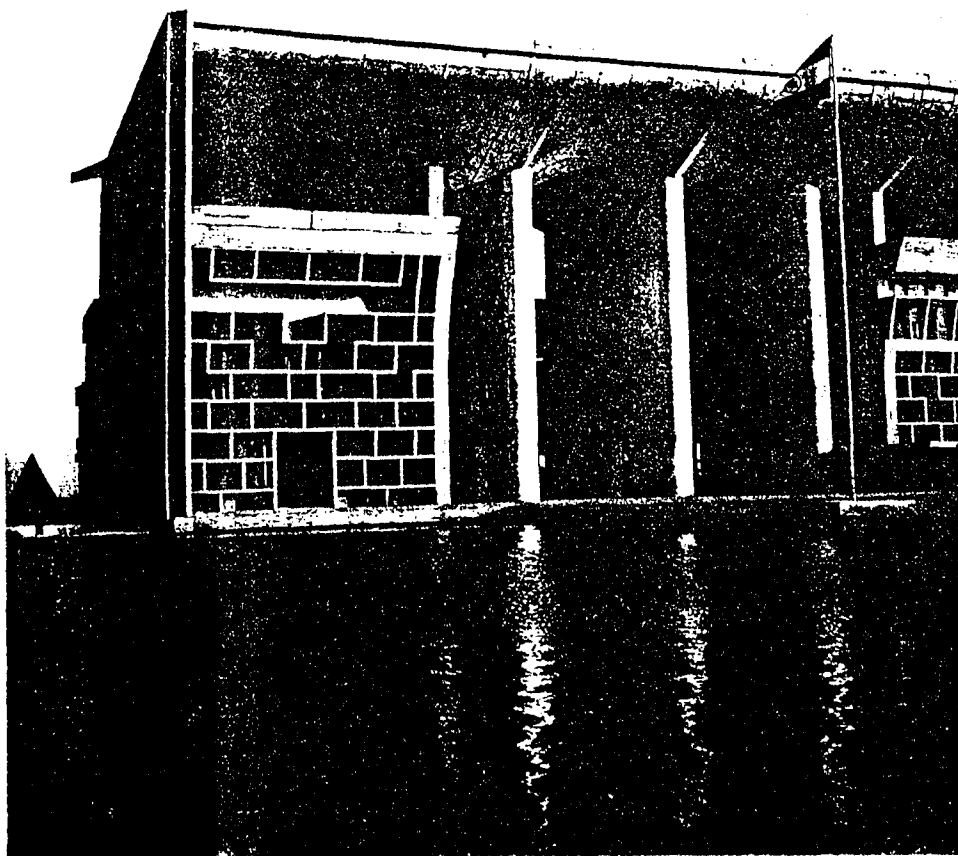
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22. BOESIGER, W.: Le Corbusier: Oeuvre Complete 1946-1952 - pp.114-115

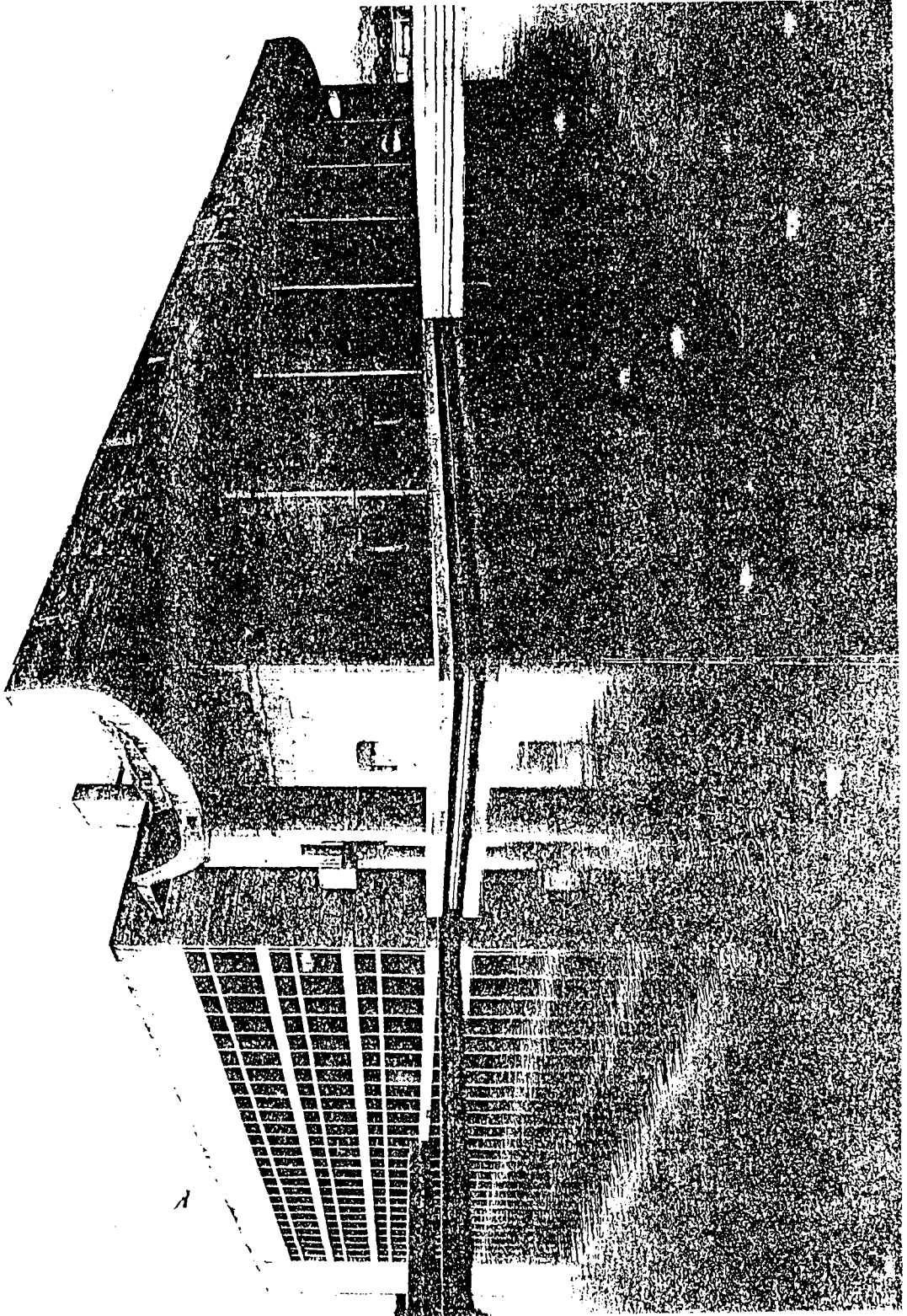
23. SANDERSON, G.A.: "Chandigarh", Progressive Architecture, Mar. 56 - pp.133



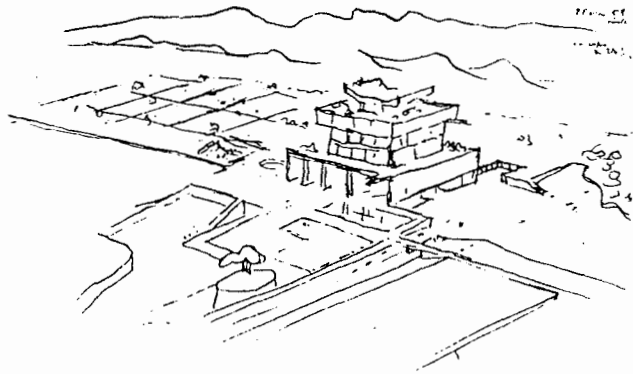
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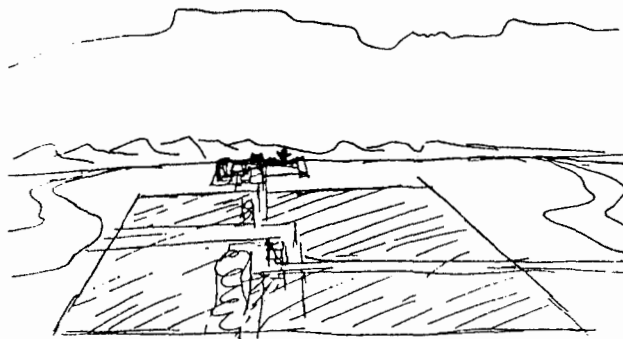
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The site planning was the outcome of many constraints. The building orientation was governed by the sun path and the prevailing wind. The site was traversed by an axis of vehicular circulation that was depressed to a level of five meters below the ground plane. This was in order to achieve a segregation of vehicular from pedestrian circulation patterns for safety reasons - a continuation of the concept of the city circulation treatment - and in order to make the whole site of the Capitol seem like a pedestrian park.<sup>24</sup> This axis ends to the North-East of the Governor's Palace after passing between the Assembly and Justice Palaces.



22

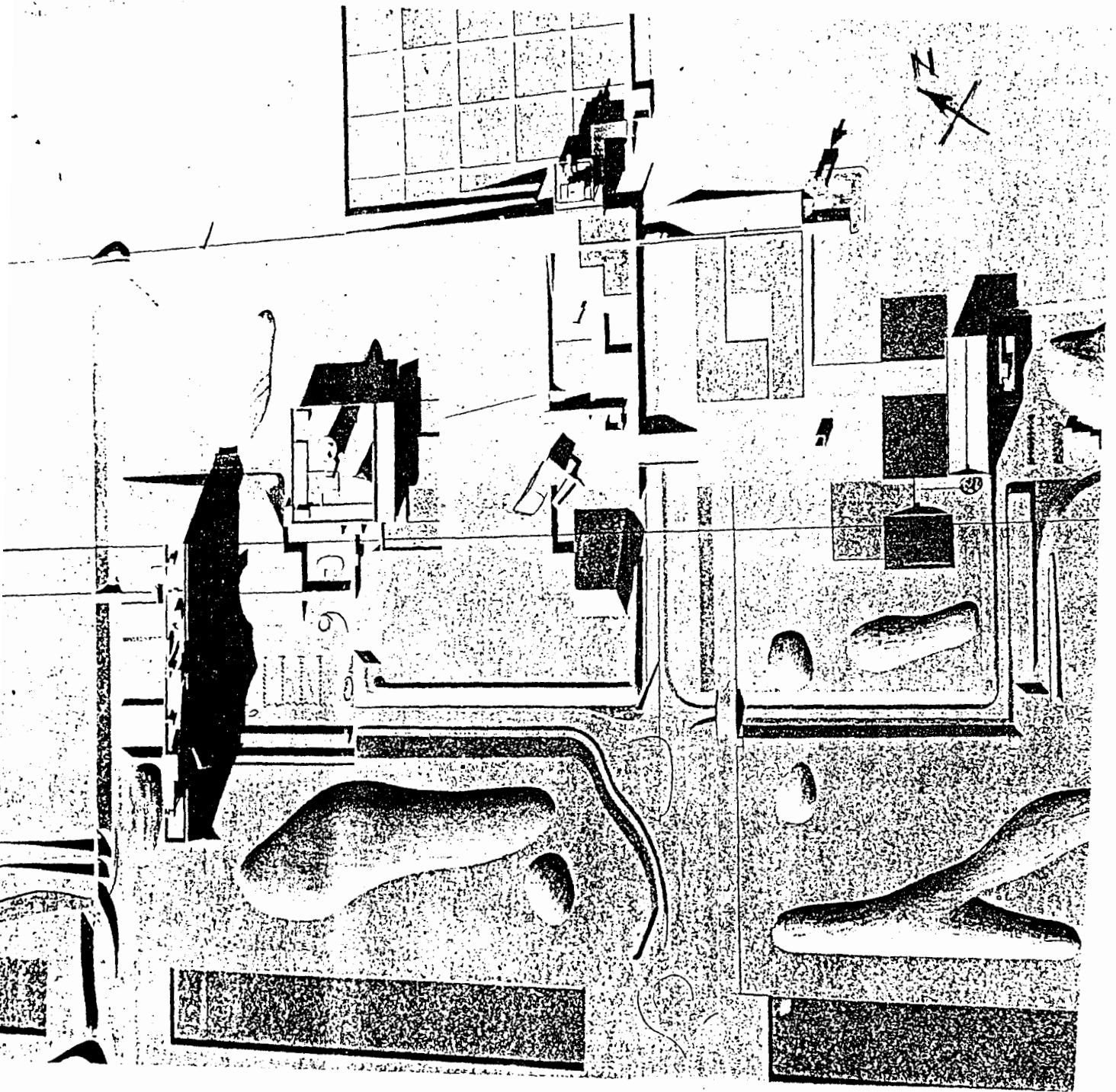


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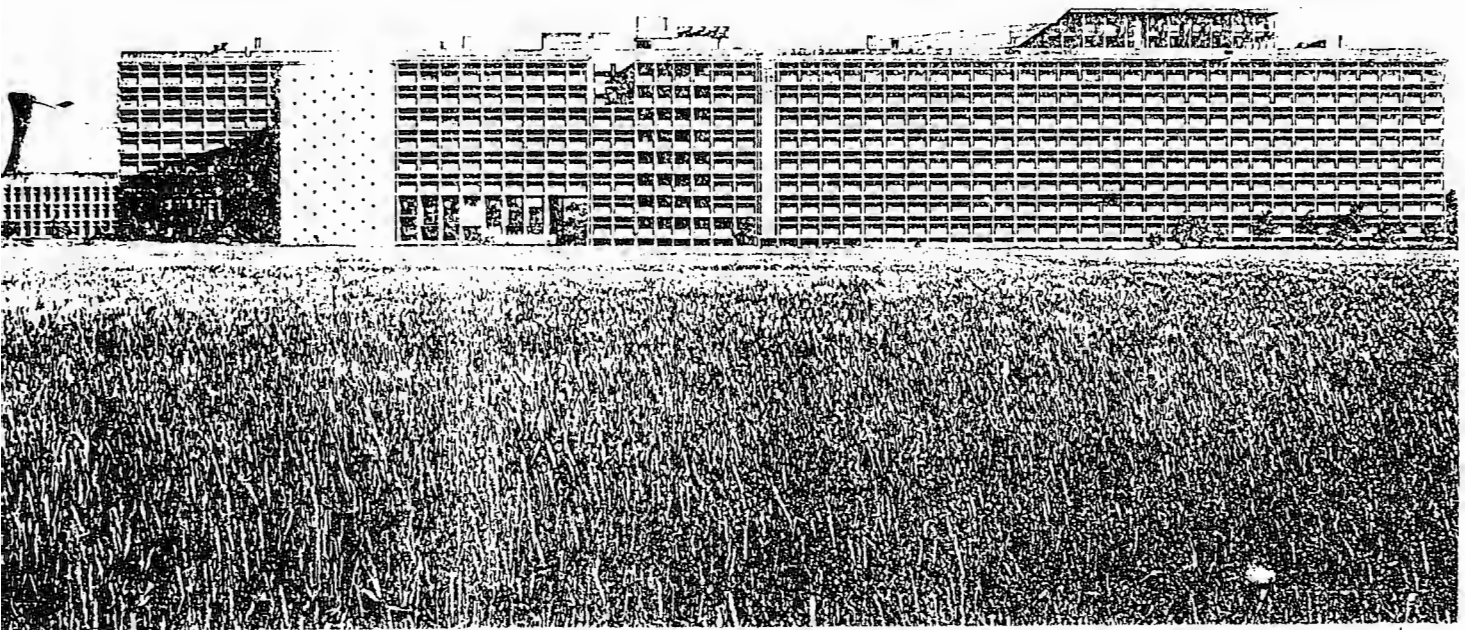
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24. FRANCLIEU, Françoise de: Le Corbusier Sketchbooks: Vol.3 - pp.275

"The Capitol will be an admirable park, mountains trees, flowers and architecture. It is devoted to the pedestrian. man master of himself, on his own feet, walking and living free of fear automobiles are prohibited in the park the automobiles have their roads and gateways under, five meters below the level of the park, in very noble trenches. They will get where they're going readily, quickly and noiselessly..."



The site is bounded from the North-East by the foothills of the Himalayas, a river which has been cut off by a dam and transformed into a small lake lies to the South-Eastern side. On the South-Western side, the plain of the Capitol extends boundlessly into the city, so L-C introduced certain hills of landfill.<sup>25</sup> These were to separate the city from the capitol visually and thus provide an element of surprise while approaching from the city; you cannot see the complex until you pass through the man made hills when everything blows up in front of you, the Himalayas and the architecture.<sup>26</sup> To the North -West, a need for a physical enclosure was answered by the positioning of the Secretariat.



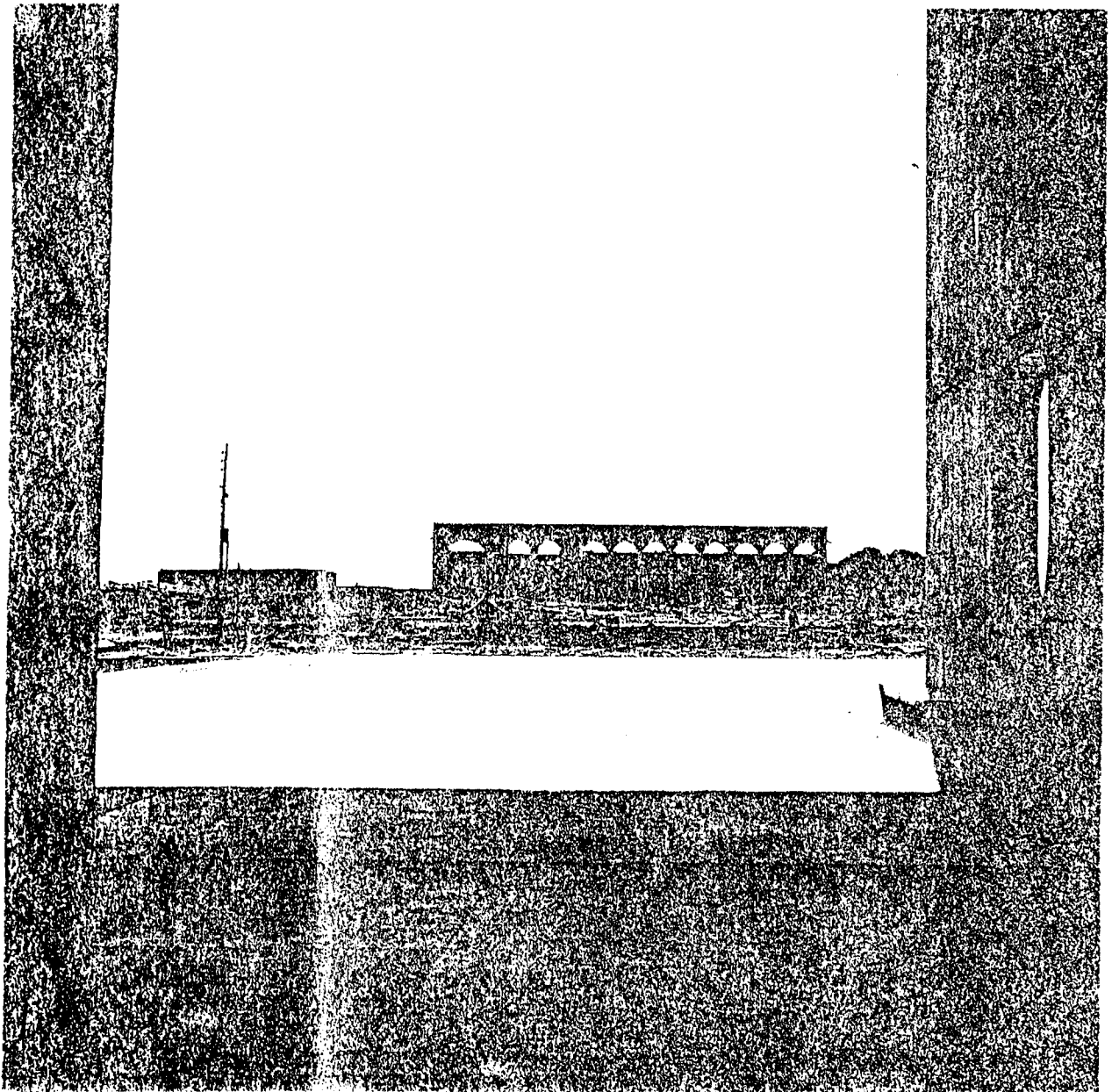
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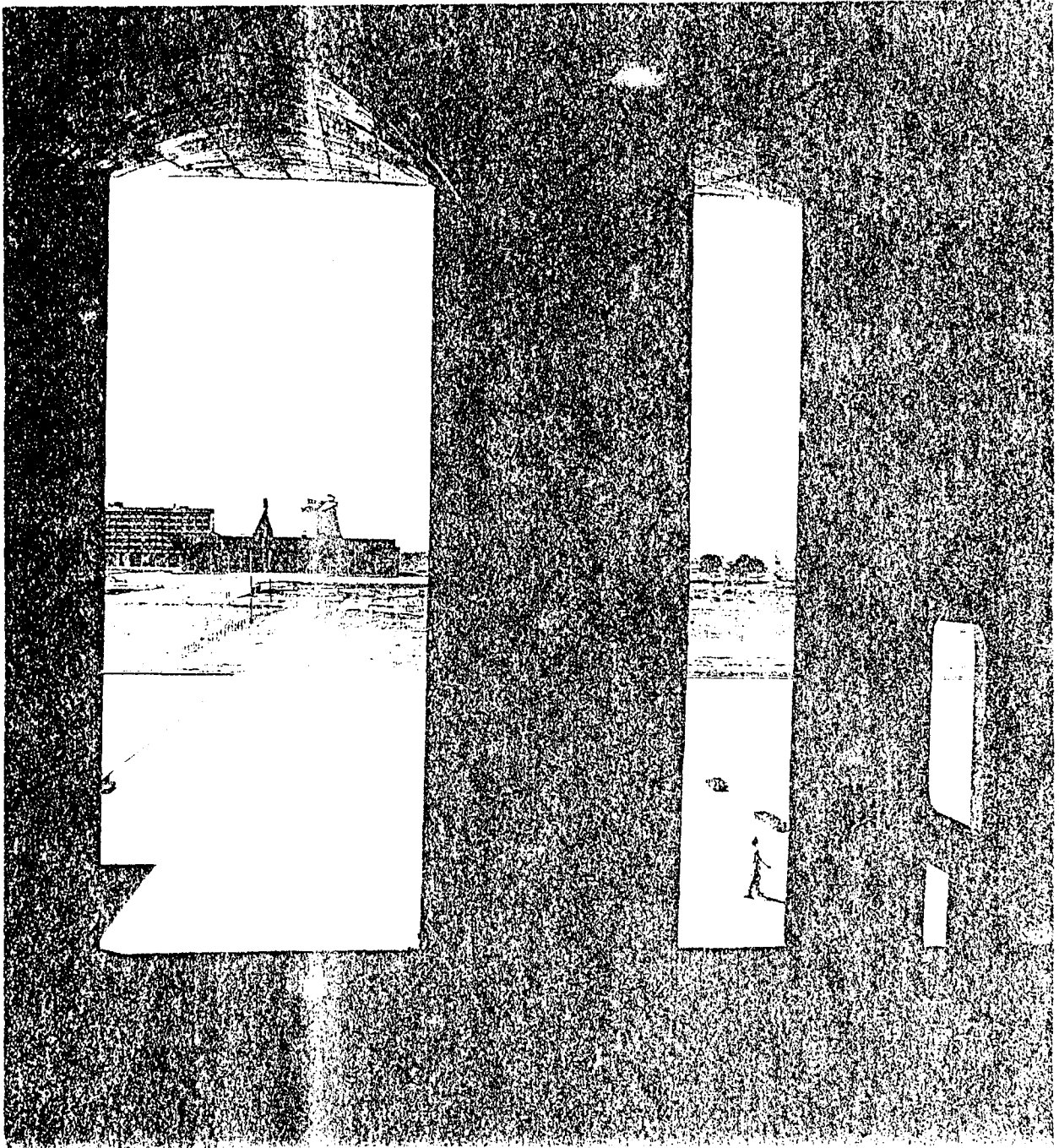
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25. BOESIGER, W.: Le Corbusier: oeuvre Complete 1946-1952 - pp.112-157

26. FRANCLIEU, Françoise de: Le Corbusier Sketchbooks: Vol.2 - pp.638

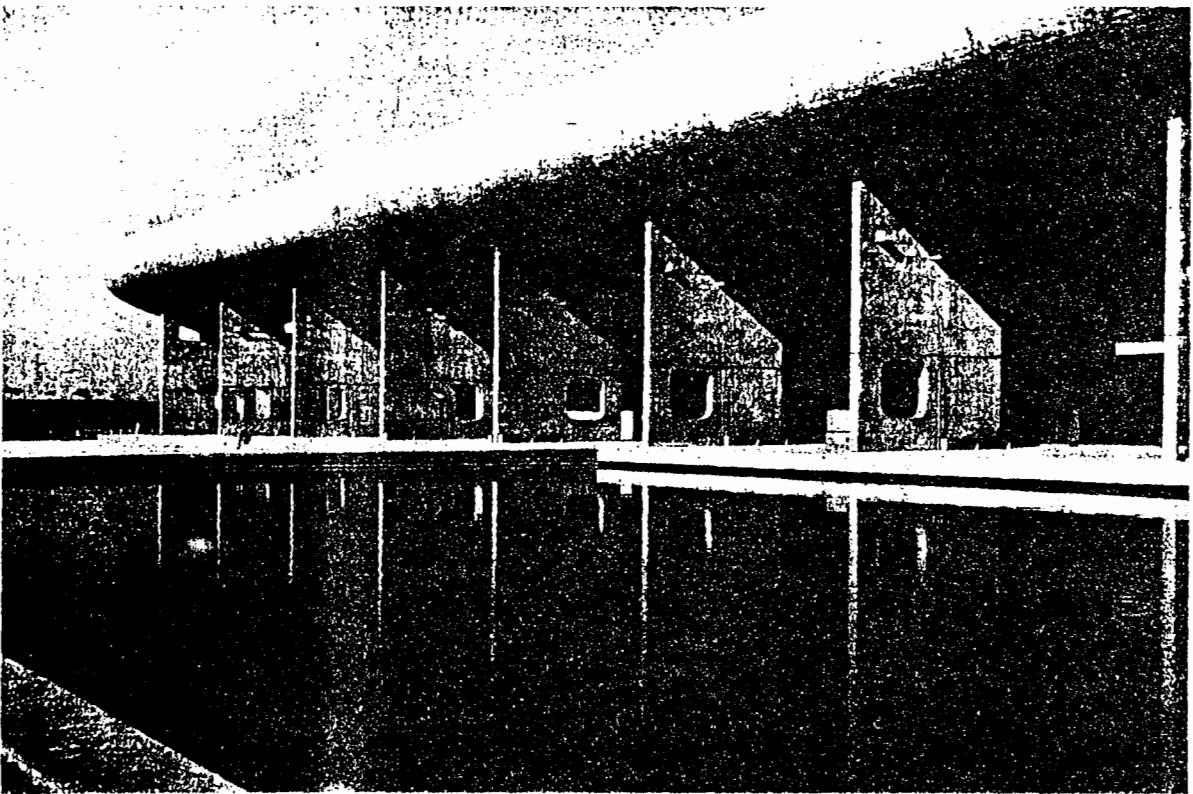
The vehicular axis running towards the Governor's Palace passes under a transverse pedestrian axis which extends from the Justice Hall to the Parliament, and along which lies the esplanade of signs. The two palaces are treated in a way as to interact with each other and strengthen the axis towards the governor's Palace.







Pools are another important element in the site. L-C terms them as "marble pavements".<sup>27</sup> Functionally they are used to shorten the distance between different points of the Capitol site. L-C set pools on different levels in such a way that the play of reflection obtained would make a far object look closer.<sup>28</sup> The objects that were to be reflected in pools were designed accordingly on working drawings.<sup>29</sup>



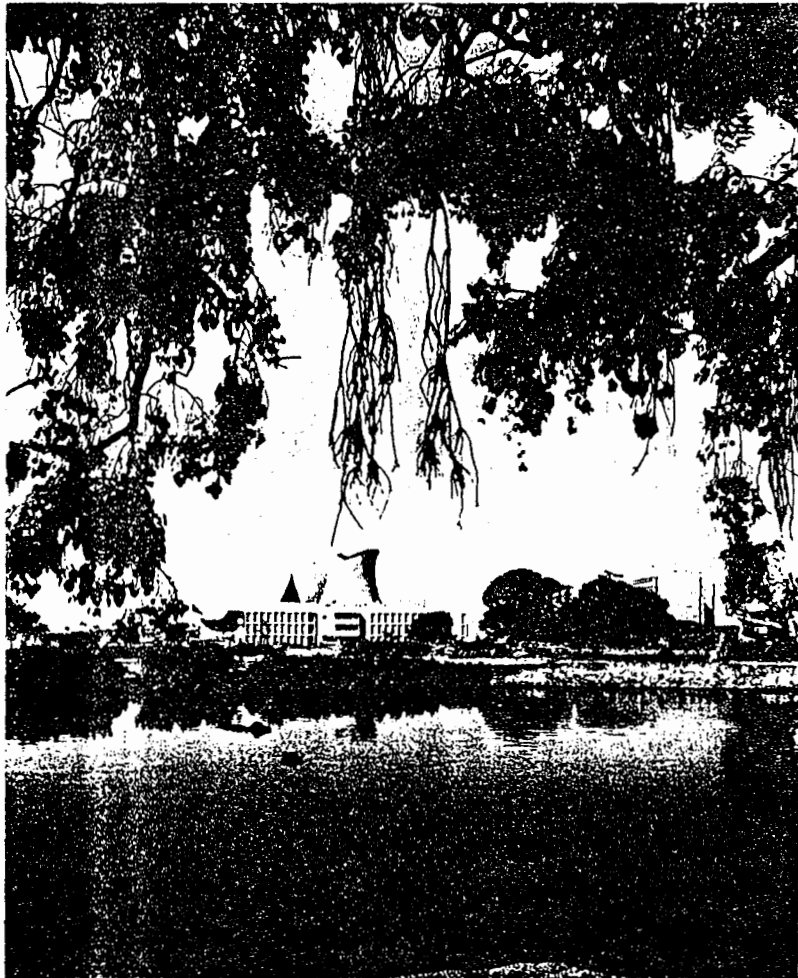
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27. Ibid - pp.399

28. BOESIGER, W.: Le Corbusier: Oeuvre Complete 1946-1952 - pp.142

29. FRANCLIEU, Françoise de: Le Corbusier Sketchbooks: Vol.2 - pp746

The whole Capitol was perceived to be a park for pedestrians. L-C said, "...pedestrians should be channelled through little valleys, sinuous walkways and picturesque trees."<sup>30</sup>

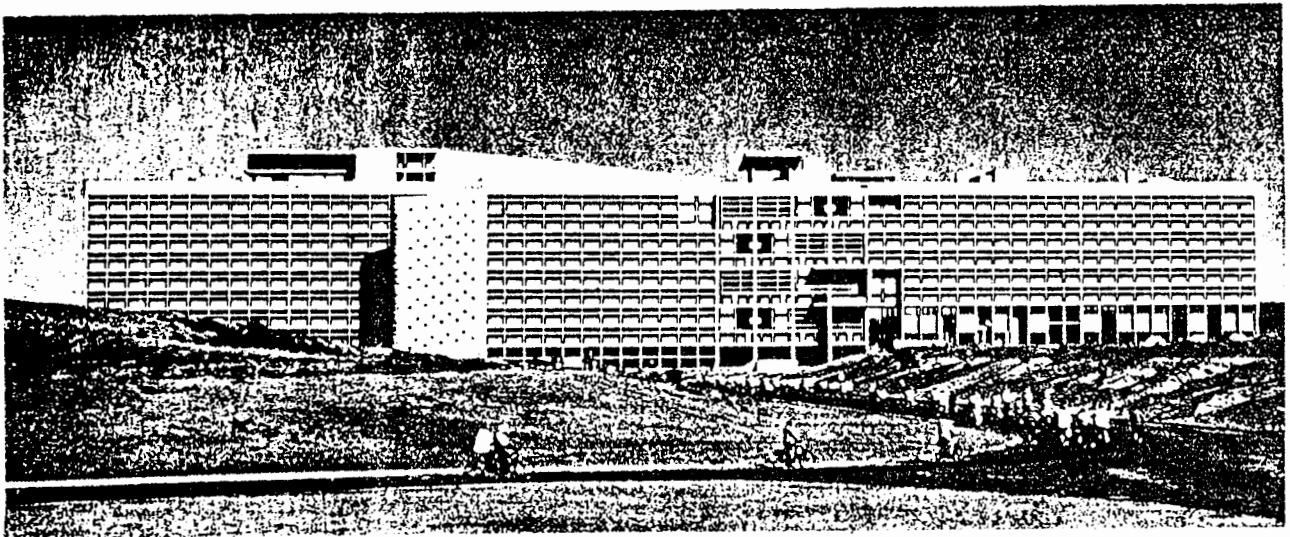


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30. Ibid - pp.344

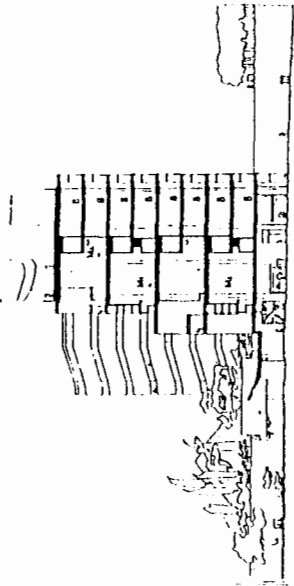
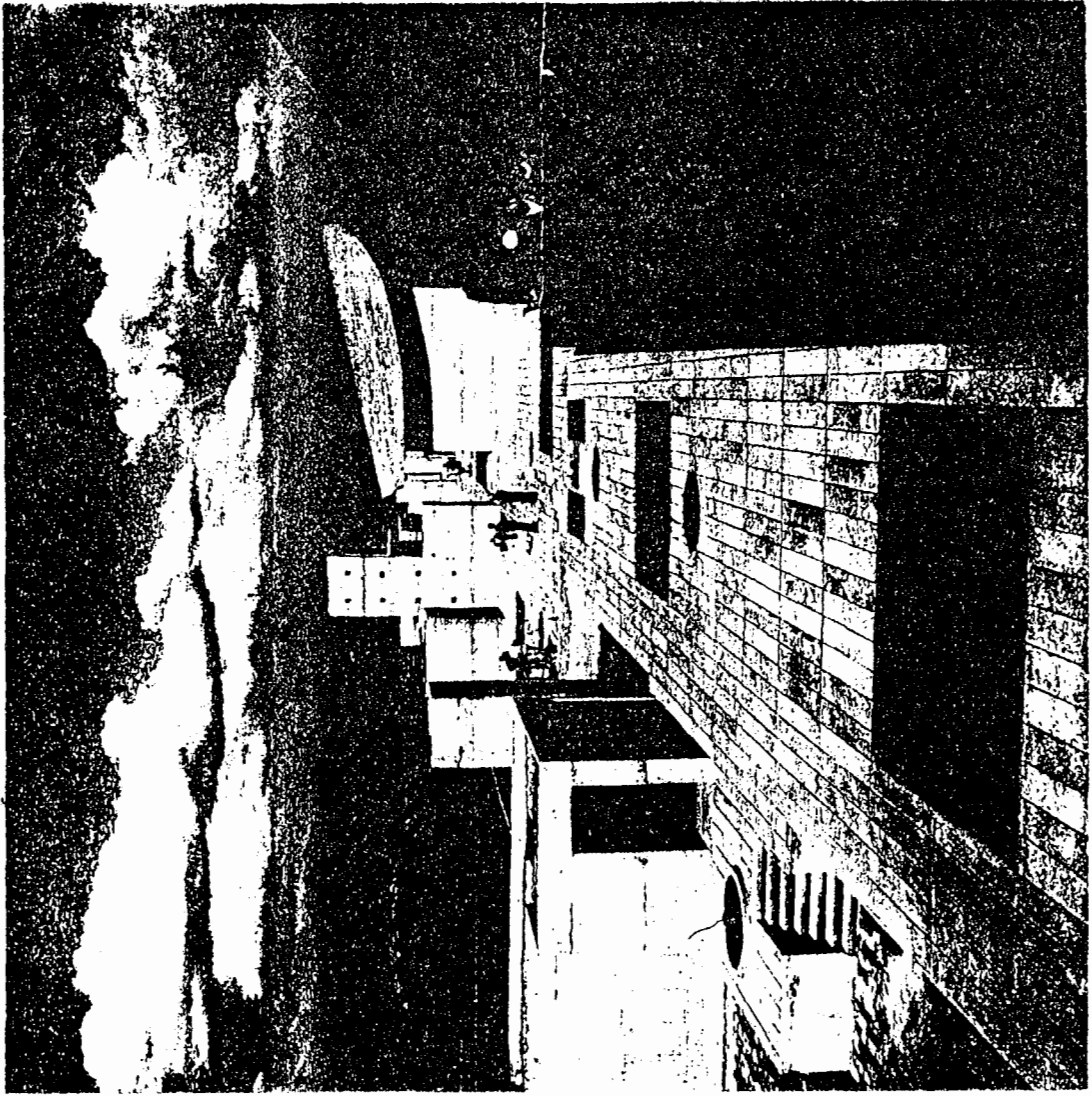
Going from the site into the buildings, we start to understand the place more. The Secretariat, which is supposed to house over 3000 employees, was conceived of at the beginning as a skyscraper. This was not possible for the lack of technology to build and maintain it. Also it was irrelevant to build a skyscraper in a place where unexploited open land was abundant.<sup>31</sup> Eventually, it was rotated by 90° and placed on its side over pilotis, and oriented perpendicularly to the direction of the flow of wind. It is an eight floor long building with a facade of brise-soleil that was divided into three parts, the central one, denoting the entrance, is more playful than the two rigid wings. The latter ones have ramps projecting to the outside. The roof of the building accounts for a cafeteria and garden. The internal planning is very simple; a long corridor separates offices on each side.



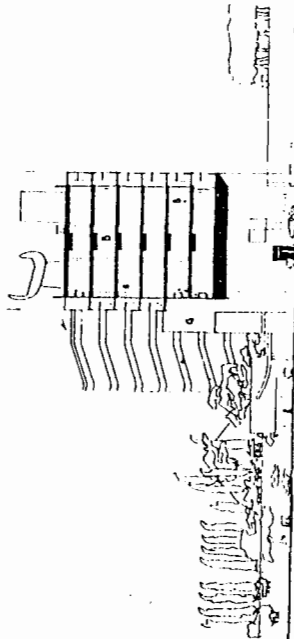
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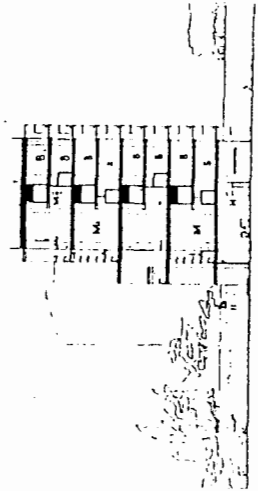
31. Ibid - Vol.2

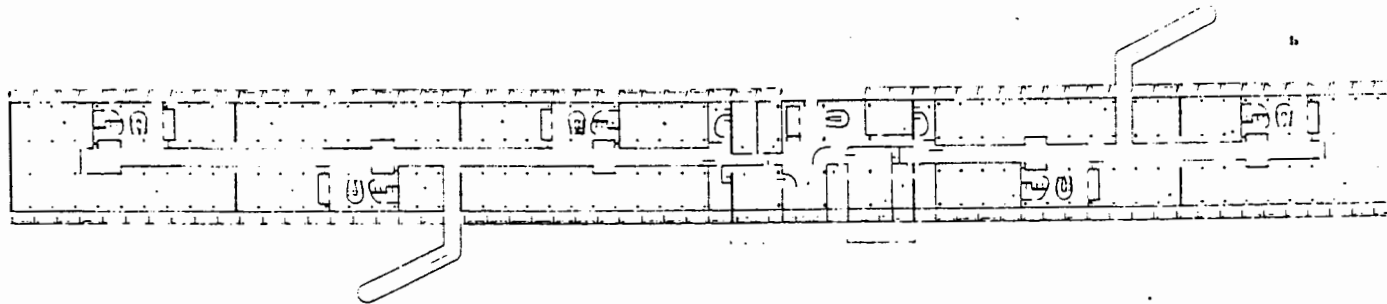


Secrétariat: coupe par le bloc des ministres

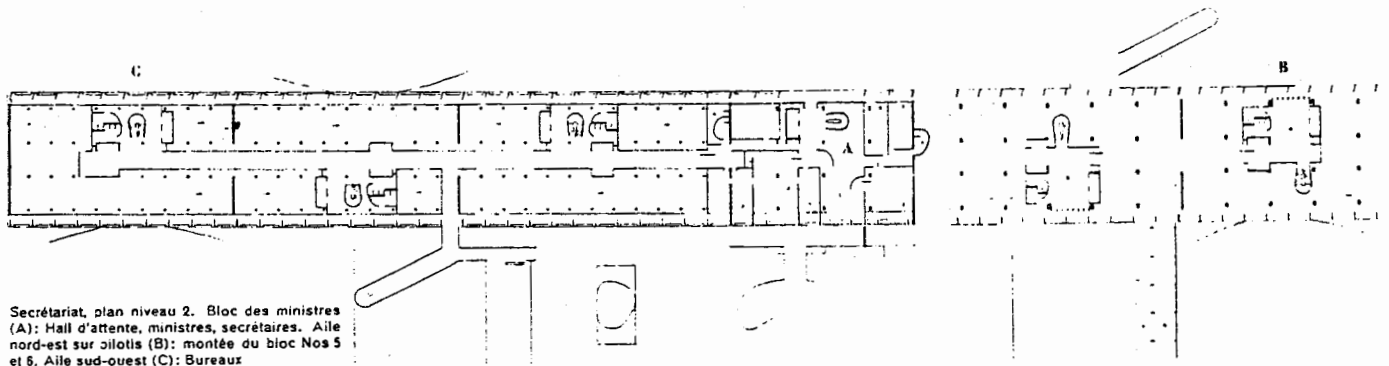


Secrétariat: coupe par la partie sur pilotis en double hauteur

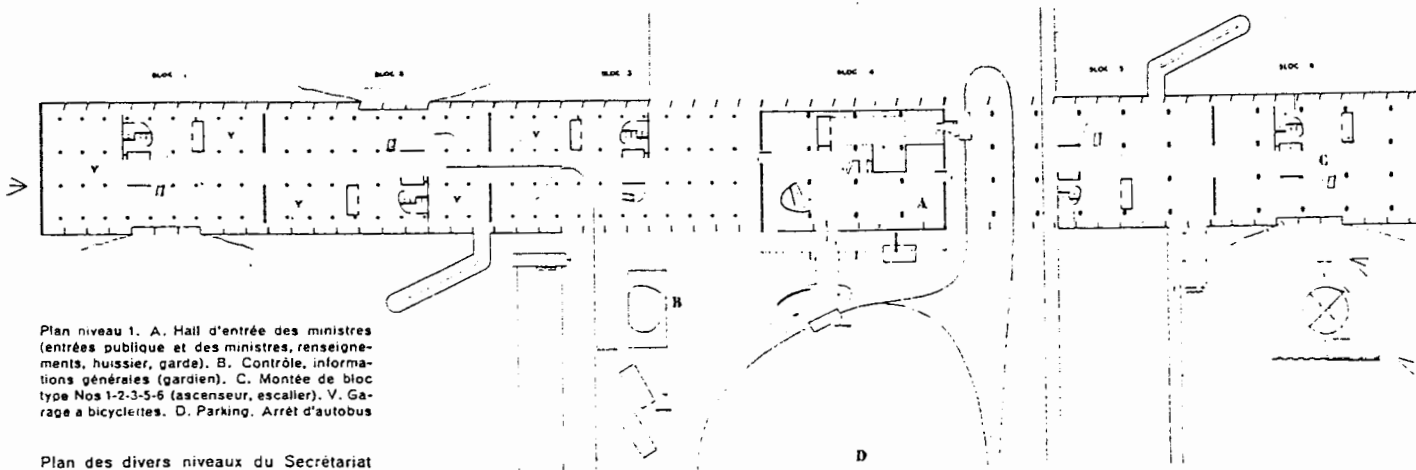




Secrétariat, plan niveau type. Au centre, le bloc des ministres comportant les bureaux des ministres, des secrétaires, un hall d'attente, etc. Ailes nord-est et sud-ouest: Bureaux



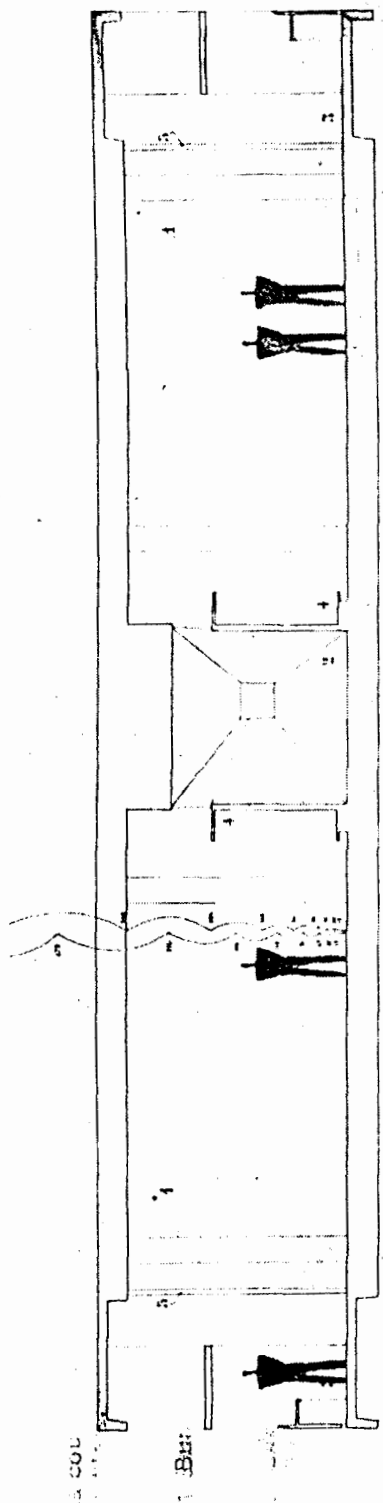
Secrétariat, plan niveau 2. Bloc des ministres (A): Hall d'attente, ministres, secrétaires. Aile nord-est sur pilotis (B): montée du bloc Nos 5 et 6. Aile sud-ouest (C): Bureaux



Plan niveau 1. A. Hall d'entrée des ministres (entrées publique et des ministres, renseignements, huissier, garde). B. Contrôle, informations générales (gardien). C. Montée de bloc type Nos 1-2-3-5-6 (ascenseur, escalier). V. Garage à bicyclettes. D. Parking. Arrêt d'autobus

Plan des divers niveaux du Secrétariat

- 27 -

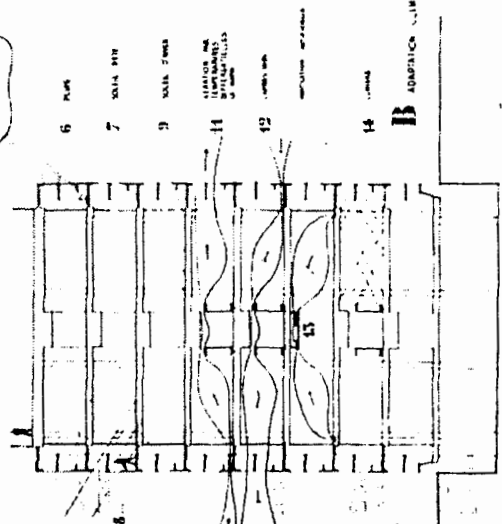


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1 BARR

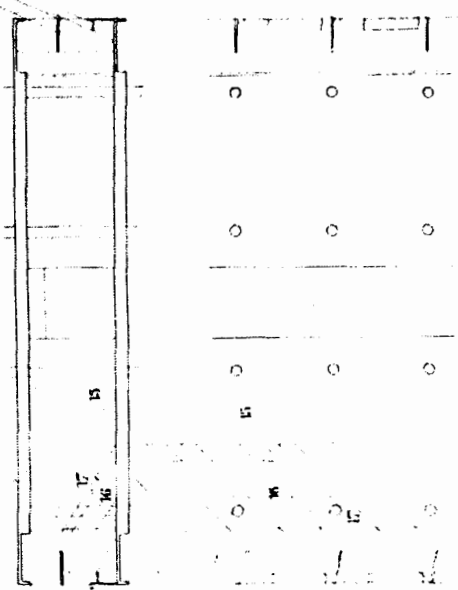
**A** U. S. COAST AND GEOD. SURVEY  
 1. SCALE  
 2. DISTANCE  
 3. AREA  
 4. PERIMETER  
 5. AREA OF TRIANGLE  
 6. AREA OF QUADRANGLE  
 7. AREA OF PENTAGON  
 8. AREA OF HEXAGON  
 9. AREA OF SEPTAGON  
 10. AREA OF OCTAGON  
 11. AREA OF NONAGON  
 12. AREA OF DECAGON  
 13. AREA OF UNDECAHEDRON  
 14. AREA OF DODECAHEDRON  
 15. AREA OF TRICORNER  
 16. AREA OF TETRAHEDRON  
 17. AREA OF PENTAGON  
 18. AREA OF HEXAGON  
 19. AREA OF SEPTAGON  
 20. AREA OF OCTAGON  
 21. AREA OF NONAGON  
 22. AREA OF DECAGON  
 23. AREA OF UNDECAHEDRON  
 24. AREA OF DODECAHEDRON

3 L. L. L.



**B** ADMINISTRATION  
 6. PAUSE  
 7. SOLA RIV  
 8. WALL FLOOR  
 9. HEAD OF THE WALL  
 10. WALL FLOOR  
 11. WALL FLOOR  
 12. WALL FLOOR  
 13. WALL FLOOR  
 14. WALL FLOOR

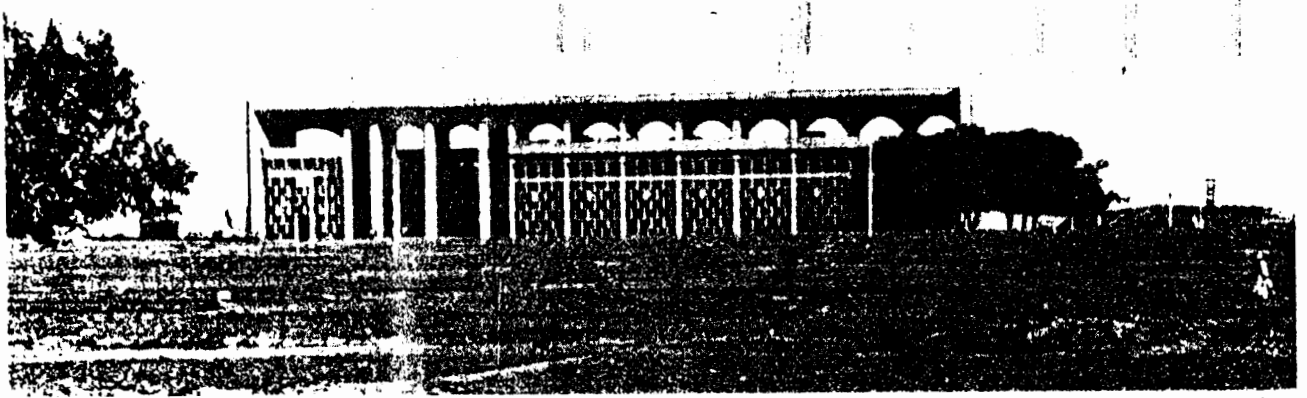
**C** LES 5 ESPONS COLLE SCHEM  
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 5. WALL FLOOR



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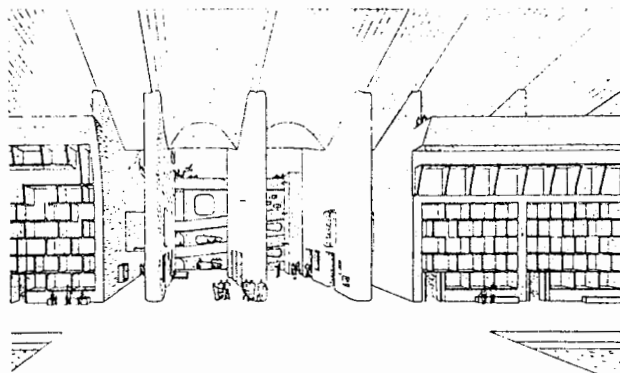
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Moving across the site towards the Palace of Justice, one finds the building to be placed under an enormous parasol, protecting it from sun and rain, and directing the wind towards

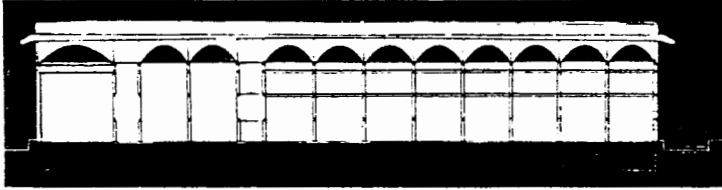


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its interior. The building's main function is to house eight small judicial courts, the High Court, in addition to their services. The entrance of the building that lies behind three water basins is a huge portico extending as high as the parasol and containing three large piers painted green/yellow/red, flanked by two black walls. The horizontal circulation of the building consists of a

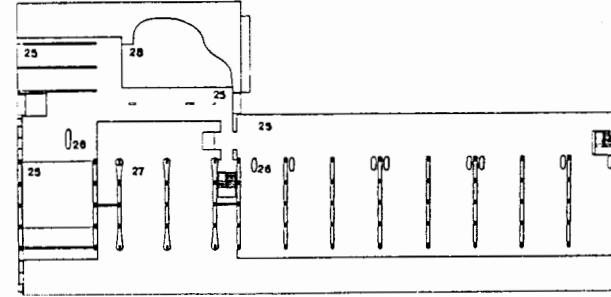


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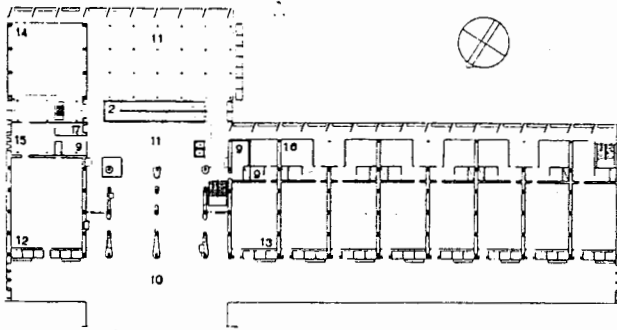


La coupe schématique sur le Palais de la Haute Cour (projet d'exécution)

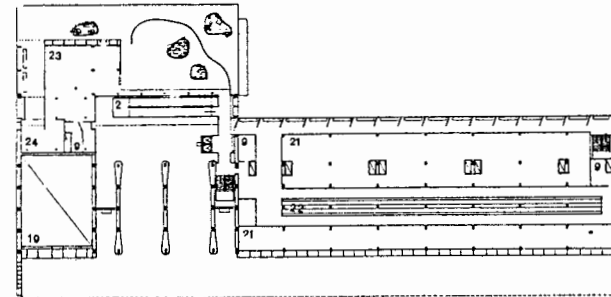
- |                                  |                             |                                    |
|----------------------------------|-----------------------------|------------------------------------|
| 1 Entrée                         | 10 Entrée depuis le parc    | 20 Pas-Perdus vide                 |
| 2 Rampes                         | 11 Pas-Perdus               | 21 Bureaux                         |
| 3 Salle de réception des avocats | 12 Haute Cour               | 22 Archives                        |
| 4 Salle de travail des avocats   | 13 Cour                     | 23 Restaurant                      |
| 5 Casiers à livres               | 14 Bibliothèque             | 24 Office restaurant               |
| 6 Bureaux de consultation        | 15 Salle à manger des juges | 25 Terrasse accessible             |
| 7 Bureau du bibliothécaire       | 16 Chambres des juges       | 26 Gains de ventilation            |
| 8 Police                         | 17 Cuisine                  | 27 Vide de la salle des Pas-Perdus |
| 9 Toiletttes                     | 18 Galerie Haute Cour       | 28 Vide de la terrasse inférieure  |
|                                  | 19 Vides                    |                                    |



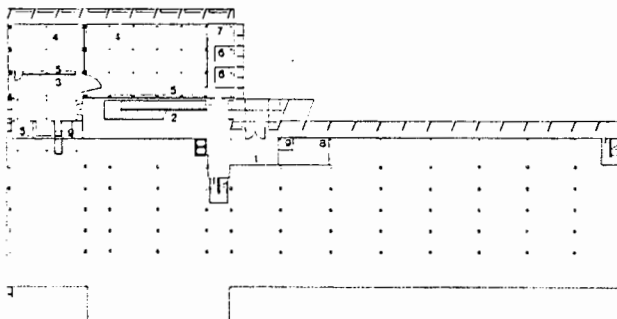
Niveau 5: Terrasse sous le parasol de la toiture



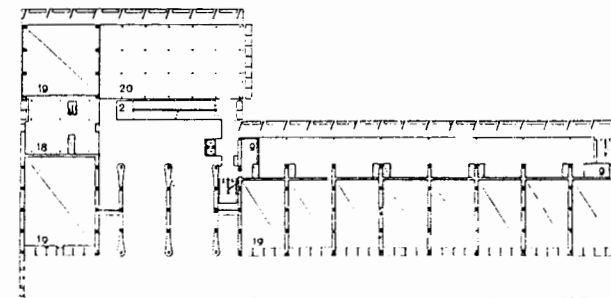
Niveau 2: niveau principal cours et Pas-perdus



Niveau 4: Bureaux, archives et restaurant



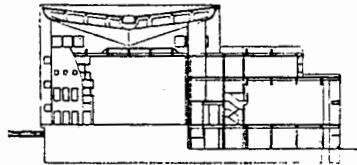
Niveau 1: La circulation automobiles



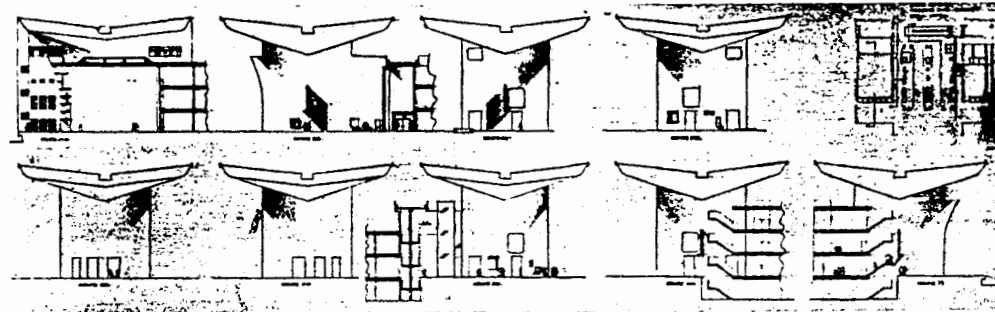
Niveau 3: Bureaux des juges

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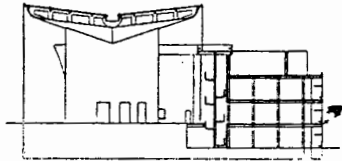




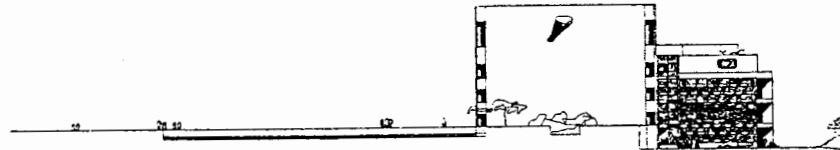
Coupe sur la Haute Cour, la bibliothèque, le restaurant sur la terrasse



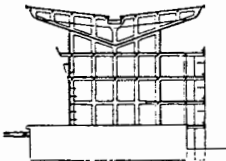
Coupes montrant les deux faces de chaque portique des Pas-Perdus



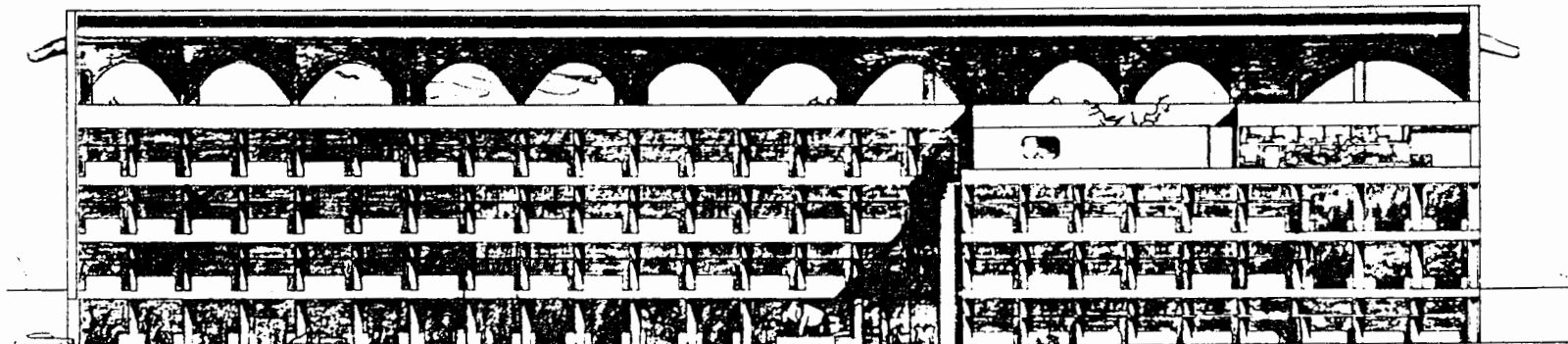
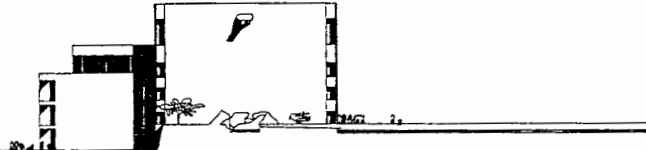
Coupe sur la salle des Pas-Perdus. Le parasol, la rampe et les bureaux ont des structures indépendantes



Façades latérales. L'eau pluviale recueillie par le canal médian de la toiture tombe depuis les gargouilles dans des cuvettes qui abritent les bassins miroirs d'eau

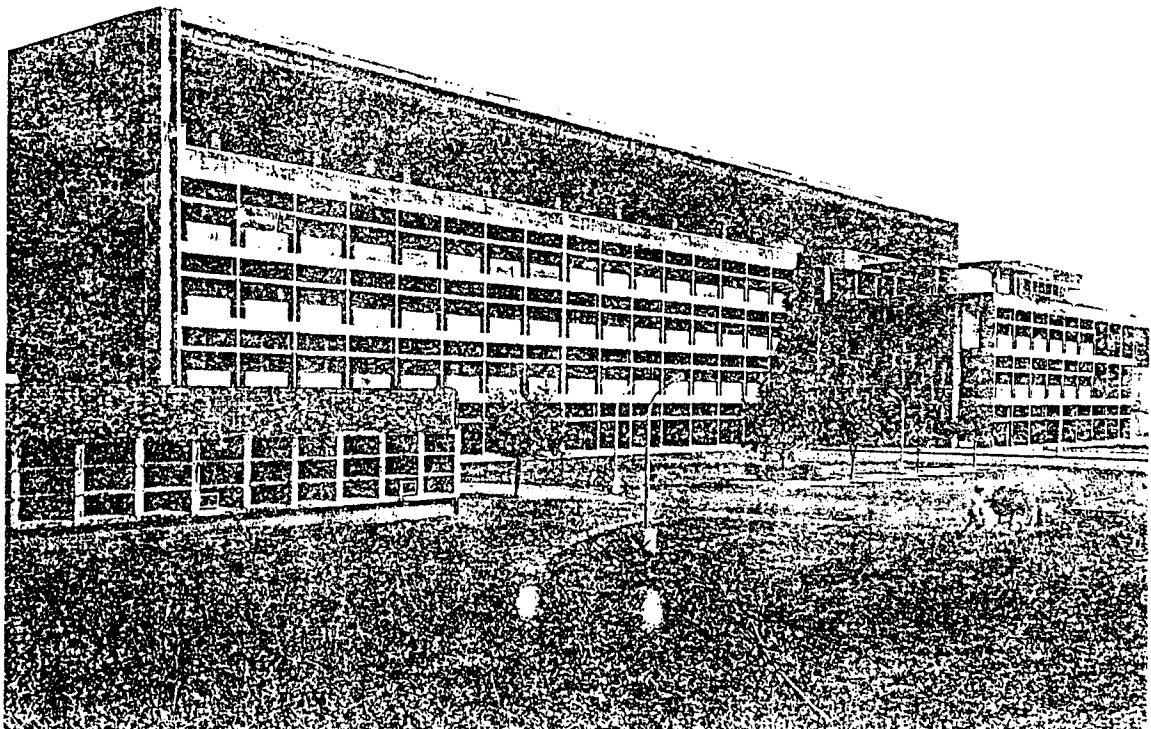


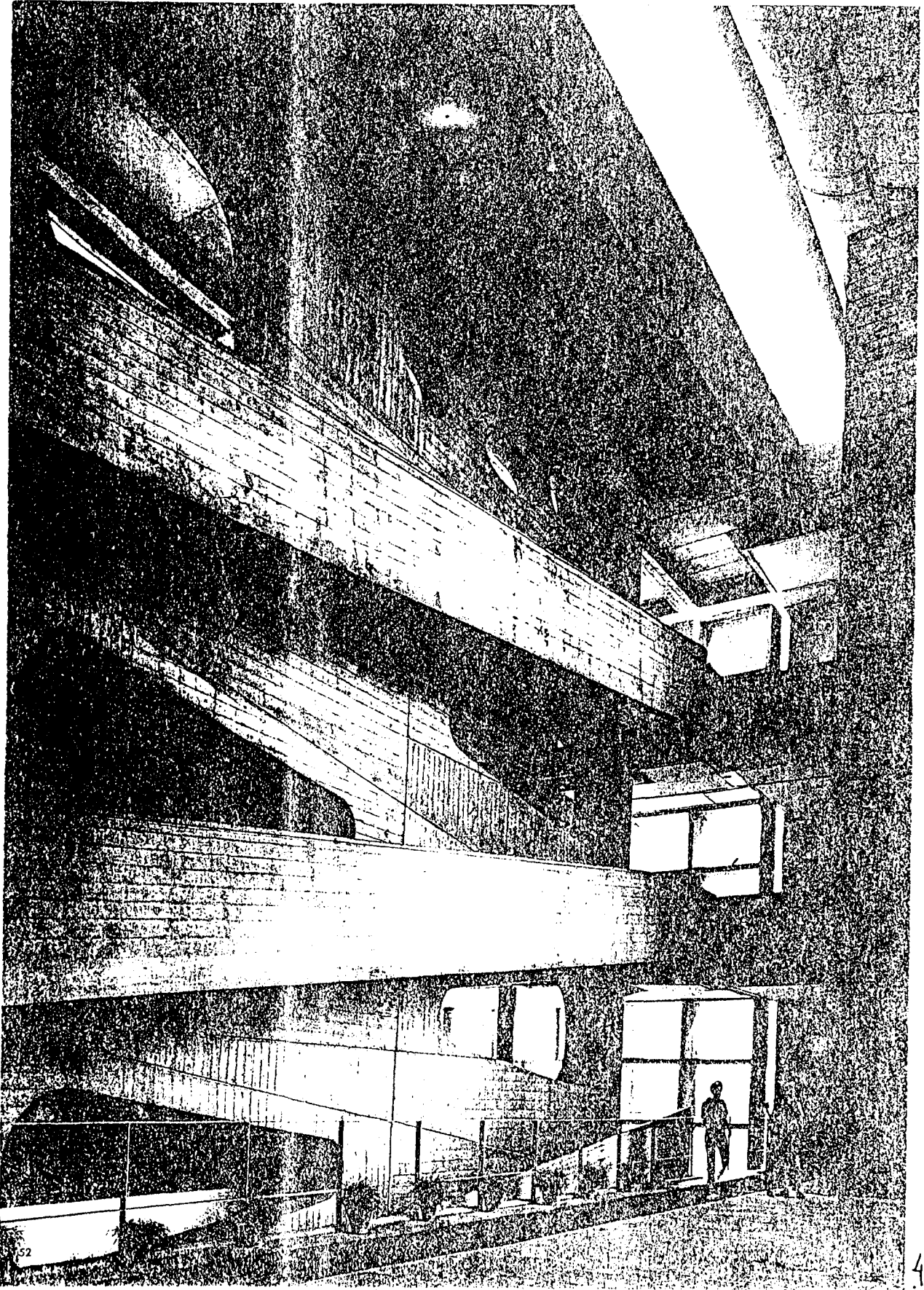
Coupe transversale montrant la structure portante



Façade postérieure sur la tranchée de circulation autos. Brise-soleil abritant les galeries d'accès aux bureaux

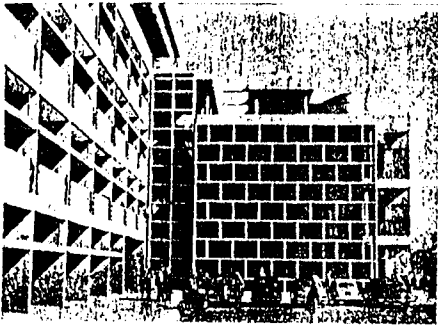
corridor that extends along the rear of the building linking the major and minor vertical circulations. These consist of a ramp, a staircase, and a pair of elevators located within the entrance portico, in addition to another staircase at the other side of the corridor. The portico separates between the High Court, to its left, and eight small courts to its right. The former extends to a triple volume in height while the latter stop at a double volume. The public entrances to the courts are from the main facade, while the judges' entrances are from the back, coming from their respective offices which lie behind the courts. Behind the High Court is a restaurant for the judges. To the back of the building projects a small volume annexing the main block under the parasol. This contains a library and the hall of 'Pas-Perdus', both of which form a double volume.



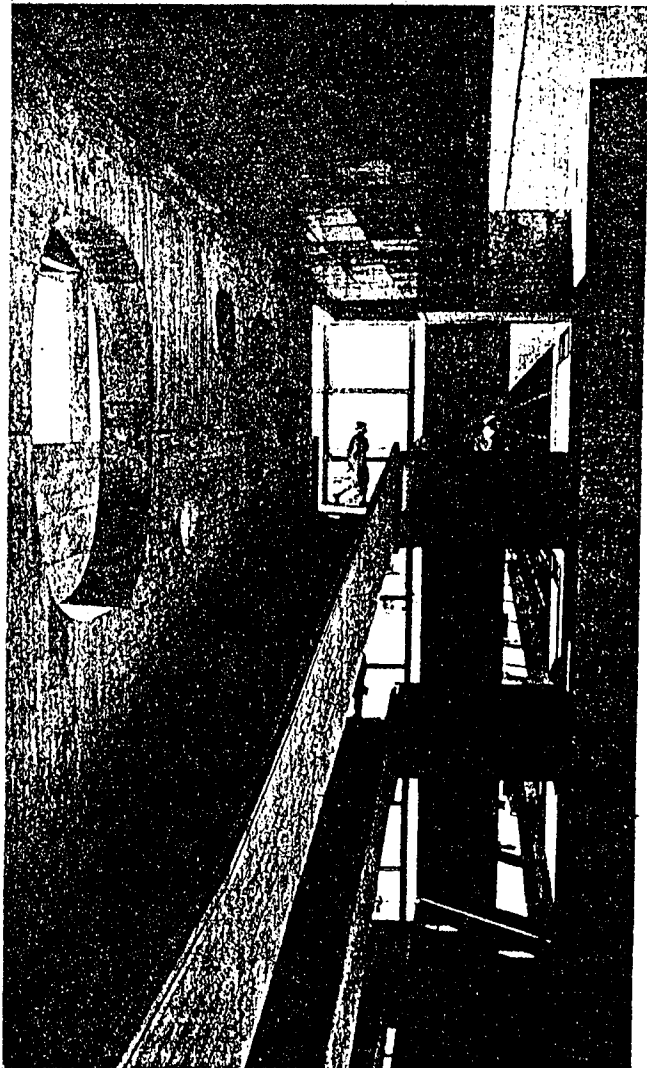


The basement gives access to the parking behind the building, and contains the security station in addition to advocates' reception, working spaces and consultation offices.

Going up to the second floor, and behind the court lie several offices accessed to by the corridor at the back. Behind the High Court lies its gallery which is reached through a staircase coming from the library.



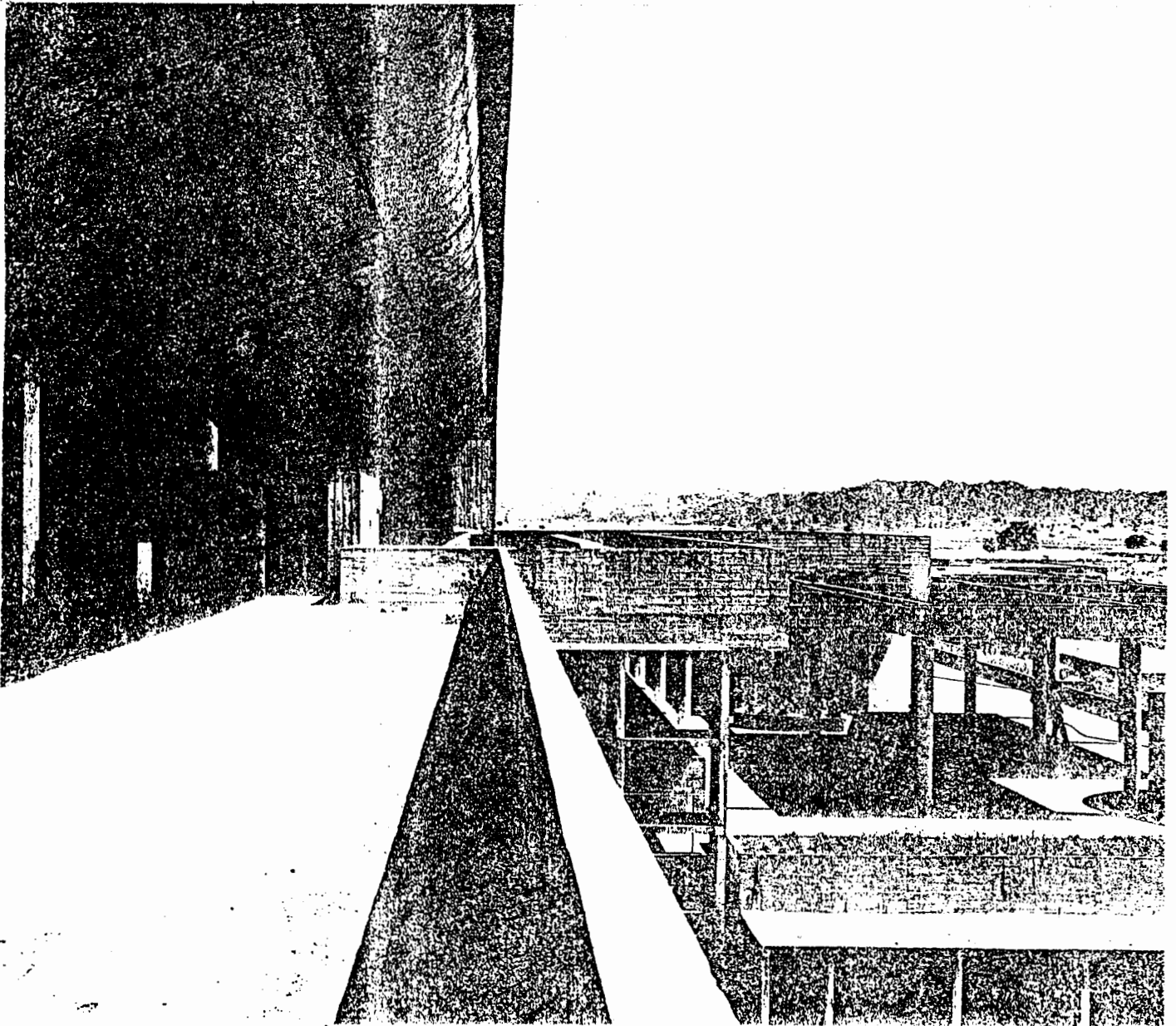
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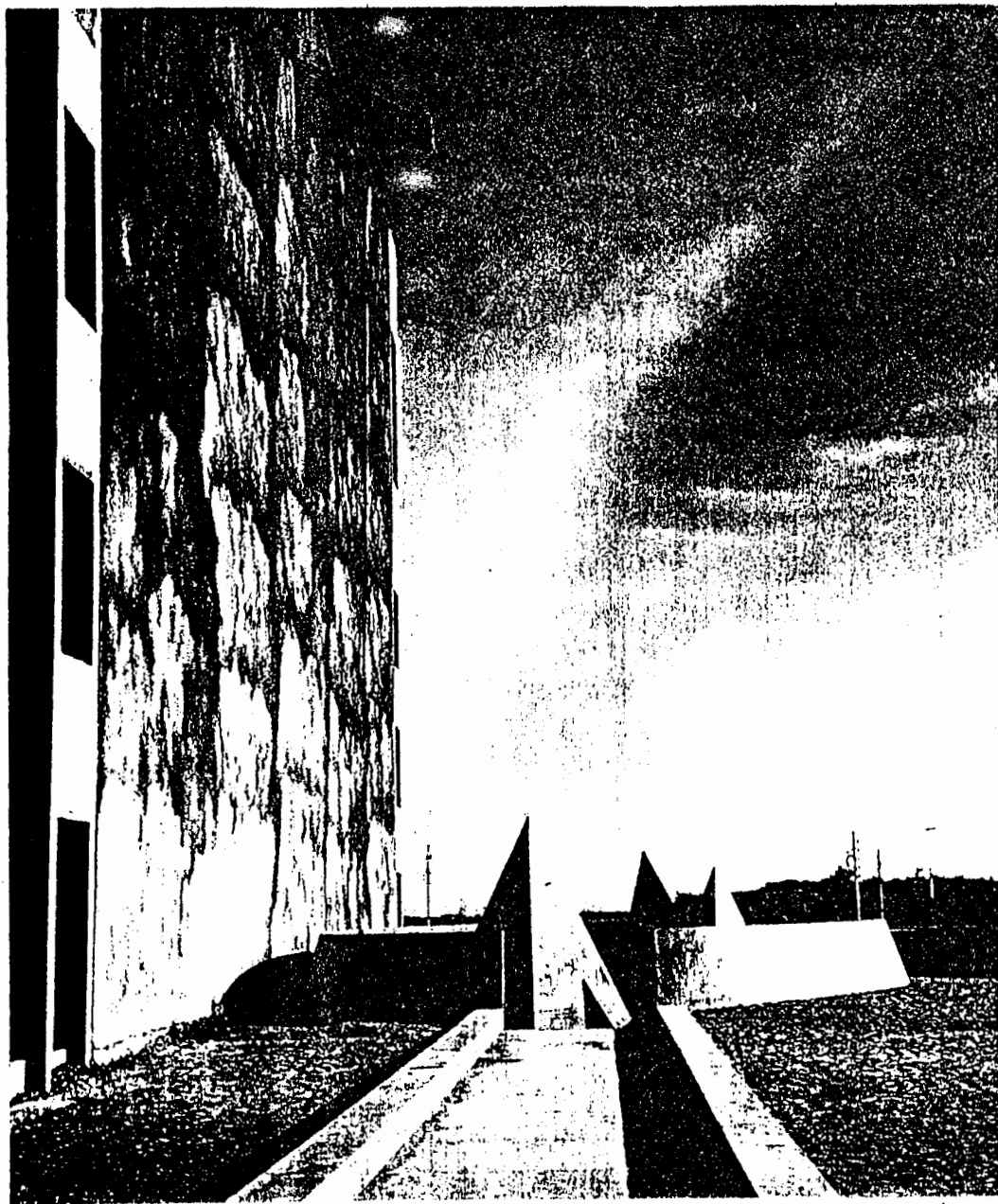
42

Going further up to the third floor, the archives are on top of the small courts with additional offices behind them and a restaurant above the library commands a magnificent view towards the lake.

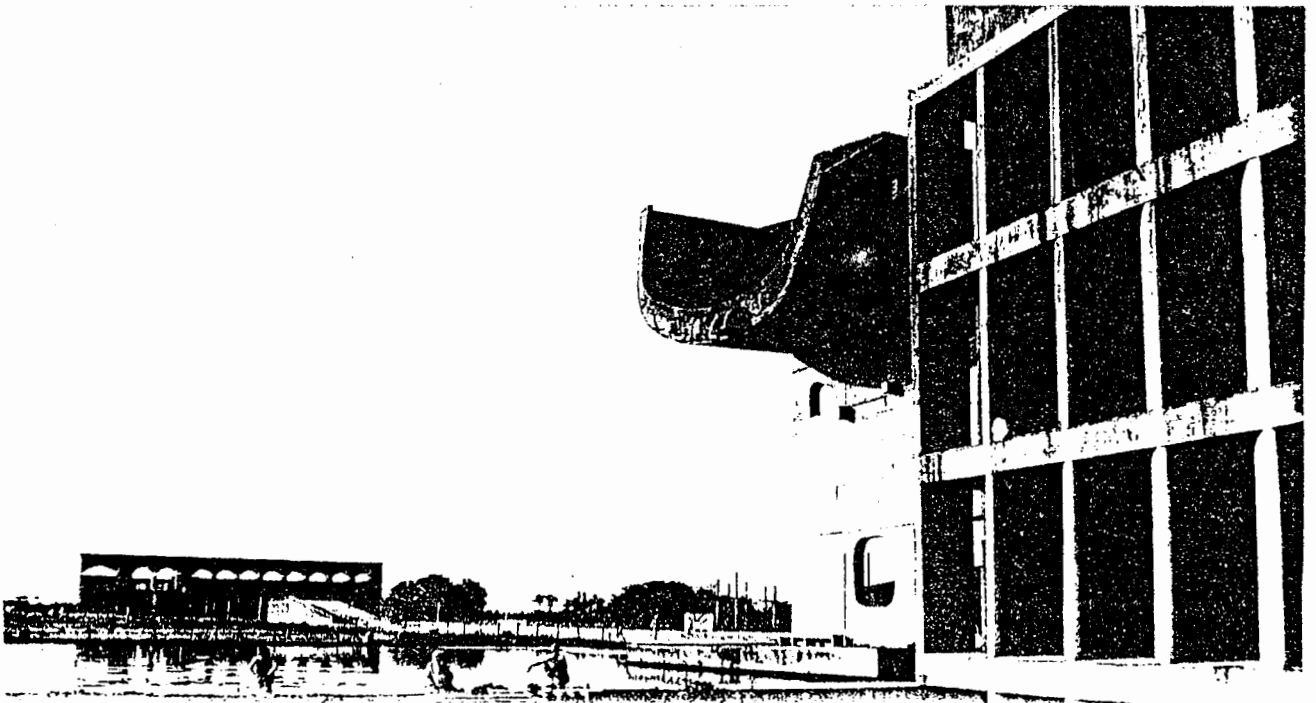
The fourth and last level is a large terrace open to the front and rear of the building and protected by the huge parasol.

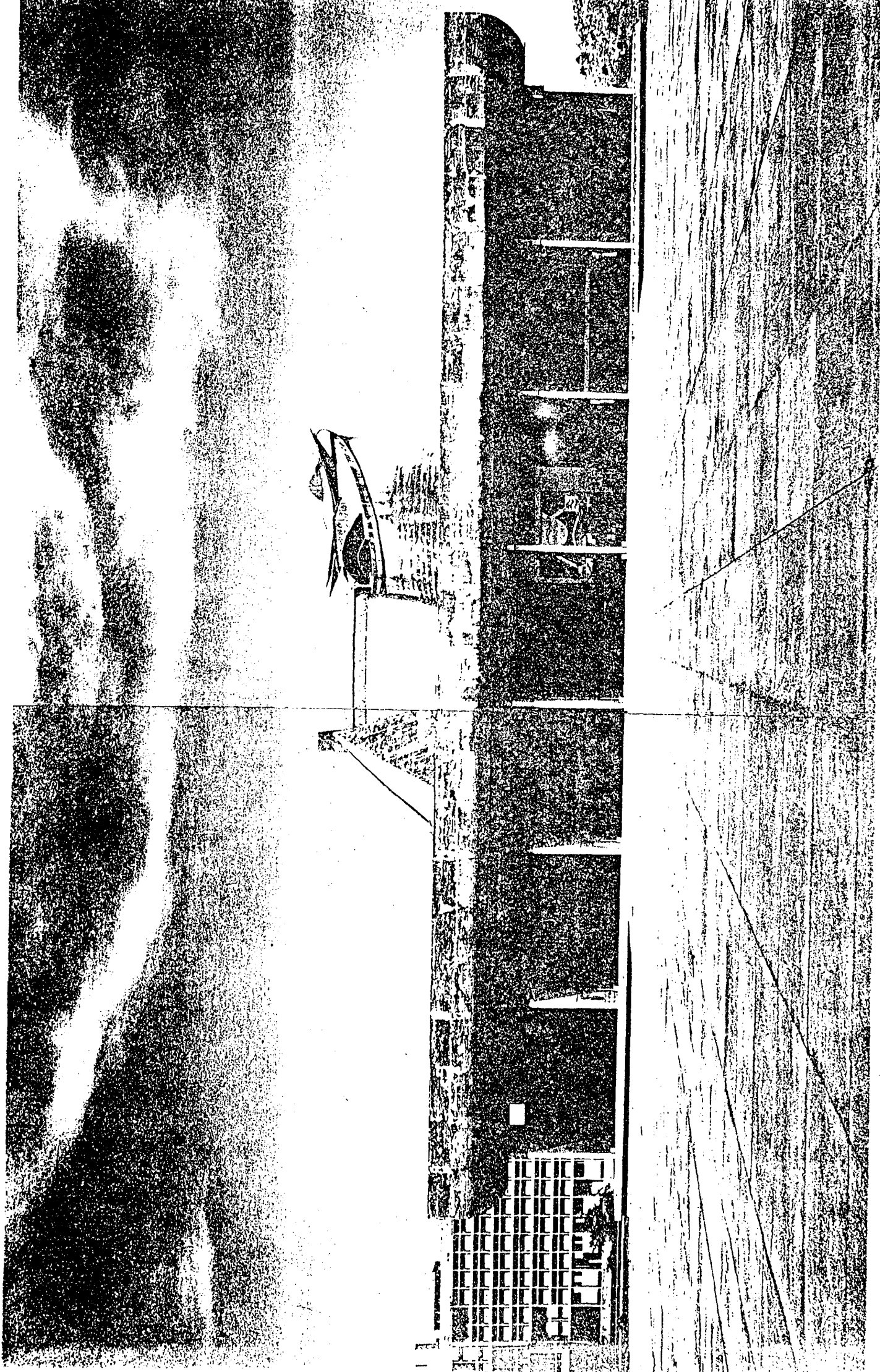


The front and back elevations are governed by a bold grid of brise-soleil proportioned by the Modulor, while the sides seem to end the box as blind walls with water spouts penetrating their upper center to throw down the rain water onto receivers that channel it to the pools.



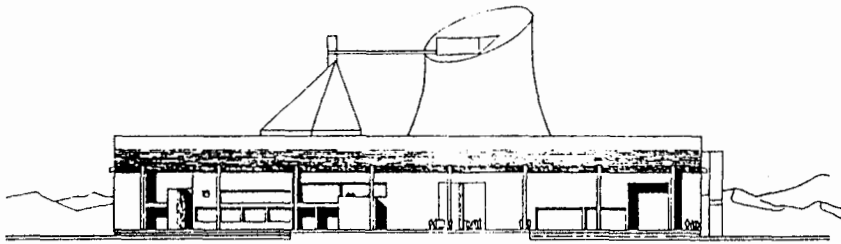
The third building to be erected on site is the Assembly Hall, which with its portico under the huge gutter, and pure forms projecting through its roof slab, plays a role of another focus point which balances the monumental presence of the High Court.





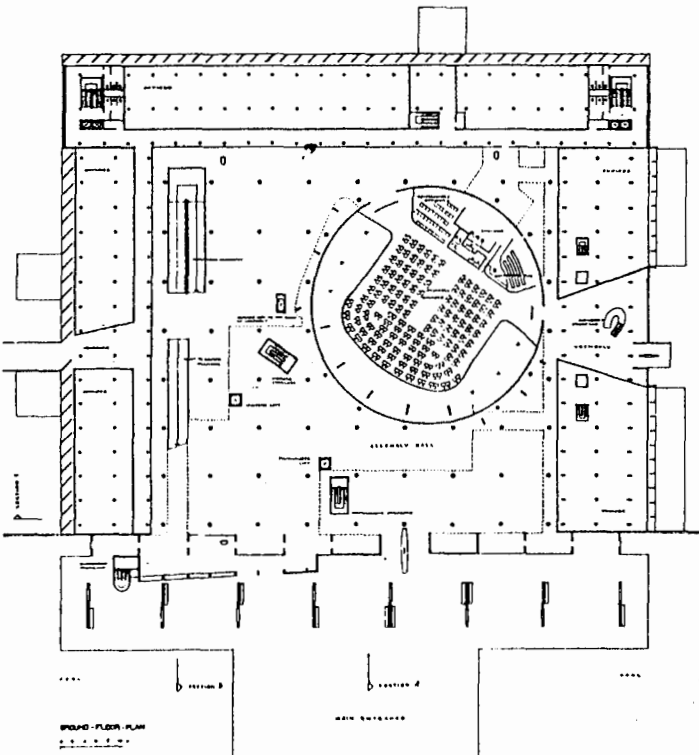


The building is mainly composed of an open space, 'Forum', triple volume, enclosed by the portico from one side and by three 'walls': offices and galleries that overlook this central space. Inside the 'Forum', the gathering space used during intermissions, lie the two main functions of the building as pure geometric forms - a parabolic hyperboloid and a prism - which pierce through the roof slab and are ended by a glazed truncation and a tetrahedron respectively. The presence of such forms inside the 'Forum' in addition to a system of ramps, stairs, columns, and beams renders the space monumental and dynamic. It is a relatively dark space, having the only light source as a small clerestory light band that runs just beneath the ceiling, however it is a cool space in the middle of all the heat of the external environment.



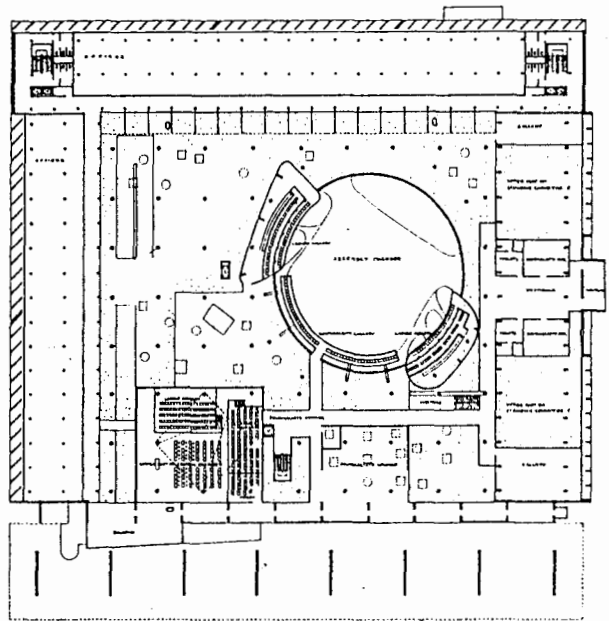
SOUTH-EAST FACADE, PRINCIPAL

La façade sud-est South-east façade Südostfassade



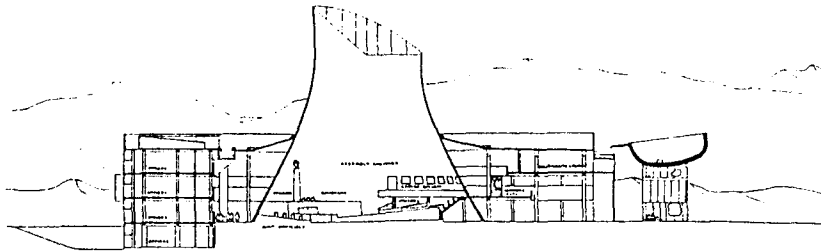
GROUND-FLOOR PLAN

Plan du rez-de-chaussée Plan of the ground-floor Erdgeschoss-Plan



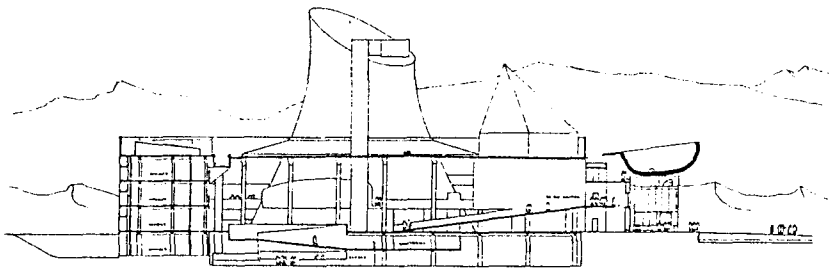
SECOND-FLOOR PLAN

Plan du deuxième étage Plan of the second-floor Plan der zweiten Etage



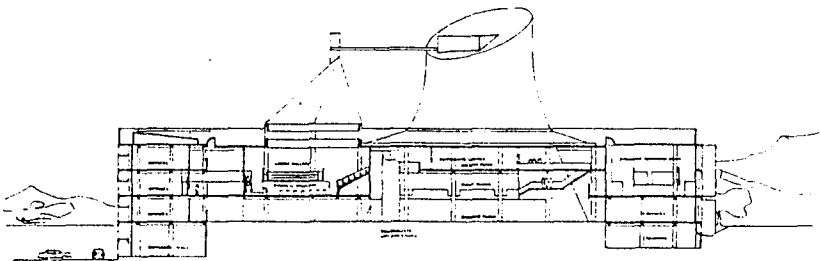
SECTION 4

Coupe sur la salle d'Assemblée    Section through the Assembly-hall    Schnitt durch das Parlamentsgebäude



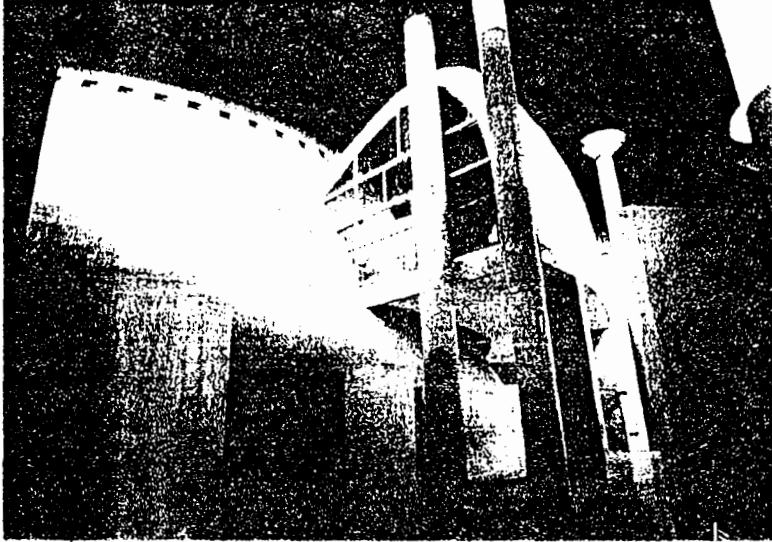
SECTION 3

Coupe sur la salle des «Pas-perdus»    Section through the vestibule    Schnitt durch die Vorhalle

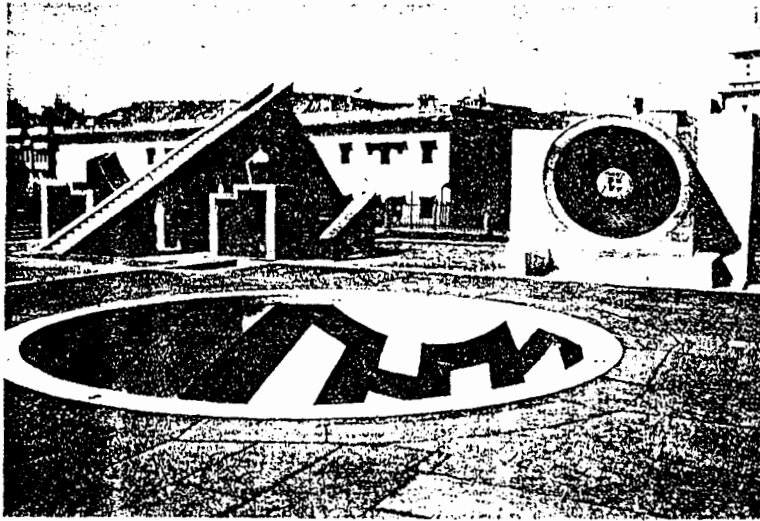


SECTION 1

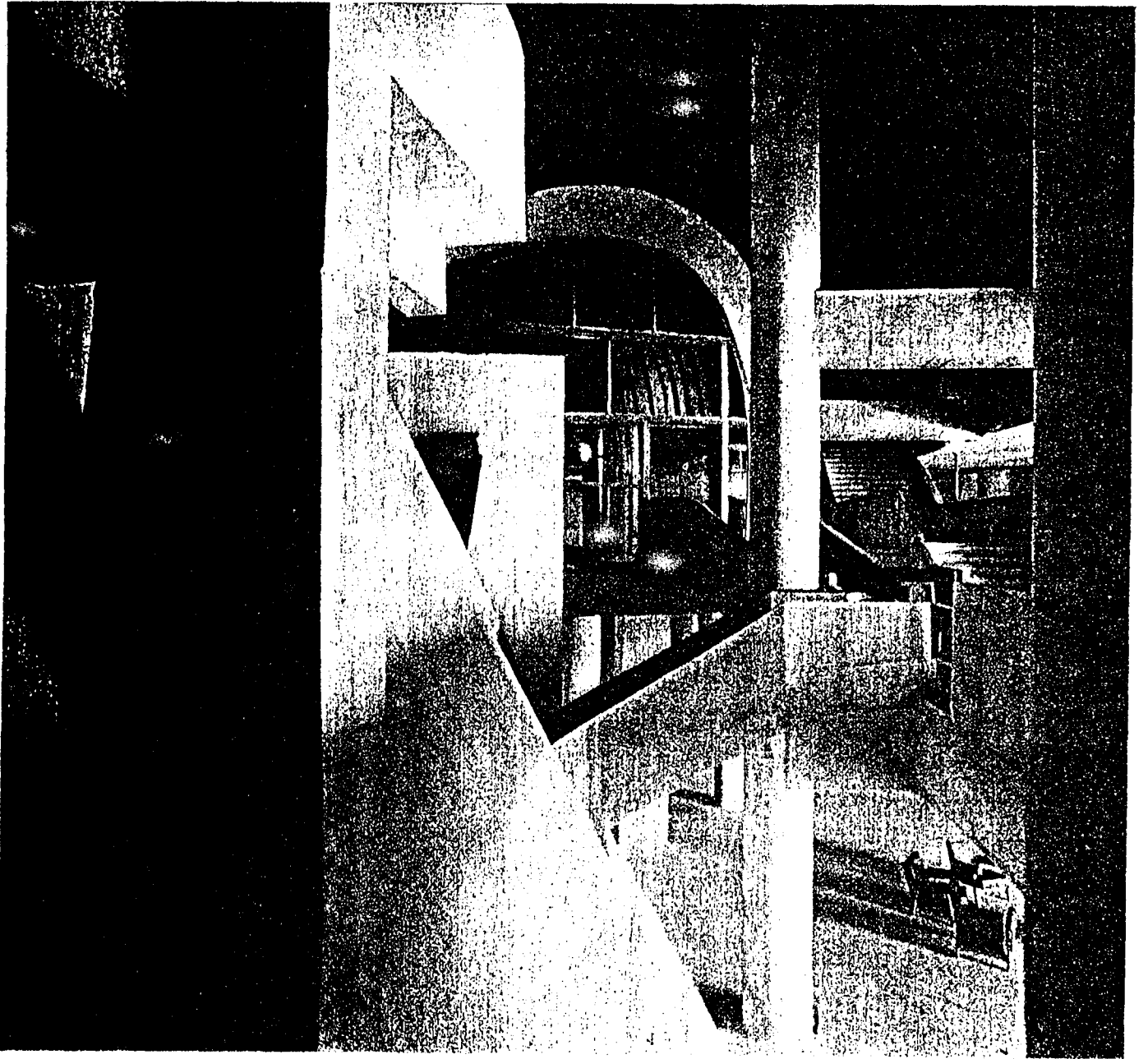
Coupe sur la salle d'Assemblée    Section through the Assembly-hall    Schnitt durch den Versammlungssaal

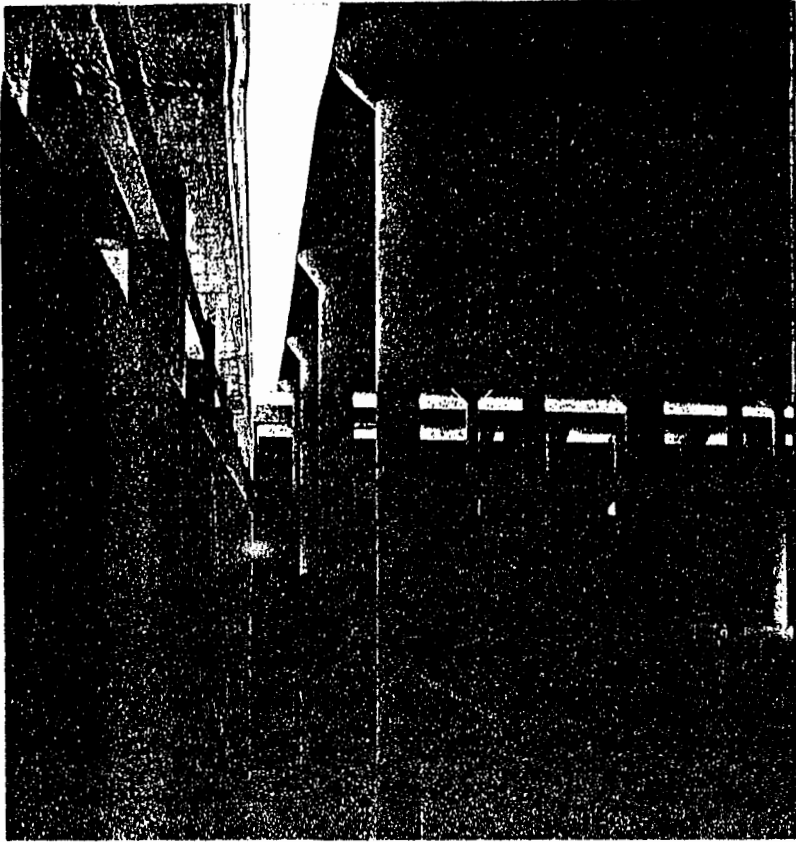


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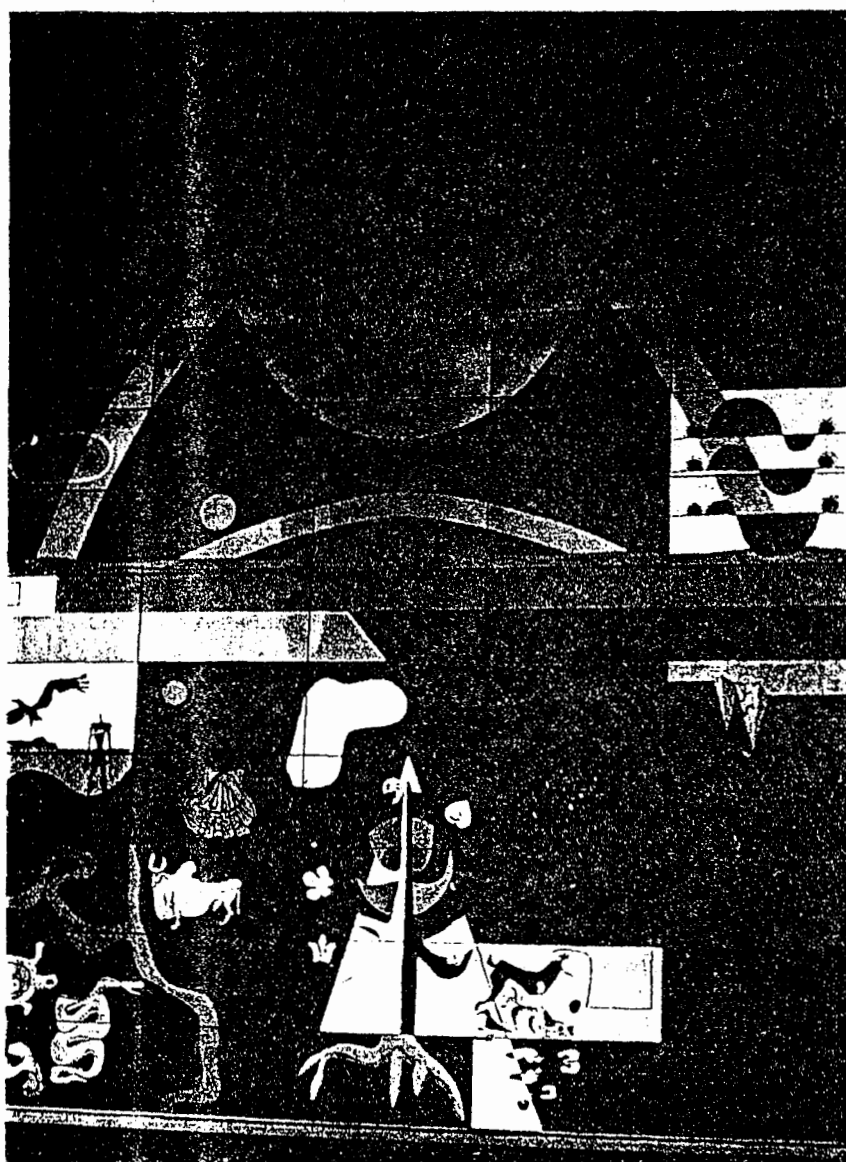


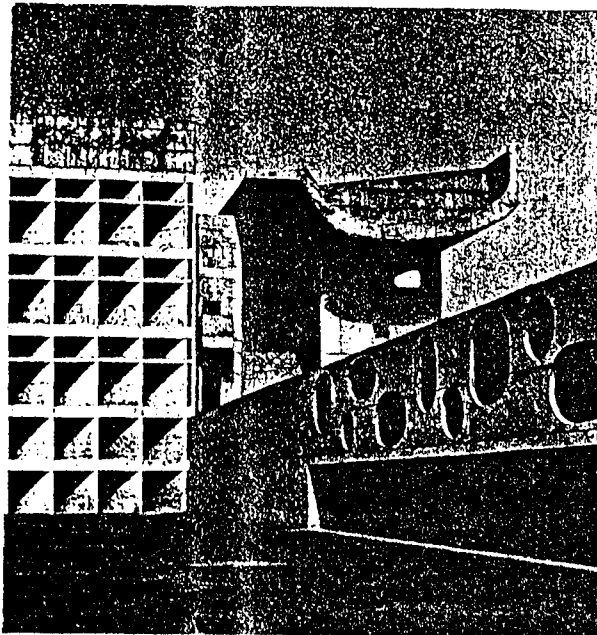
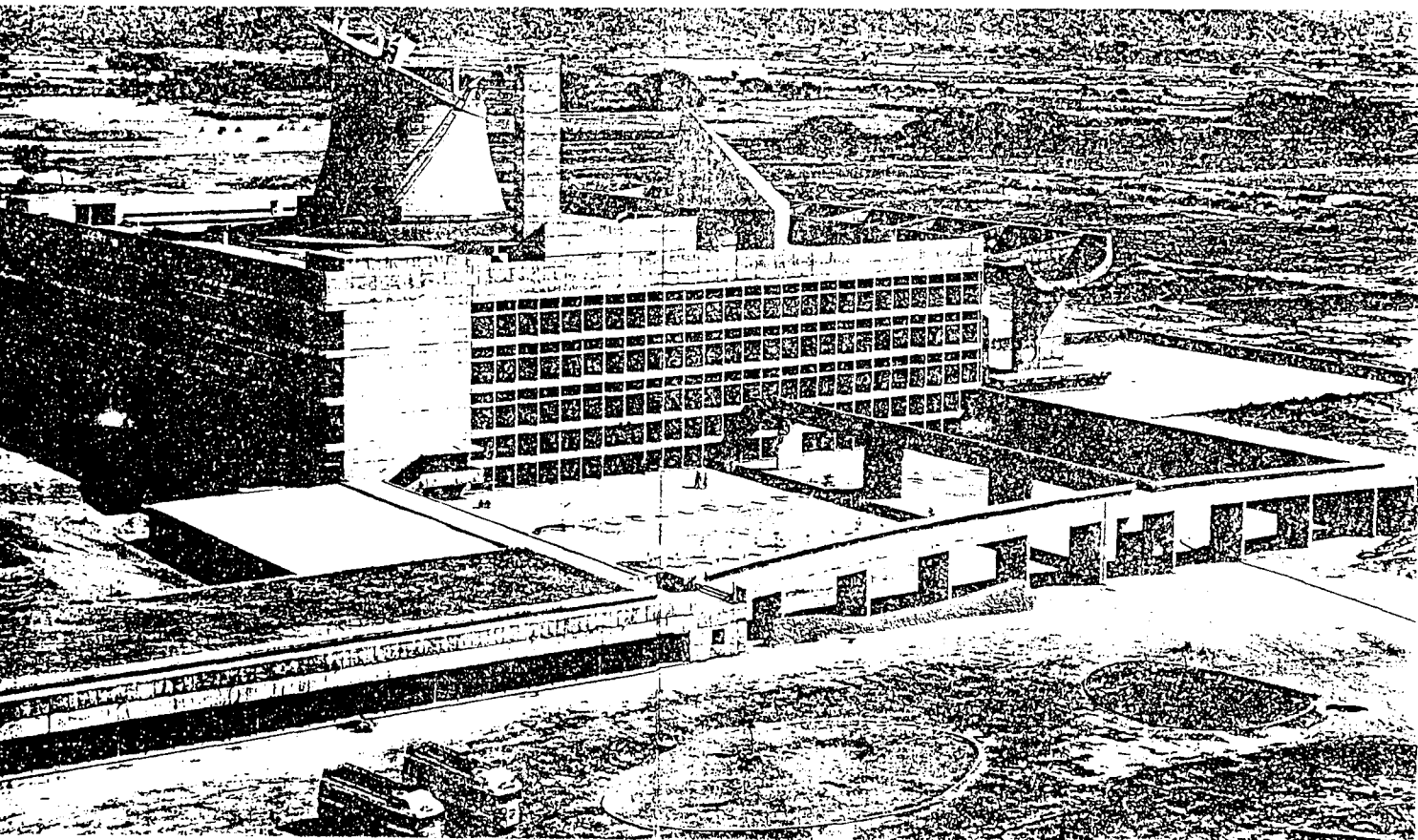
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53

The entrance portico contains the governor's entrance which is a huge enamelled door that opens once every year, and leads to the 'Forum'. All the others: ministers, visitors, staff and journalists enter from the South-Western side, where the parking is depressed below ground level with an entrance hall at its level, and a pedestrian circulation bridging over it and entering on the level of the 'Forum'. The 'walls', as mentioned before, are made out of offices on the outside, having a uniform pattern of brise-soleil, with galleries looking into the 'Forum' on the inside.

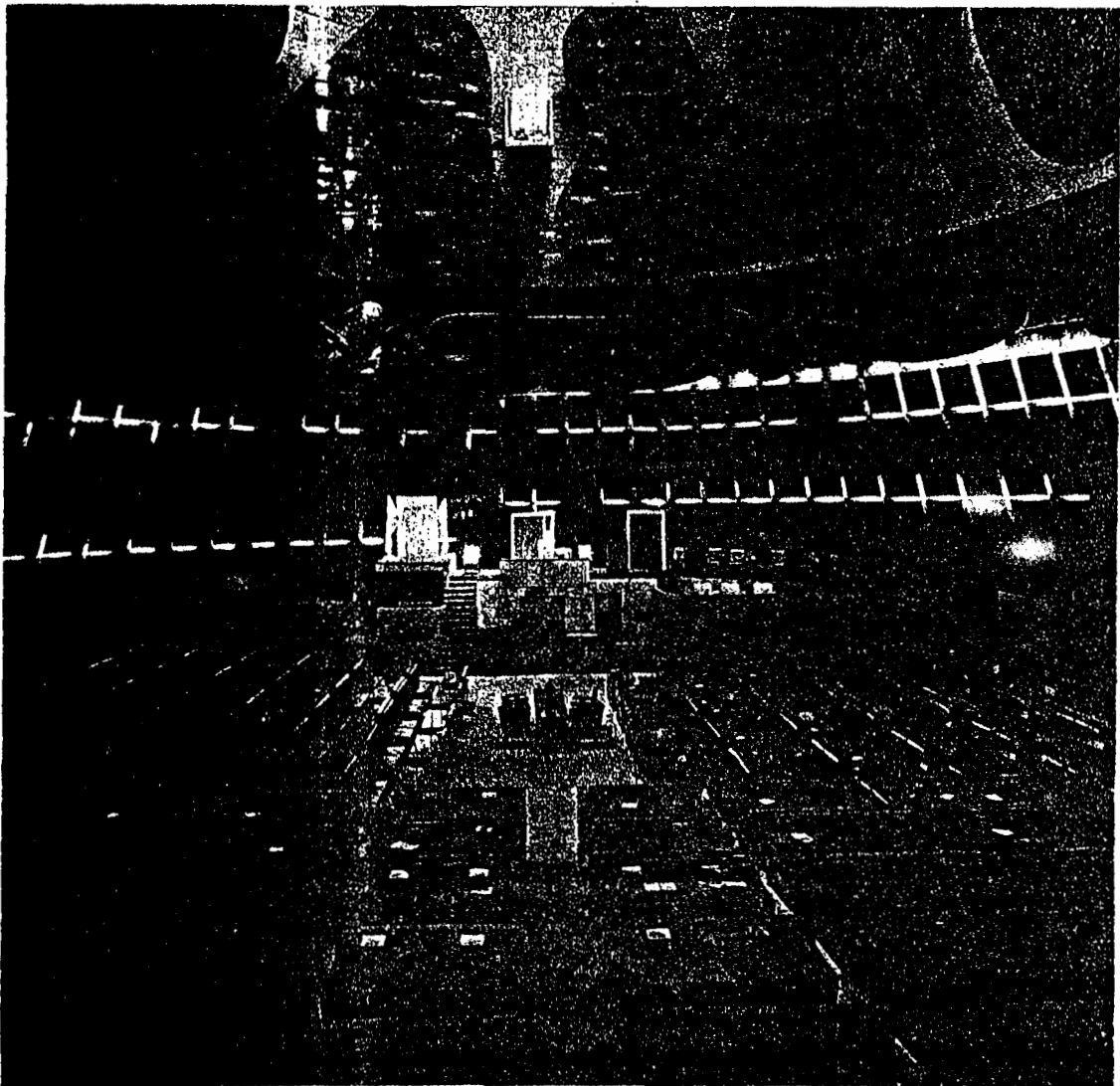




45.d

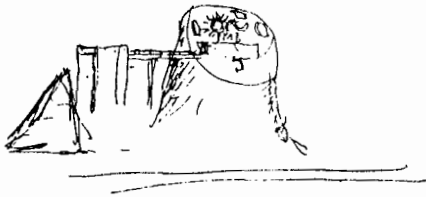
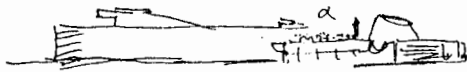
45.e

The great parabolic Assembly Hall is used for one or two months a year. Inside, L-C removed the speaker's platform and provided each of the ministers with his own microphone, thus making everyone equal and able to discuss his point of view whenever he pleases. The space provides a beautiful shade with its skylight having a system of refractors and diffusers. The effect created by the shape is the same as that of a chimney; once the space is heated up by sunlight, you start getting an upward draft which sucks in fresh and cool air from below to the atmosphere above. Thus the room is air-conditioned without the use of mechanical equipment. The influence of this form most probably came from cooling towers in Ahmedabad.<sup>32</sup>

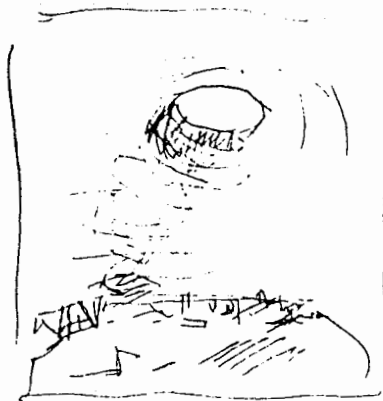


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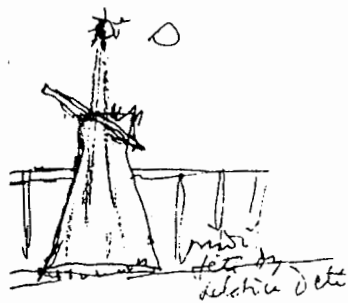




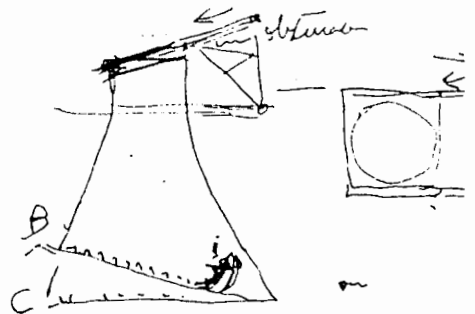
57.A



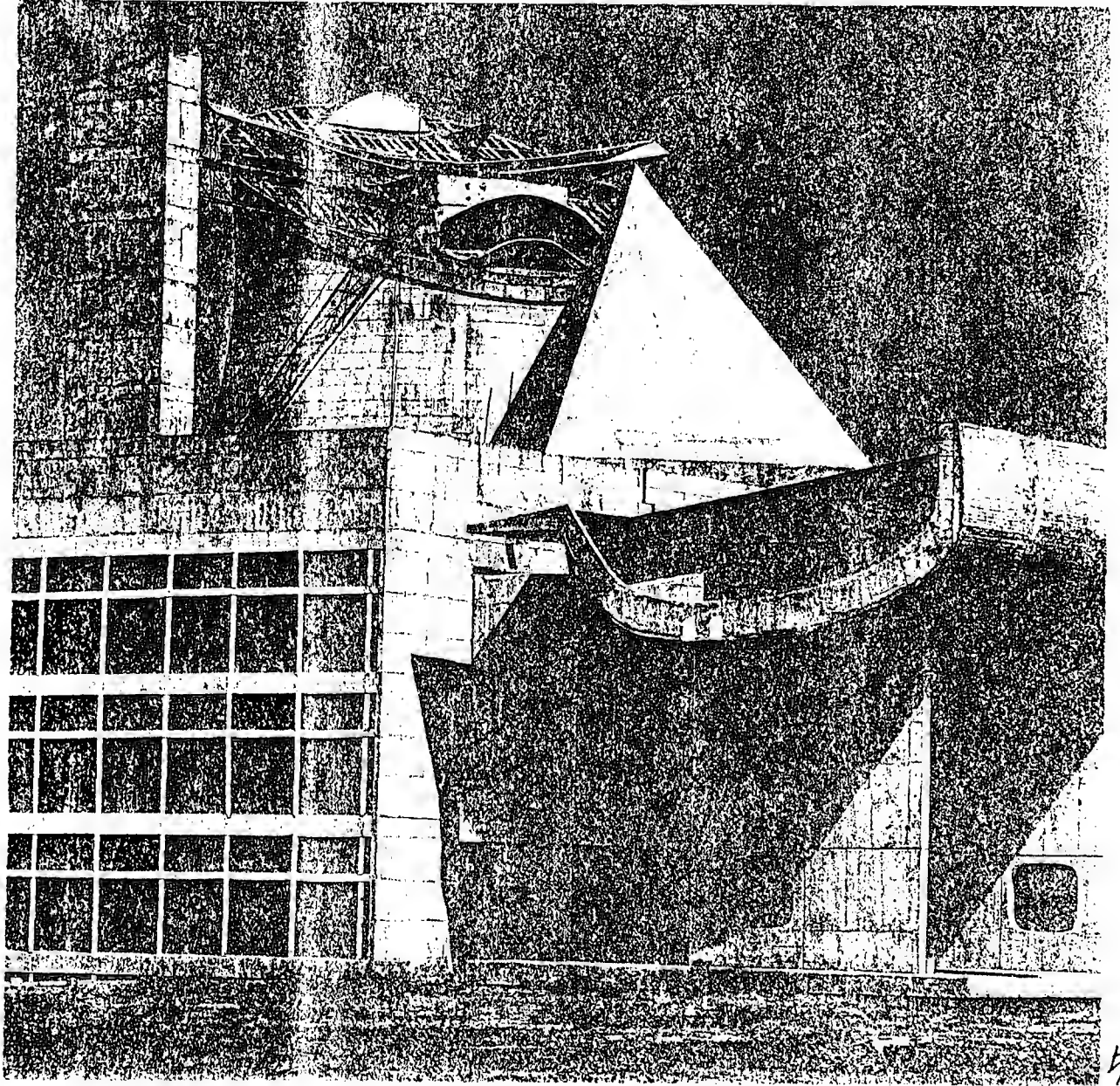
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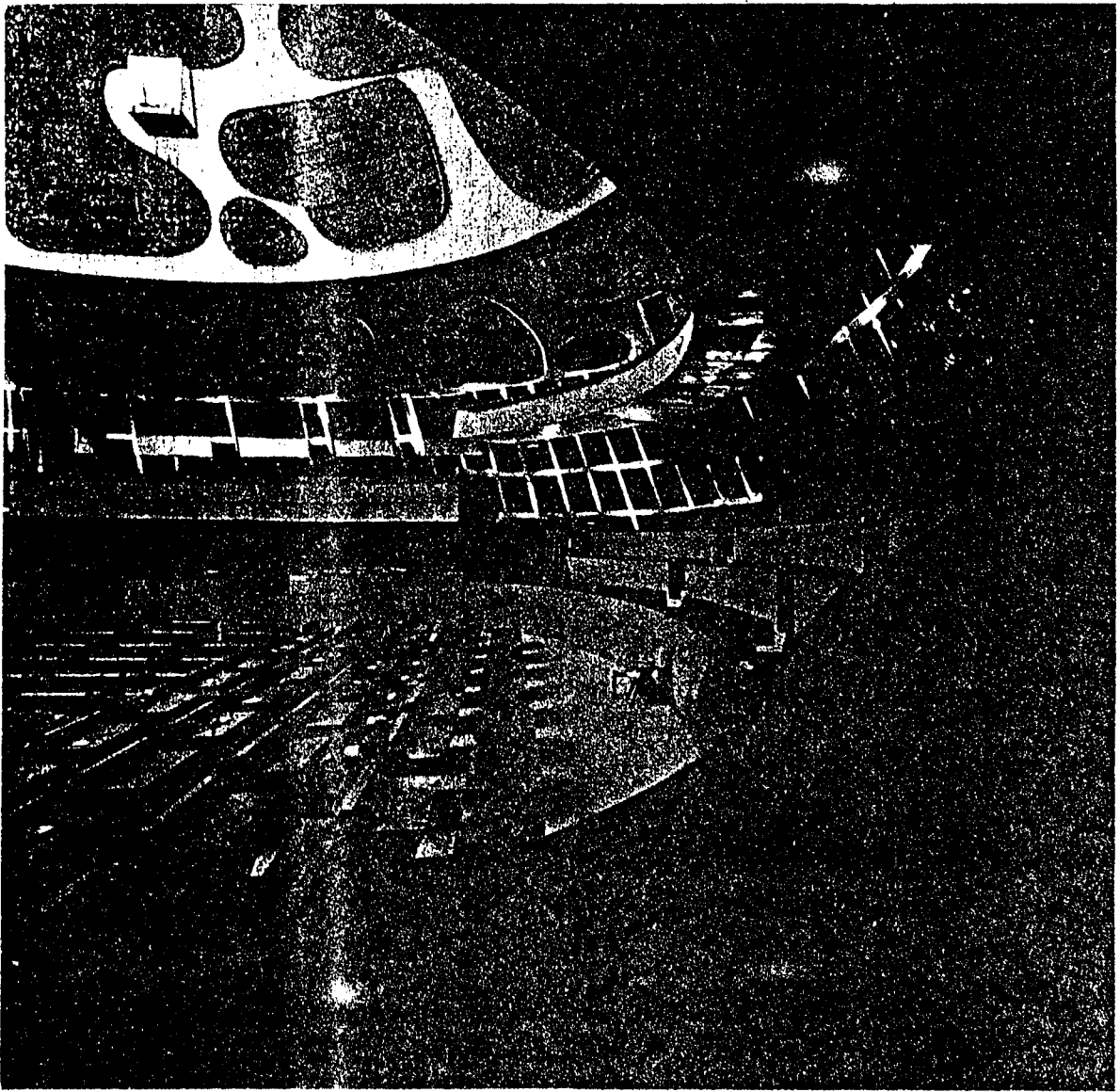
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57.b

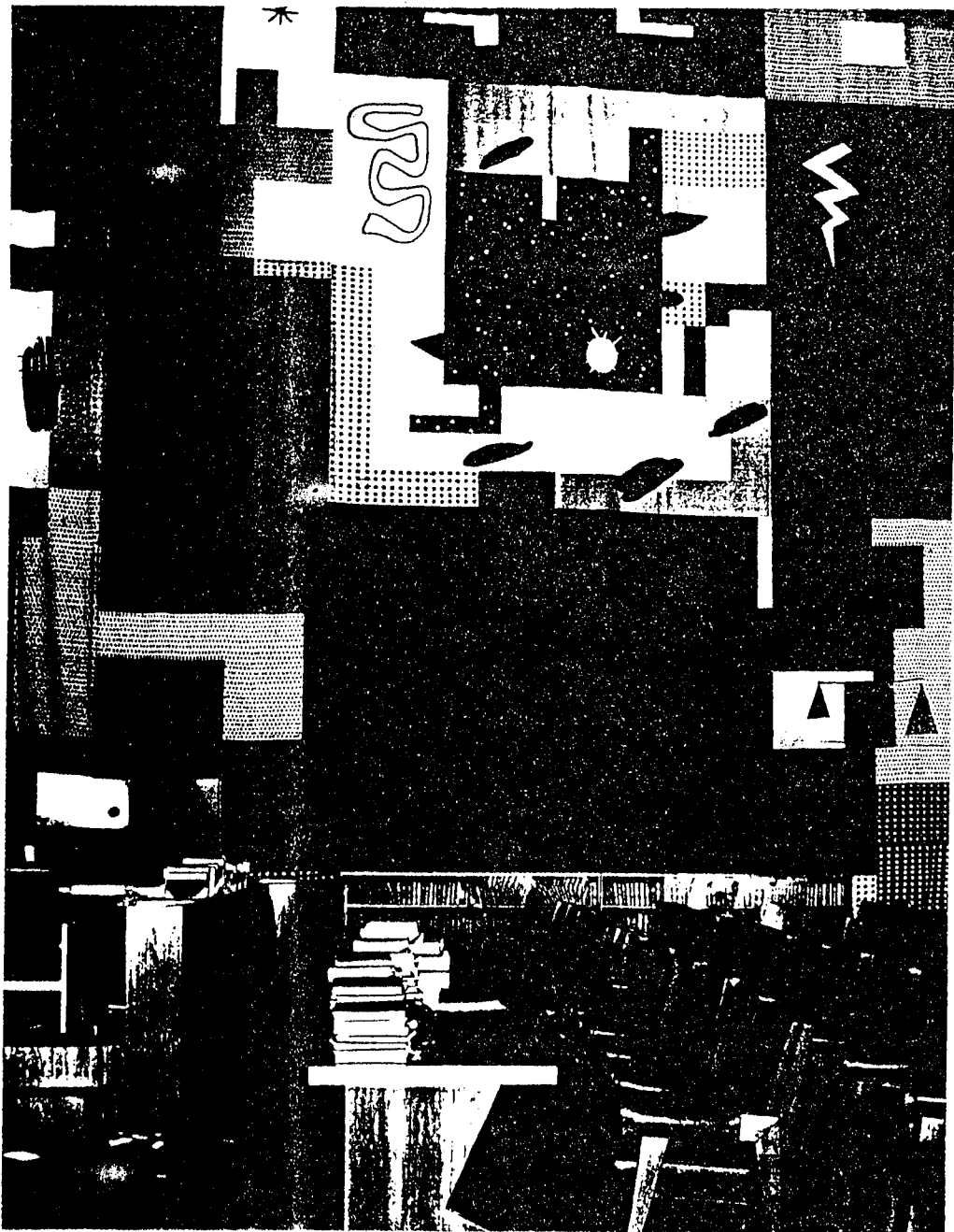


For the problem of accoustics which was faced in the courts of the Justice Palace and the Assembly Hall, L-C used different cures. In the courts, large areas of walls were covered by tapestries. On the other hand, perforated sheet metal cut out in the form of clouds and attached to the walls of the Assembly space which had low accoustic qualities, improved on the control of sound.<sup>33</sup>

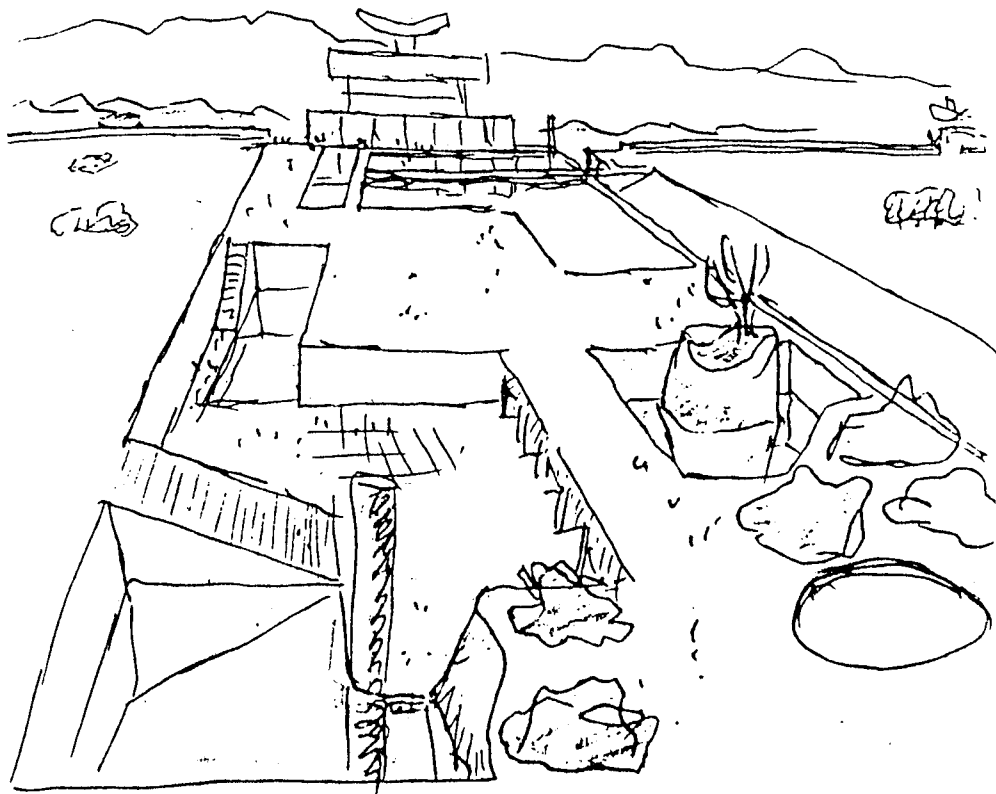


59

The tapestries and the enamelled door were designed on a small scale by L-C himself in Paris and sent over to India where they were enlarged and executed by village people and prisoners.

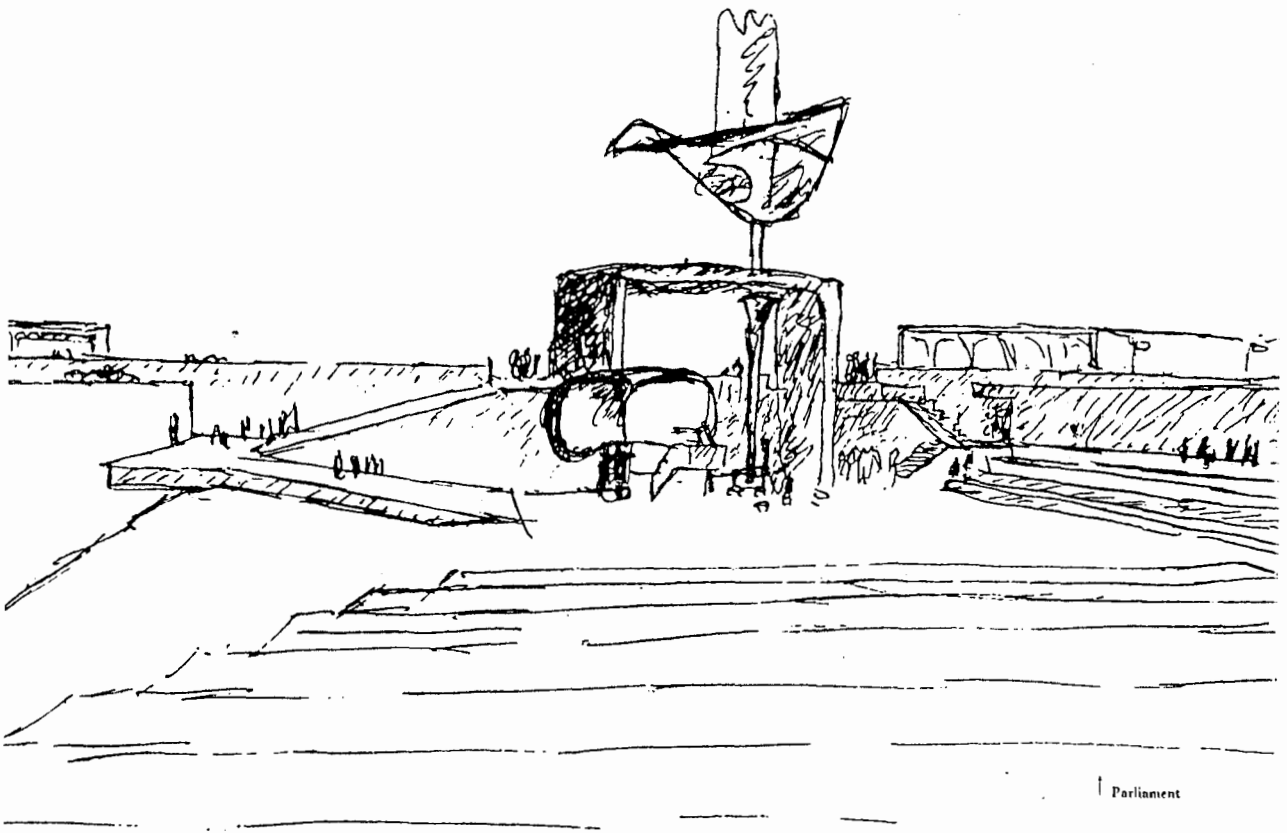


Another building on the site is the Governor's Palace, about which there is an aspect that deserve mentioning. When designed in 1952, it was very far from the core of the complex, the primary esplanade. It was feared that the distance would increase by optical illusion. The problem was solved by L-C when he arranged different pools on different levels, which, through the play of reflections created by the water, helped in shortening the distances and keeping the unity of the whole.<sup>34</sup>



12 and (v)  
52

A last monument on the site is the "Open Hand" with the "Trench of Consideration", a place for contemplation where the common people could gather and express their ideas and feelings and argue public affairs.<sup>35</sup>



High Court

Parliament

"The Open Hand" rises 85 feet high within view of official buildings visible on the horizon.

62

After this discription of the Capitol in general, it is worthwhile to exhibit its results; success and failiure. In general, L-C did not succeed on the functional level in Chandigarh. It seems that his background as a 'machine aestetician' from Europe, the area of fierce industrial rivalry, did not help him in a place where the car was a U.F.O. Many have criticized L-C's architecture in India as being functionally unsuccessful when it comes to Indian environment and traditional habits.

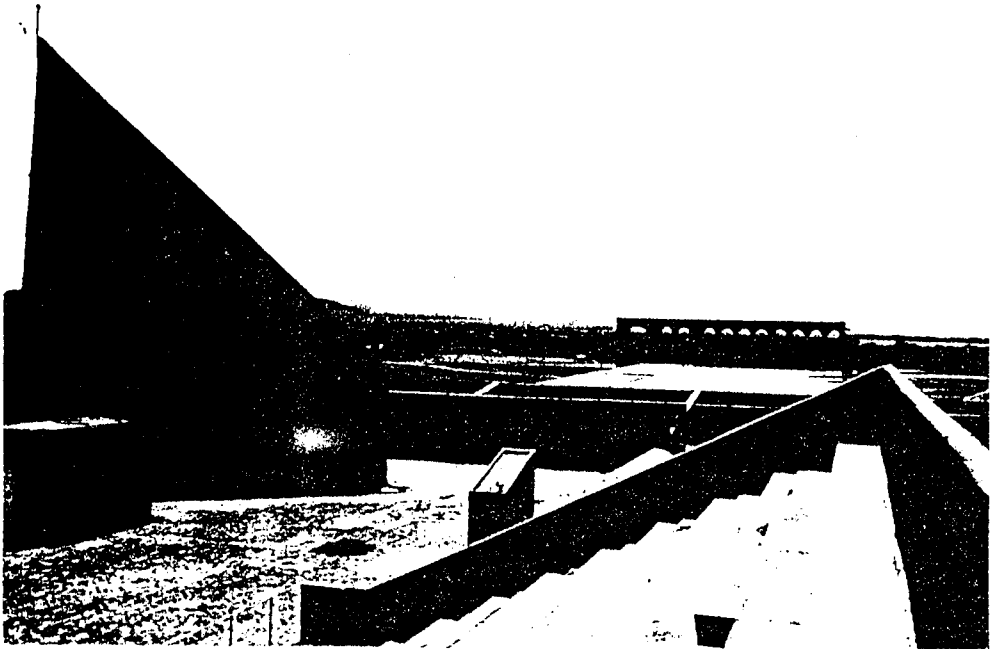
The Capitol, as viewed by Charles Jencks, is too "dispersed"; the monuments are too far apart for the people to walk to and from each other. Also, they cannot be appreciated in juxtaposition, except from far distances.<sup>36</sup> Focussing onto the Justice Palace, Mr. Jencks says that not enough courts were built originally nor a system for future expansion was provided; the building looks complete and unexpandible due to the parasol. Thus, when additional courts had to be added, they had to be suppressed at the back where you could not perceive them. In the courts, the judges couldn't see the faces of the accused due to the strong glare, so they ordered for the layout of the courts to be switched around. Lastly, the judges disfigured the architecture by parking under the portico.<sup>37</sup>



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36. Ibid - pp.153-154

37. Ibid - pp.156



64

Robert Maass, in an article for "The Architectural Record", talks about the negative aspect of Chandigarh. He says that the concrete, having holes from its molds, has become a perfect medium for beehives and bird nests. He also mentions that the Secretariat roof garden is hardly used. The Assembly chamber is a grandiose space that is used for one or two months every year. Its 'Forum' is a vast dark space.<sup>38</sup> Maass also states that the concrete used absorbs heat in the summer, making the interior hot, while during the winter, the reverse happens. Furthermore, the brise-soleil blocks out the winter sun that is pleasant, while the North-South orientation of the Justice and Secretariat Palaces makes the East sides warm throughout the day, keeping the West side rather dark and cold.<sup>39</sup>

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38. MAAS, Robert: "Chandigarh Revisited", Architectural Record - p.73

39. Ibid - pp. 73-74



"That Chandigarh doesn't look and feel like other cities in the country has prompted criticism - the point is that Chandigarh is too western and untrue to its culture."<sup>40</sup>

Some attribute this to L-c's spending very little time at Chandigarh, but instead, doing the work in Paris, which consequently made him underestimate the natural forces acting on his site. Actually, when he was asked why hadn't he stayed longer in India, he simply replied, " I was frightened of being bitten by a snake... what is the significance of Indian Style [ and traditional ways ] in the world of today if you accept machines, trousers, and democracy?"<sup>41</sup>



65

Thus, we find that L-C did not care for Indian Traditions. He did not think about the nation's past, but just tried to solve the problem given to him: "Chandigarh was the product of a political crisis, embodying the desire of a new nation, poor, technically undeveloped, and torn with inner dissention, to create a city symbolic of permanence and order, a focal point for the incipient rationalist spirit."<sup>42</sup>

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40. Ibid - pp.74

41. VON MOOS, Stanislaus: Le Corbusier: Elements of Synthesis - pp.220

42. EVENSON, Norma: Le Corbusier: The Machine and the Grand Design - pp.103

"Let this be a new town, symbolic of the freedom of India, unfettered by the traditions of the past... an expression of the nation's faith in the future."<sup>43</sup>

The key word here is "symbolic". Chandigarh was meant to symbolize the future newness, growth, democracy, technology, etc...

This created a new problem; that of people accepting these new symbols. For that purpose, L-C took traditional Indian forms and imbued a new meaning in them.

The image of the upturned crescent, used on top of the Governor's Palace, echoes the shape of the parasols of both the High Court and the Assembly, as well as the roof garden over the Secretariat and finally, the Open Hand. This form could comprise many meanings and images. "The shape seems to gesture up towards the planetary realm..."<sup>44</sup> It echoes the shape of bull's horns, signifying the Indian sacred bull. Furthermore, "the parasol was in turn an ancient symbol of state authority, found on top of the Buddhist stupas, and in a much later domical or arched form in Islamic monuments."<sup>45</sup>

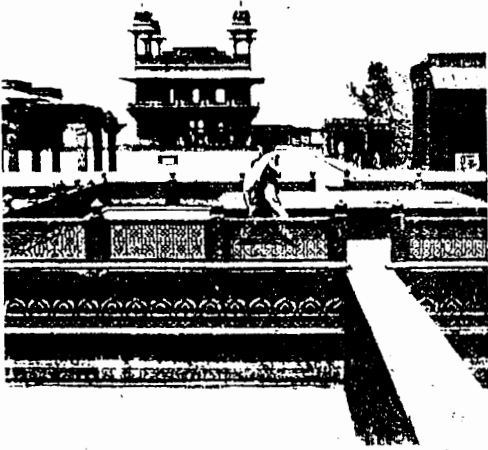


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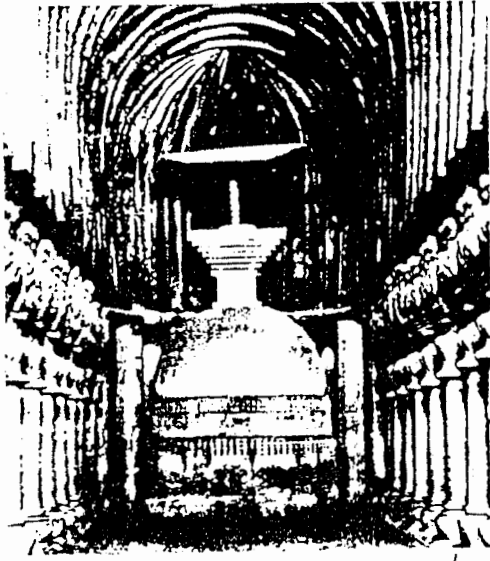
43. Ibid - pp.98

44. CURTIS, William JR: Le Corbusier: Ideas & Forms - pp.192

45. Ibid - pp.193



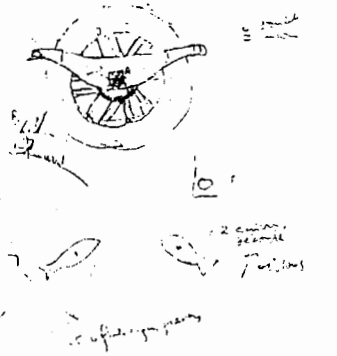
67.a



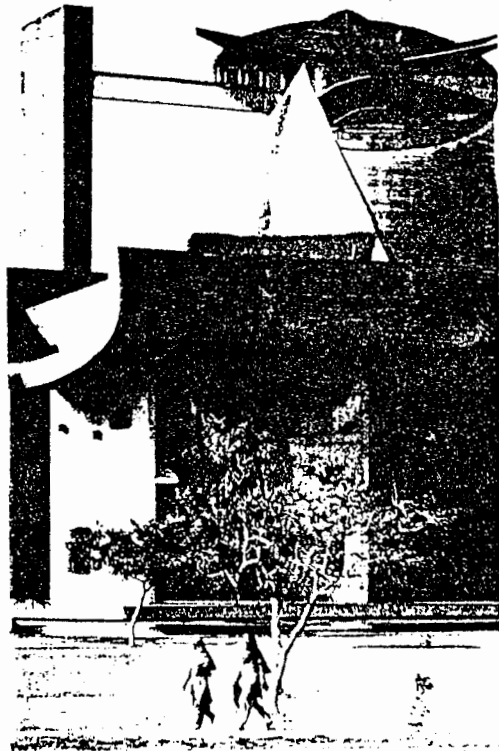
67.b



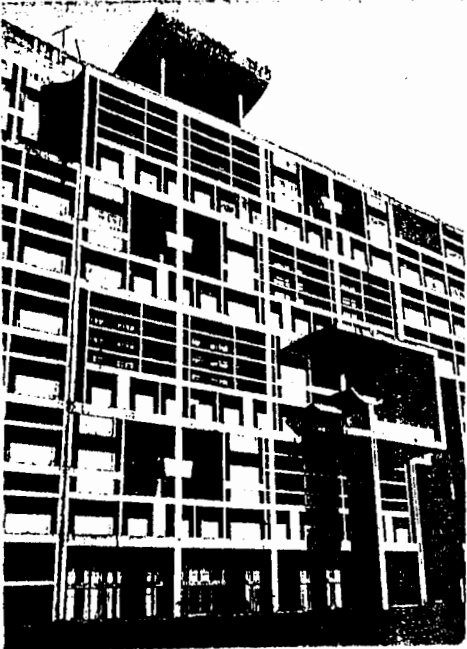
67.c



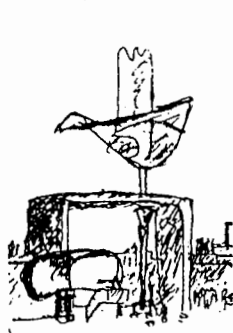
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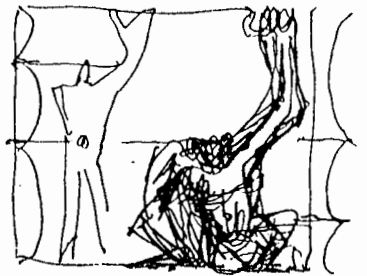
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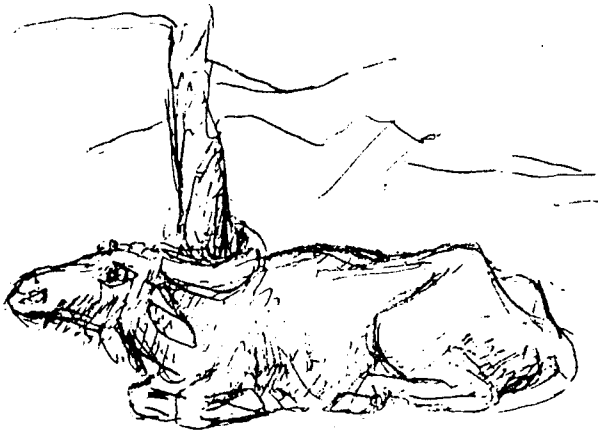


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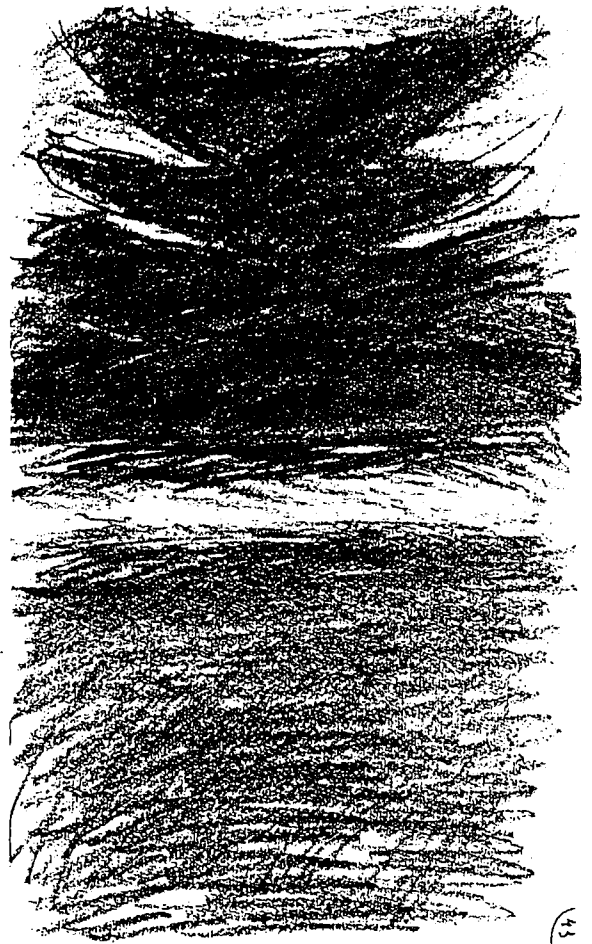


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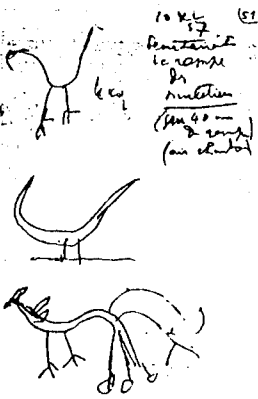
67.h



67.i

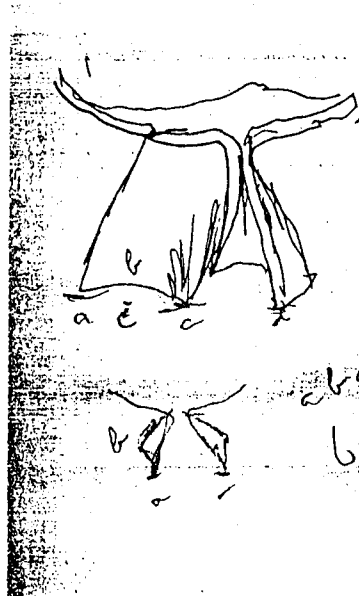


67.j



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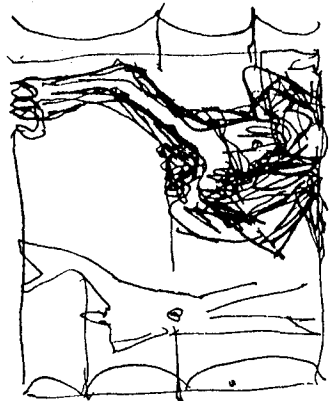
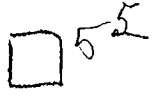
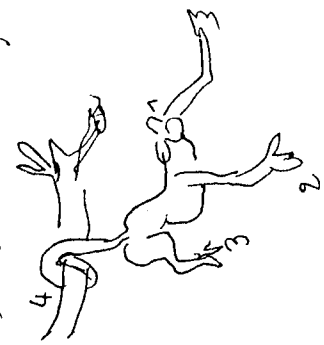
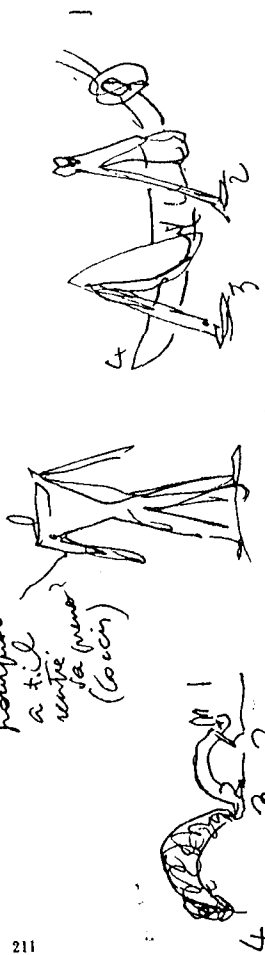
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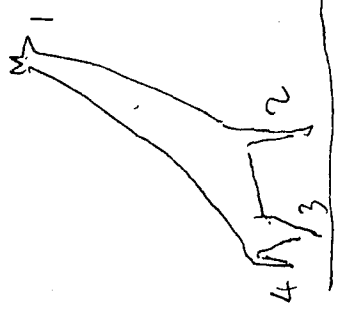
67.l

Some truths projected from the drawing office of Chandigarh. "Gentlemen, they all have a head and a tail, two arms and two legs. Enough to make a rule and to show that variety has no limits."

homyari  
a tail  
waste  
da panna  
(Coccy)



homyari  
da Chandigarh



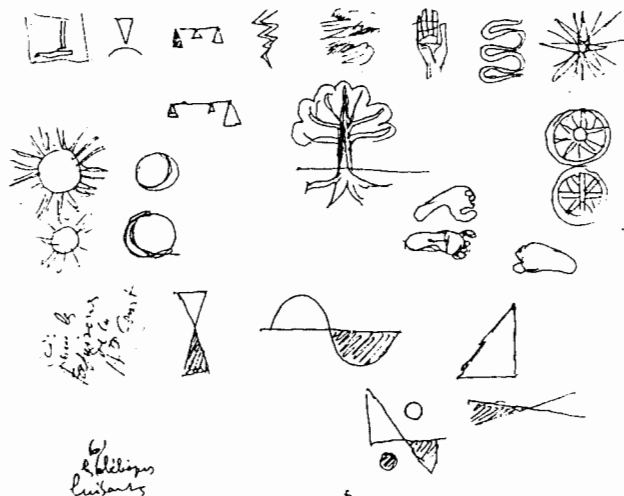
homyari  
da Chandigarh

its in forward time  
point is in 2-3-4-5  
by with one become  
in pair up or two  
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homyari  
da Chandigarh

This shape became the emblem of new India, liberal, liberated and democratic. The shape echoed the Open Hand; "L-C's symbol of international peace, transcending politics, caste, religion, race."<sup>46</sup> Its origins lie in L-C's work as a painter. During the thirties, he painted human forms with entangled hands and feet. Later on, the hands started to stem out of the context and form a certain magic sign. Later development of the hand led to its last configuration. In 1948 and "during the years that followed, it occupied my mind, finding its first existence in Chandigarh... [The meaning arose] spontaneously, or more exactly, as a result of reflections and spiritual struggles, arising from the feelings of anguish and disharmony which separate mankind, and so often create enemies."<sup>47</sup>

Many other signs that emerged from L-C's painting, drawing and sketchbooks, were applied in Chandigarh: the Modulor, the harmonic spiral that represents the Modulor's series of proportions, the twenty four solar hours "which rule men's activity", the path of the sun between the solstices, "this sun, which governs man - friend or enemy", and the tower of shade demonstrating principles of sun protection.<sup>48</sup>



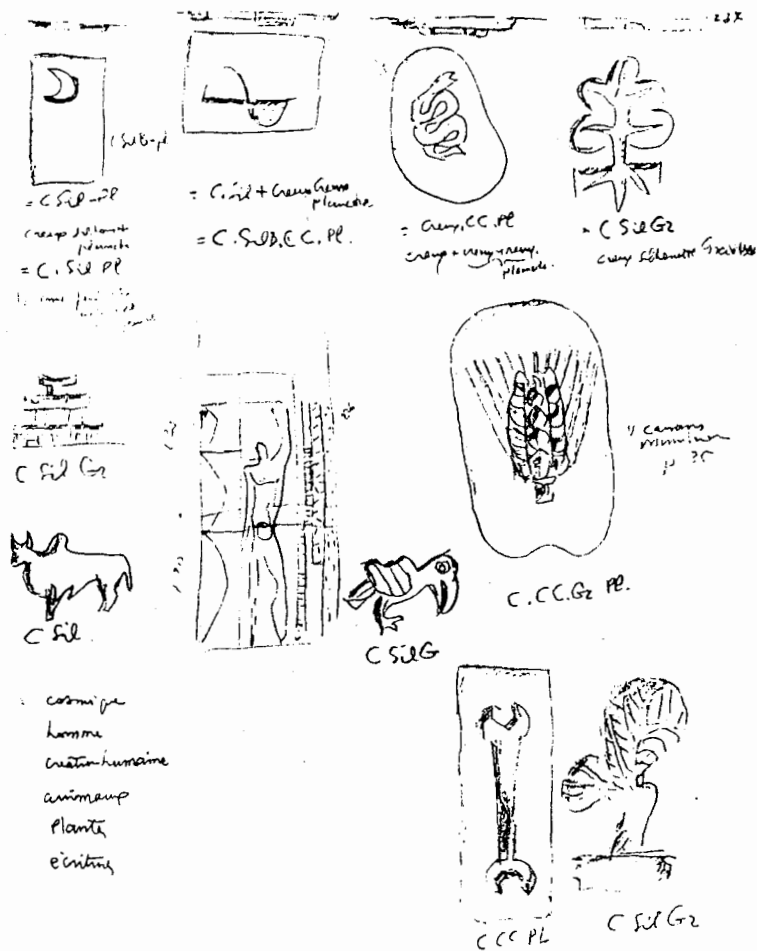
69.1

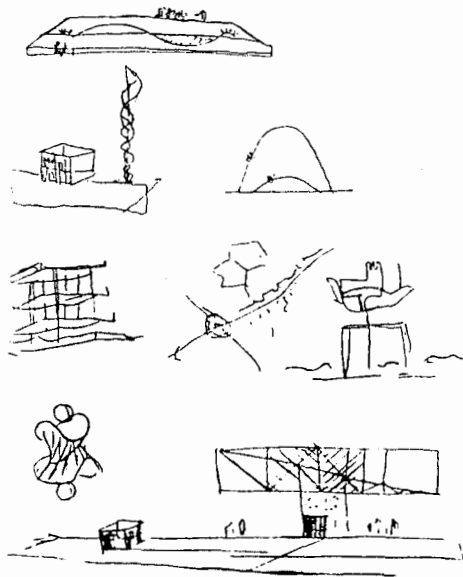
46. Ibid - pp.194

47. EVENSON, Norma: Le Corbusier: The Machine and the Grand Design - pp.102

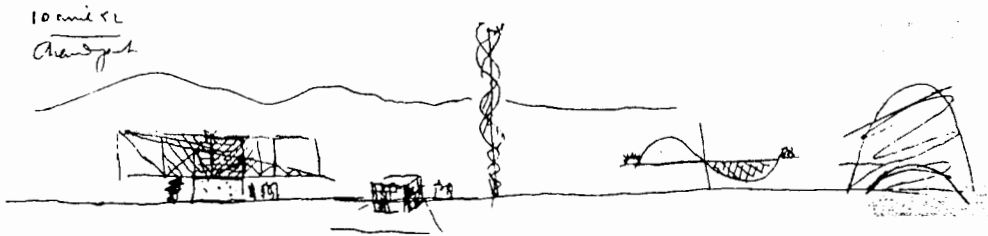
48. Ibid - pp.102

Although some might find L-C's imposing of his own signs and monuments as irrelevant and having no connection whatsoever with the context, these signs had a double meaning, They could be understood as a summary of the basic theme of Chandigarh. The tower of shade represents a solution by creation of brise-soleil. The Modulor and the harmonic spiral represent regulating proportions that solved compositional problems.

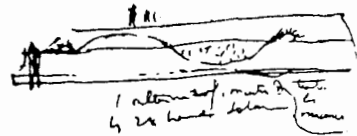




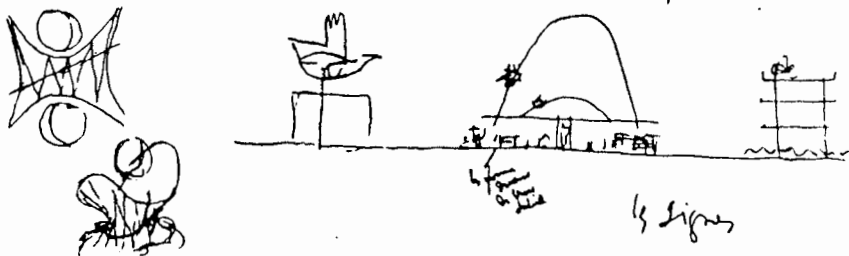
69c



Le Capitel  
 le bâtiment a propre à l'arriver



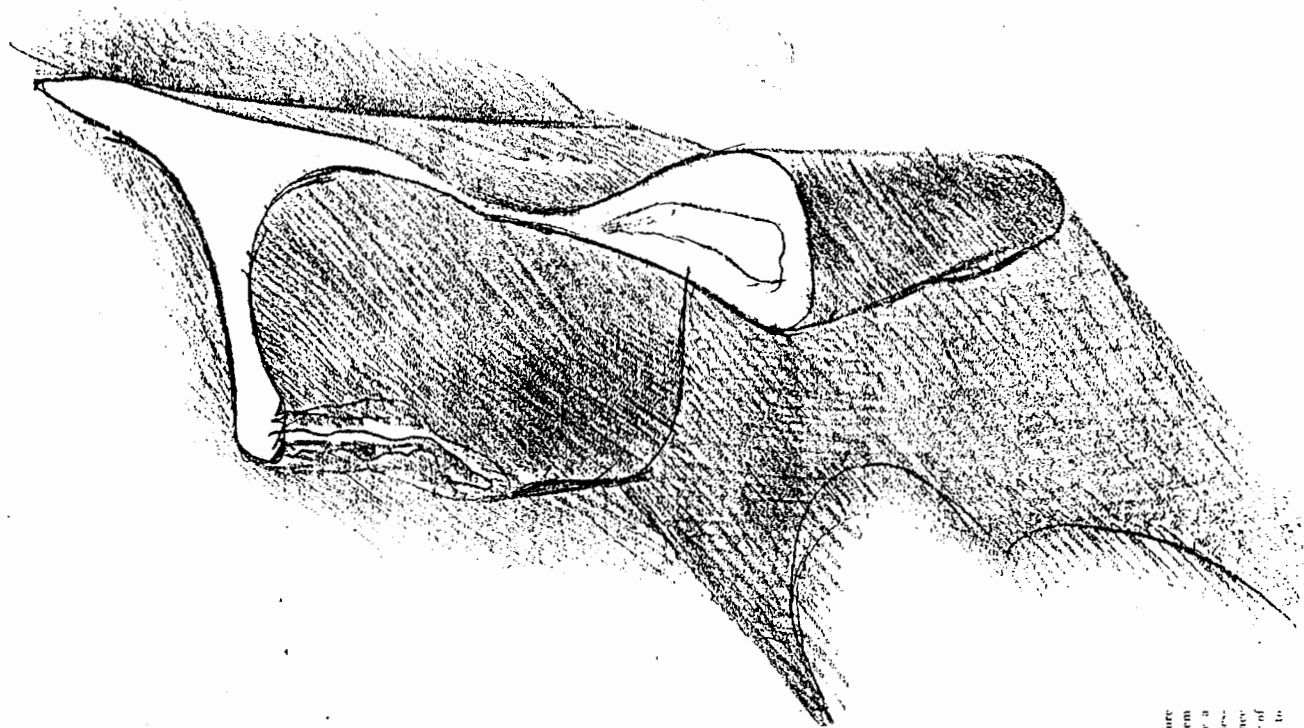
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 à 20 km de l'arriver



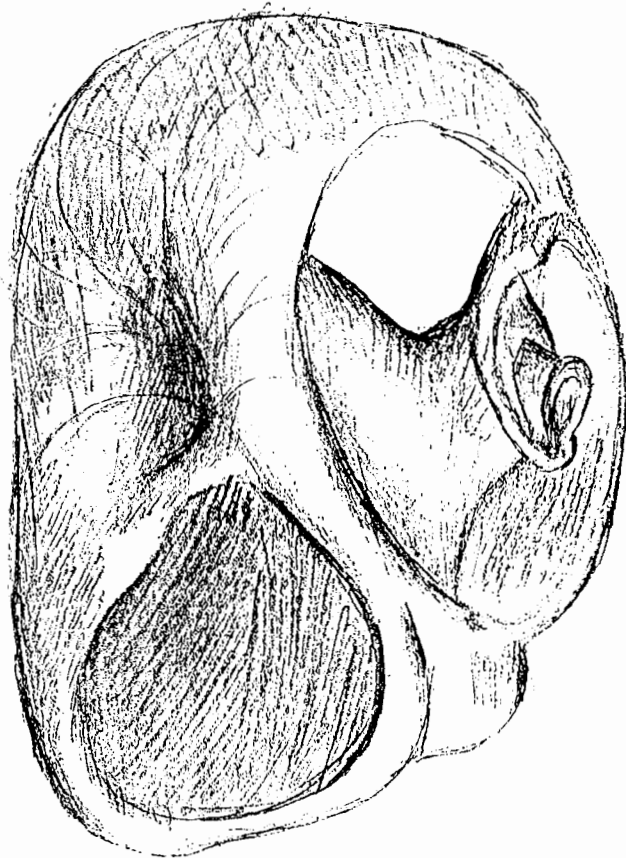
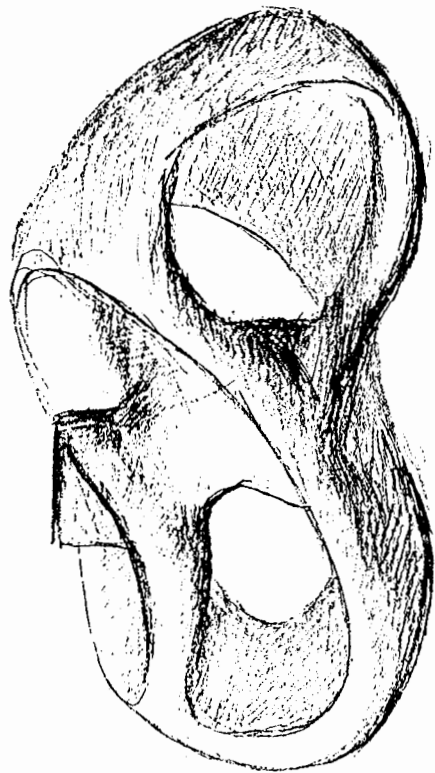
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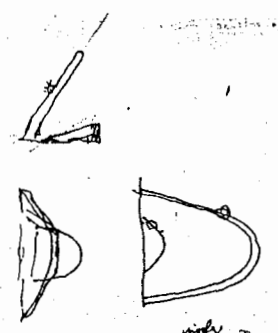
69d





Everywhere objects like these are spread before us. If you have a pencil in your hand, look at them and you will understand; you will then have a storehouse of inspiration to draw upon, the lessons taught by natural phenomena. The chance occurrence, too; the broken shell, the shoulder of beef sliced by the butcher's saw, have riches to offer which the mind cannot surmise.





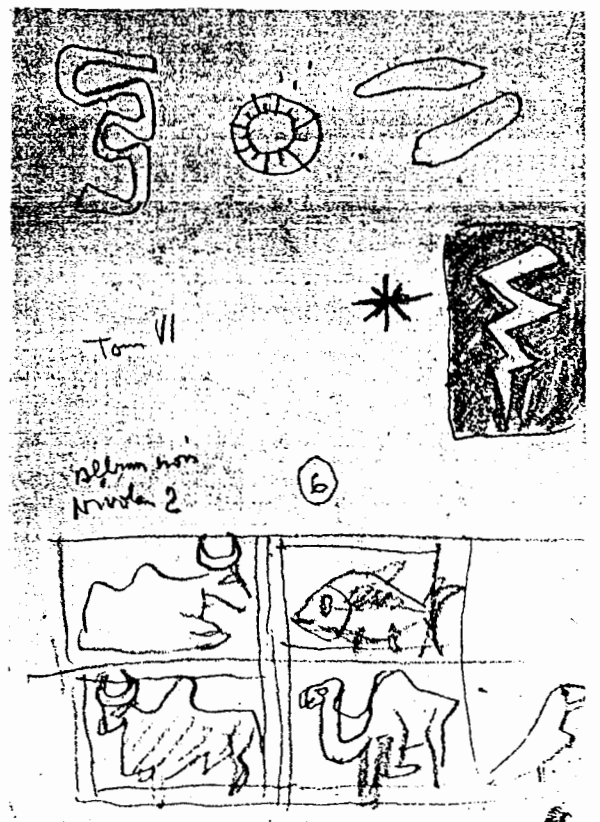
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p 9.

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Comp in photo a 80% <sup>ni</sup> ~~Abakia~~ <sup>ni</sup> ~~Abakia~~ II

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71.4



71c



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71g

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71h

700

intuitivement depuis 20 ans j'ai conduit mes figures vers des formes animales porteuses du caractère, force du signe, capacité algebrique d'entrer en rapport entre elles et declanchant ainsi 1 phenomene poetique



intuitivement depuis 20 ans j'ai conduit mes figures vers des formes animales porteuses du caractère, force du signe, capacité algebrique d'entrer en rapport entre elles et declanchant ainsi 1 phenomene poetique

intuitivement depuis 20 ans j'ai conduit mes figures vers des formes animales porteuses du caractère, force du signe, capacité algebrique d'entrer en rapport entre elles et declanchant ainsi 1 phenomene poetique

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3



702

faire un groupement de ces formes et idees et notions en les rassemblant isolees du contexte Operer de meme avec les Mains, et aussi les pieds un Bestiaire

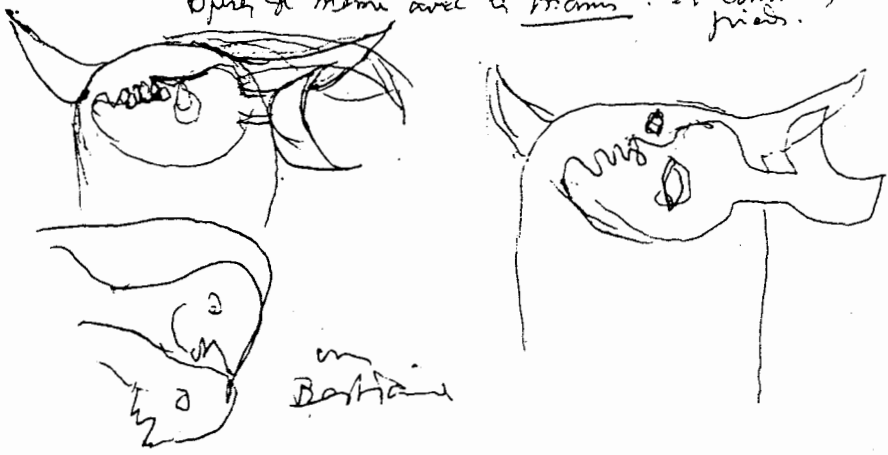
faire un groupement de ces formes et idees et notions en les rassemblant isolees du contexte Operer de meme avec les Mains, et aussi les pieds un Bestiaire

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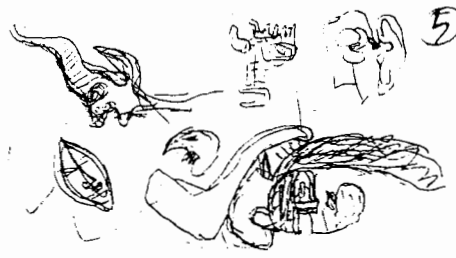
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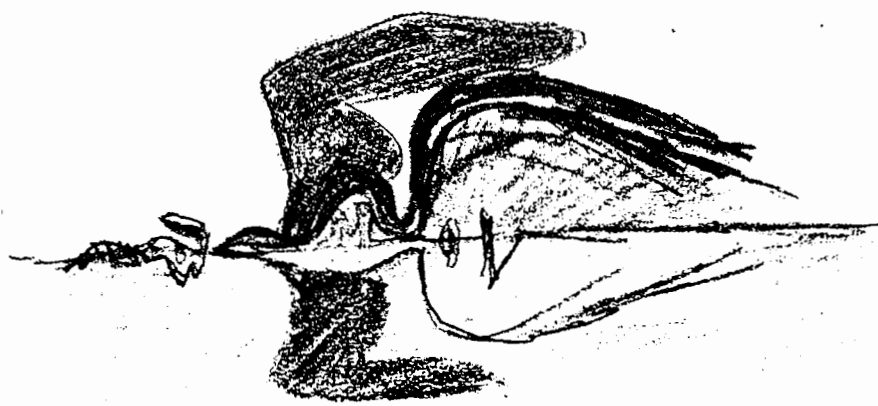
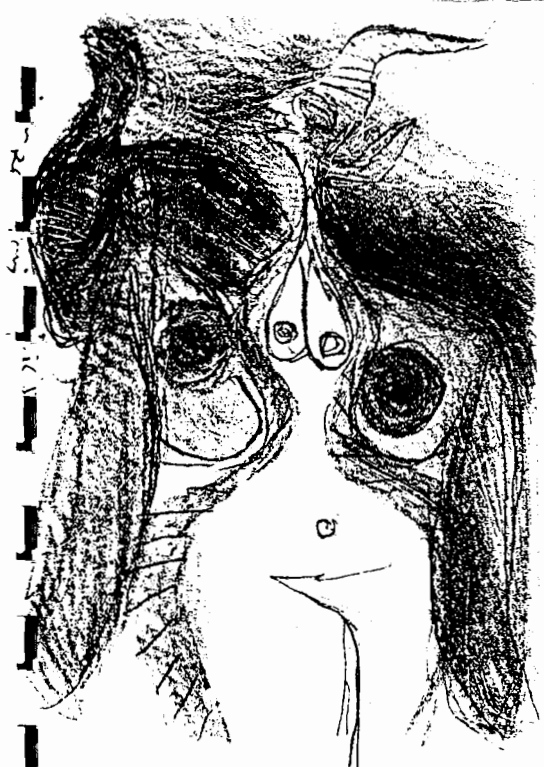


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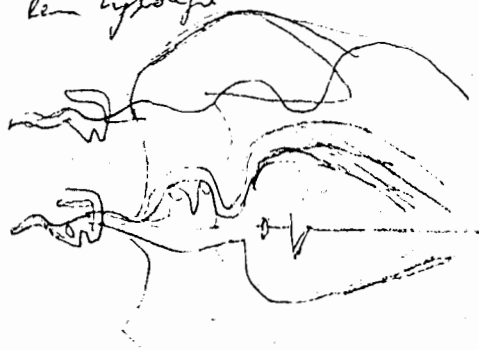
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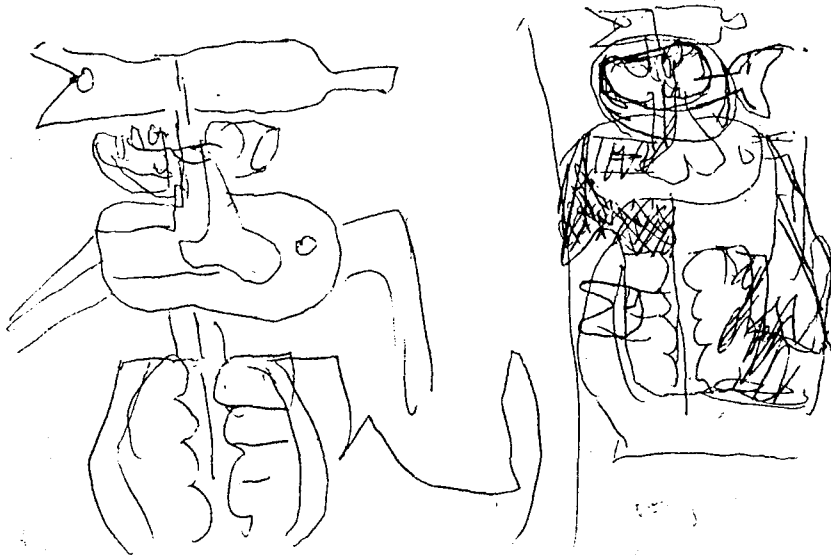


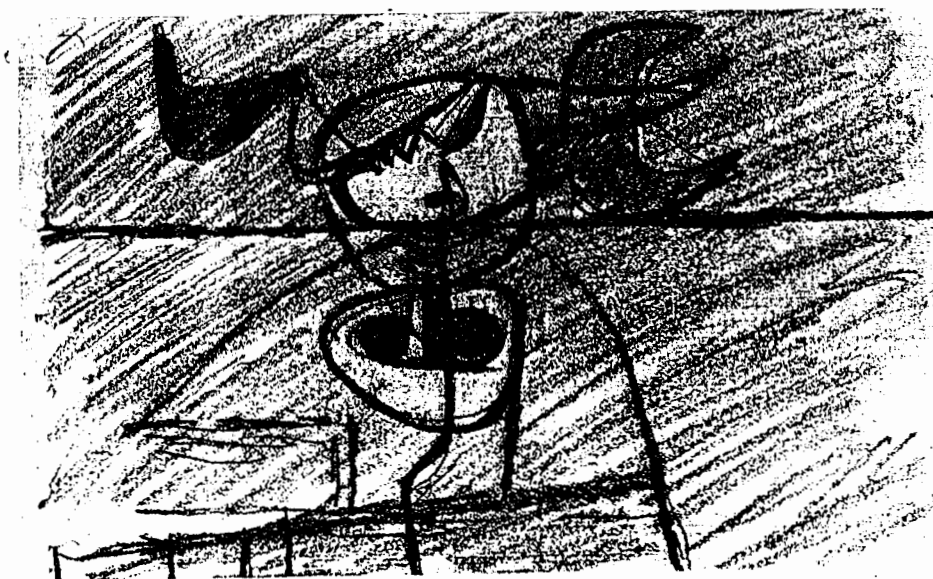
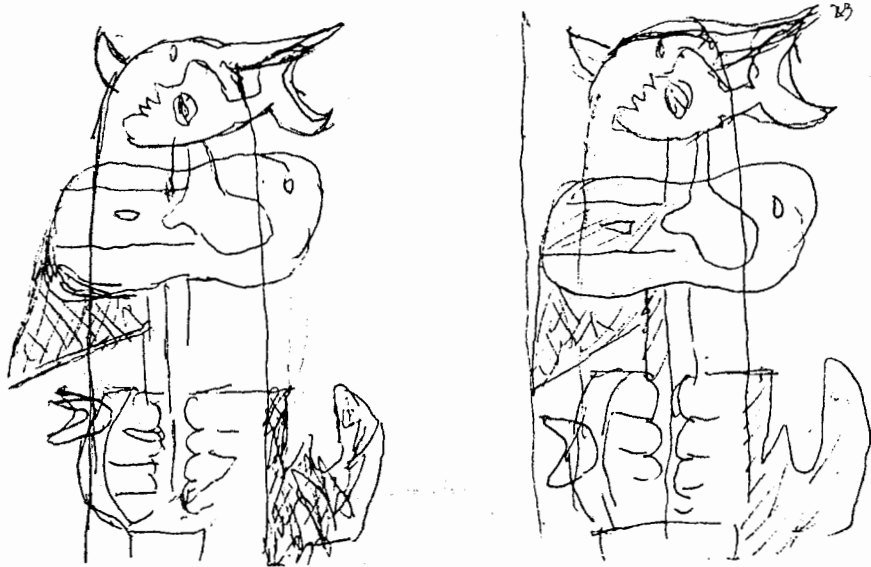


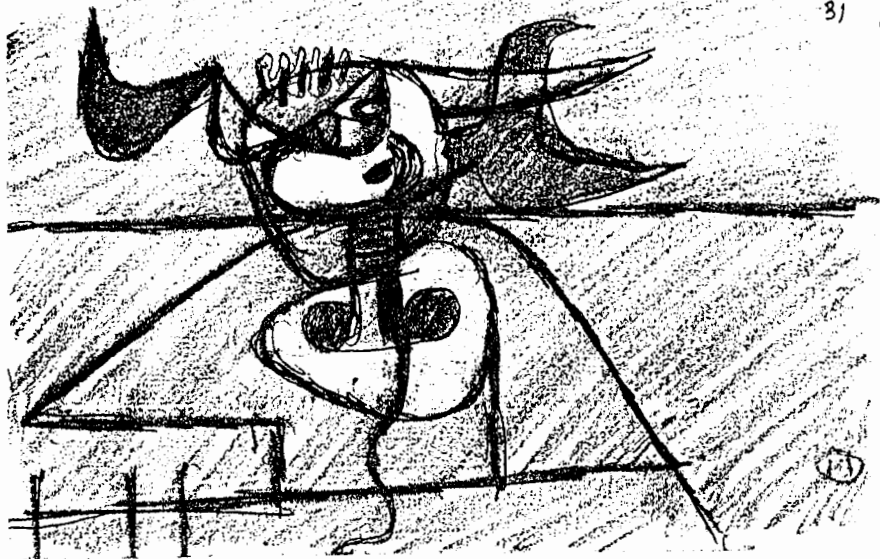
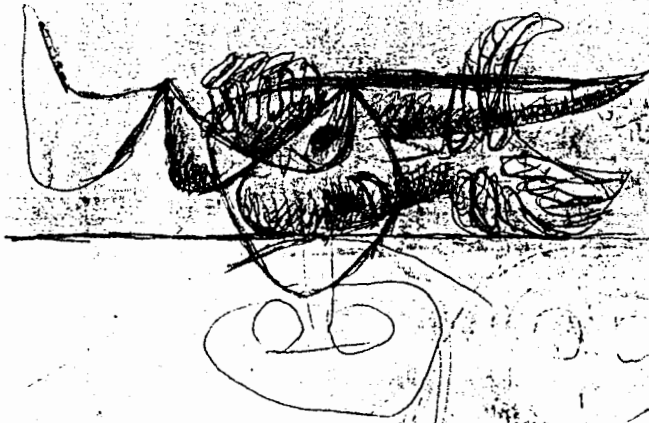
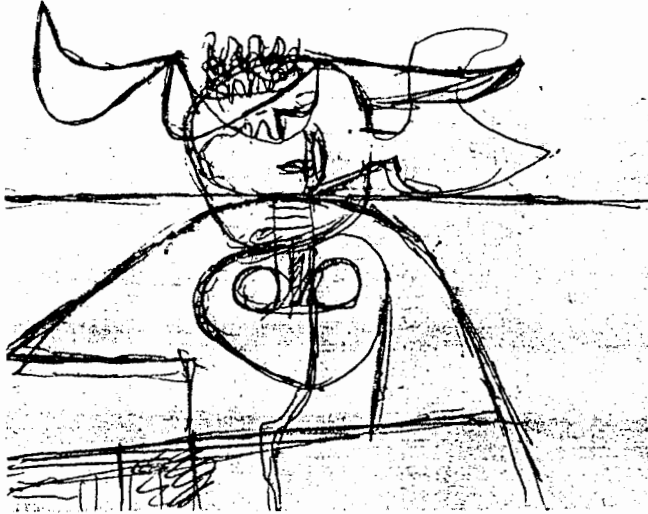
707  
 Cette idée (notion) de bestiaire humain m'est peut-être venue  
 inconsciemment du contact si fréquent et à travers tout le  
 monde et à travers toutes les couches sociales, avec les  
 hommes et les femmes, dans les affaires, les comités,  
 l'intimité. Les caractères apparaissant, qualifiant les gens et por-  
 tant ou // proposant // leur typologie.

Cette idée (notion) de bestiaire humain m'est  
 peut-être venue inconsciemment du contact si fréquent  
 et à travers tout le monde et à travers toutes les  
 couches sociales, avec les hommes et les femmes,  
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 proposant leur typologie.

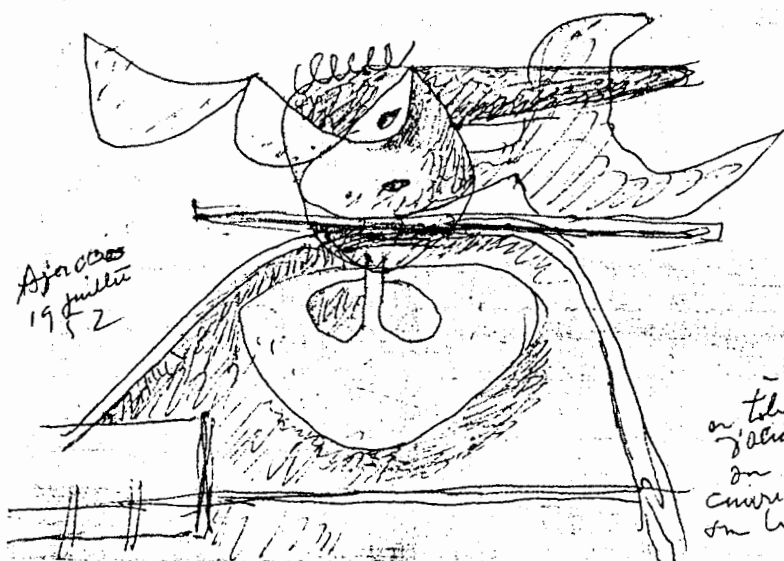






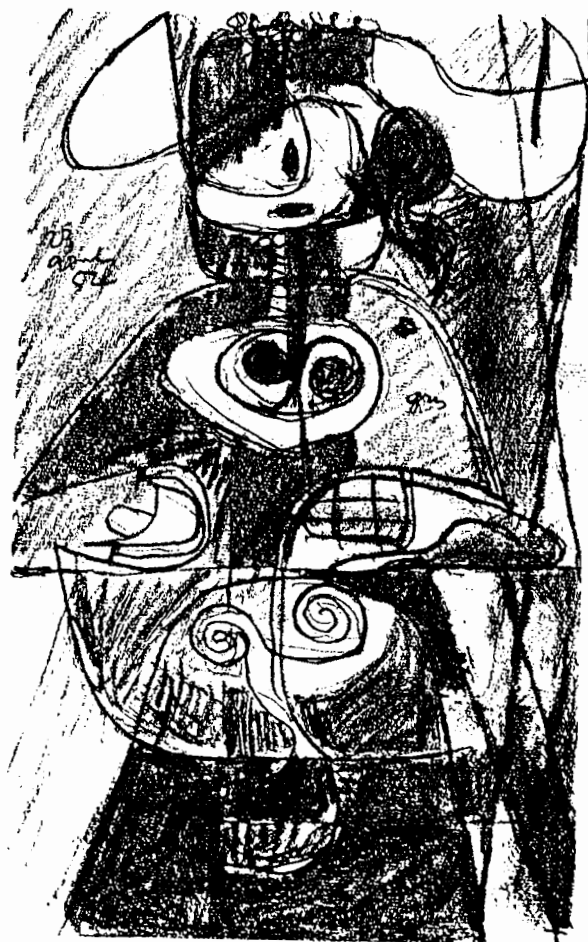




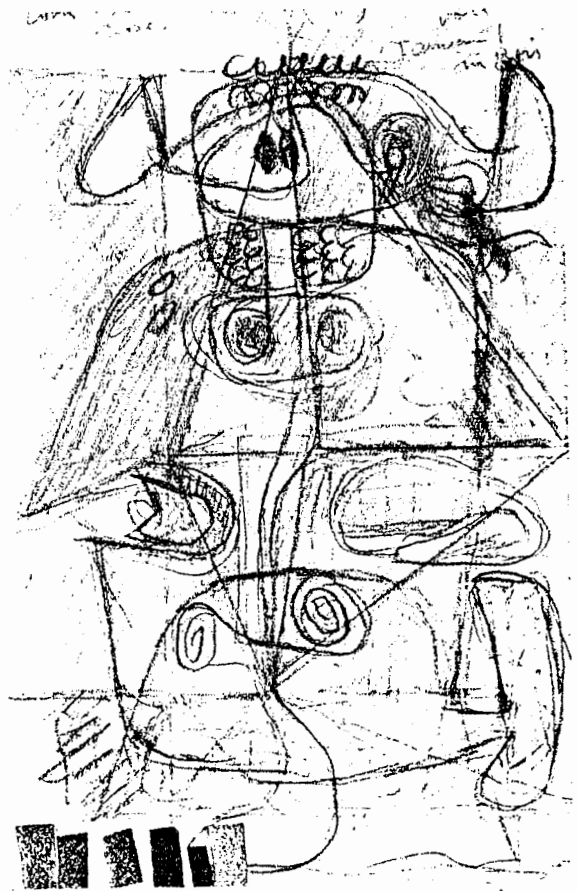
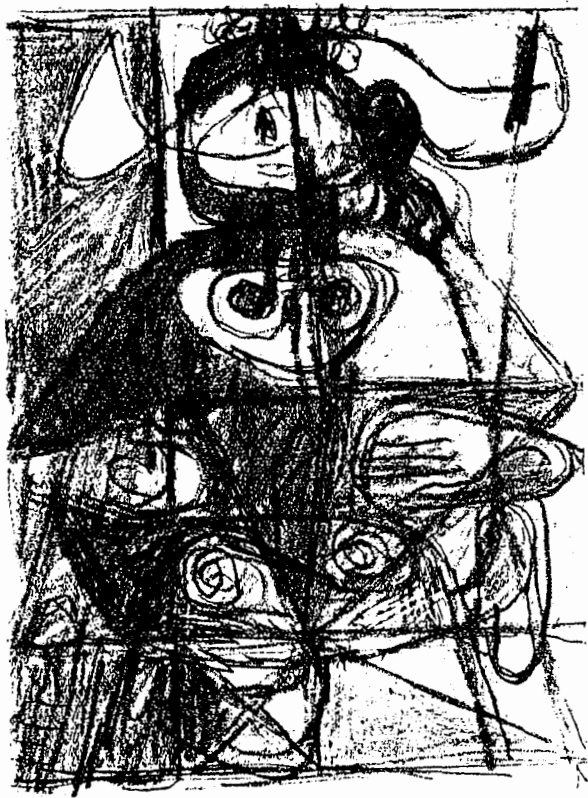


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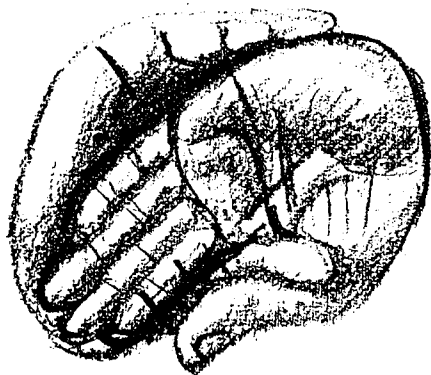
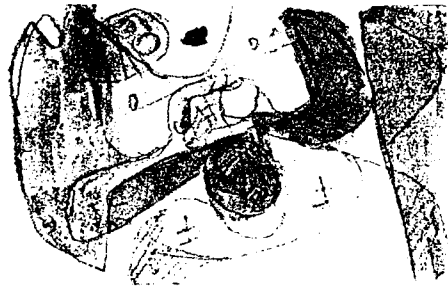
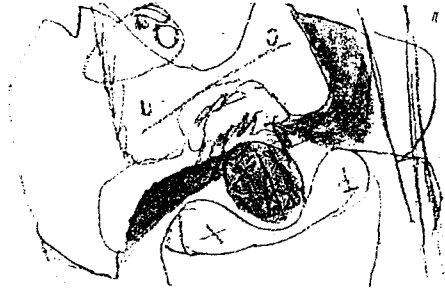
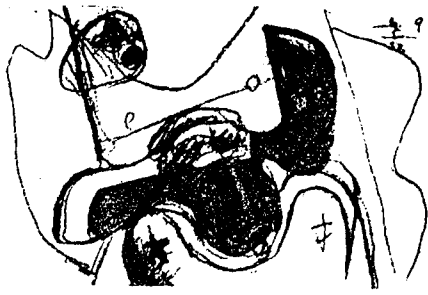
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19/11/2



72. b(ii)



76.c

"A book is now being printed, in several languages, on the research in which I have been engaged for more than fifty years. The final page of this book proposes a revolutionary issue: the sustained, patient and fruitful 'conversation' between architect and engineer, engineer and architect, speaking as equals, with equal responsibilities and prestige. This conversation is that of the 'constructors'.

Nothing can now be constructed without this patient and profitable understanding between engineer and architect, each knowing his place, each recognising his duties and his rights.

Formerly, at the beginning of the machine age, the engineer was often timid and self-effacing. In contrast, the architect was often pompous, omniscient, trailing clouds of pretension. But things have changed! The tendency now is for the engineer to be scornful and aggressive towards the architect enthroned above him. And so the fight is on! My theory (see sketch) will establish peace, and bring collaboration and efficiency to the aid of the 'constructors'.

During the Occupation, I founded the ASCORAL, and I then tried to indicate, in a symbolical drawing, the differing responsibilities of the 'constructors' - the architects, the engineers - working alongside each other, but along different lines. In my drawing, of two spheres, I placed the sphere of the architect above that of the engineer.

In 1959, in the book mentioned above, I gave a quarter turn to my drawing, thus bringing architect and engineer together on a horizontal line -

on the same level, but with differing tasks and responsibilities.

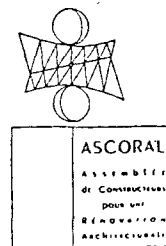
These then are the engineer's responsibilities: the respect of physical laws, the strength of materials (supply, economic considerations, etc. in relation to safety, relatively speaking).

And these the architect's: humanism, creative imagination, love of beauty, freedom of choice. In my drawing, the engineer's sphere casts a reflection on that of the architect - the reflection of the knowledge of physical laws. Similarly, the architect's understanding of human problems is reflected in the sphere of the engineer.

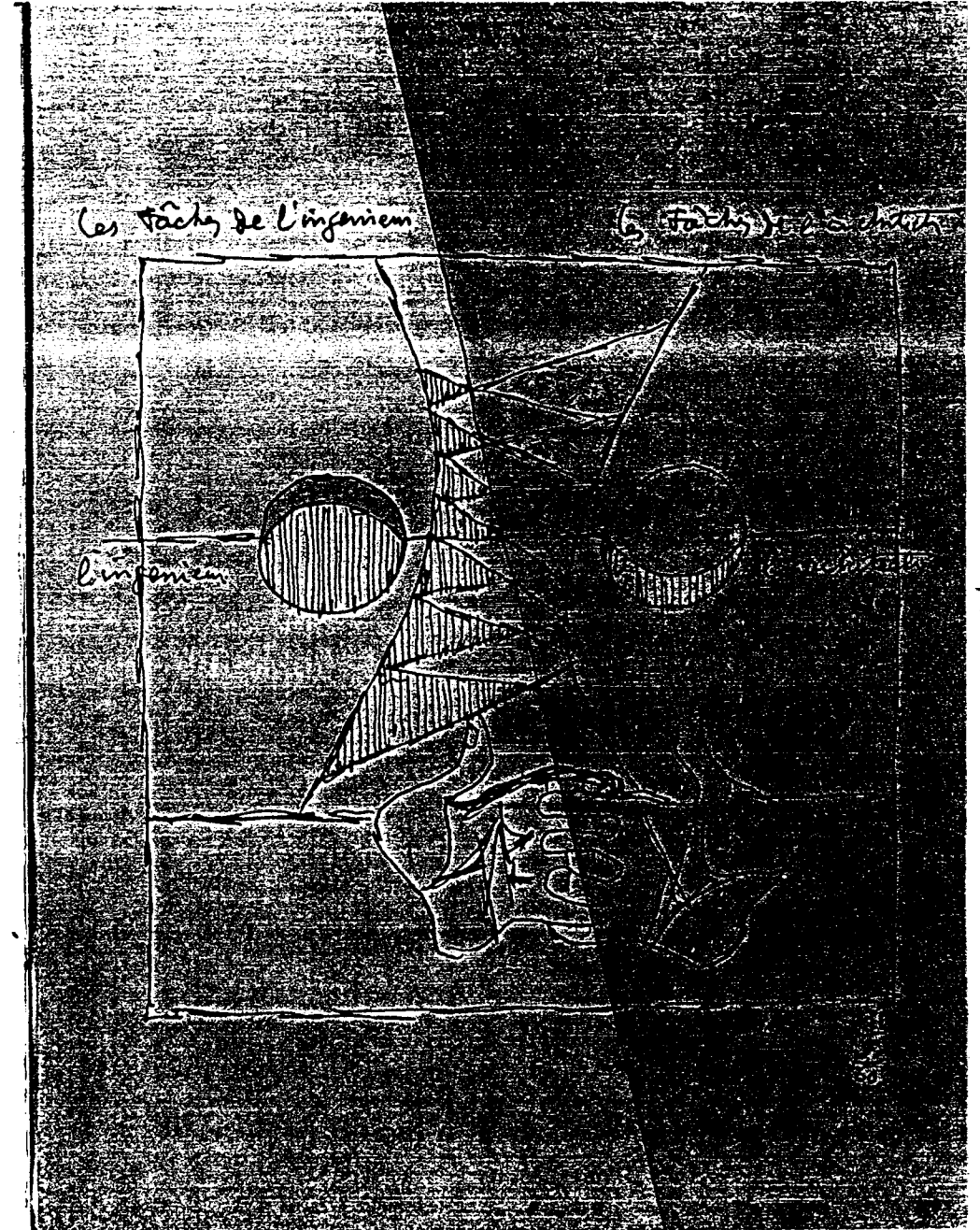
The shaded areas of the sketch indicate the world of the engineer, the dotted areas that of the architect. Under this symbolic composition I have placed two clasped hands, the fingers enlaced horizontally, demonstrating the friendly solidarity of both architect and engineer engaged, on the same level, in building the civilisation of the machine age. This is the emblem of the 'Constructors'."

Le Corbusier.

(Extract from "Science et Vie", August 1960.)



The emblem of the ASCORAL, 1941.



- 67

13

"An Indian engineer wrote to Le Corbusier, "We have a word Ram Bharosa, which indicates deep faith in the ultimate - faith born of the surrender of the will to the Ultimate Source of Knowledge, service without reward and much more. I live in that faith and feel happy in the vision of the new city which is so safe and so secure in its creation in your hands. We are humble people. No guns to brandish, no atomic energy to kill. Your philosophy of 'open hand' will appeal to India and what we are taking from your open hand, I pray, may become a source of new inspiration in our architectural and city planning. We may on our side, when you come here next, be able to show you the spiritual heights to which some of the individuals have attained. Ours is a philosophy of open hand. Maybe Chandigarh becomes the new center of thought."<sup>49</sup>

" The open hand  
to receive  
and to give  
at the moment where the modern world  
is bursting into  
infinite unlimited richness  
intellectual and material. "<sup>50</sup>  
L-C

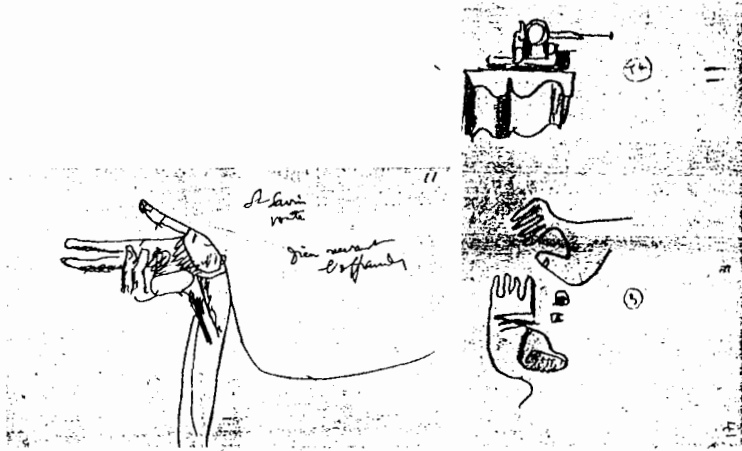
The Open Hand became the emblem of Chandigarh!

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49. Ibid - pp.103

50. JARDOT, Maurice: Le Corbusier: My Work - pp.278

74-



74a.

74.b

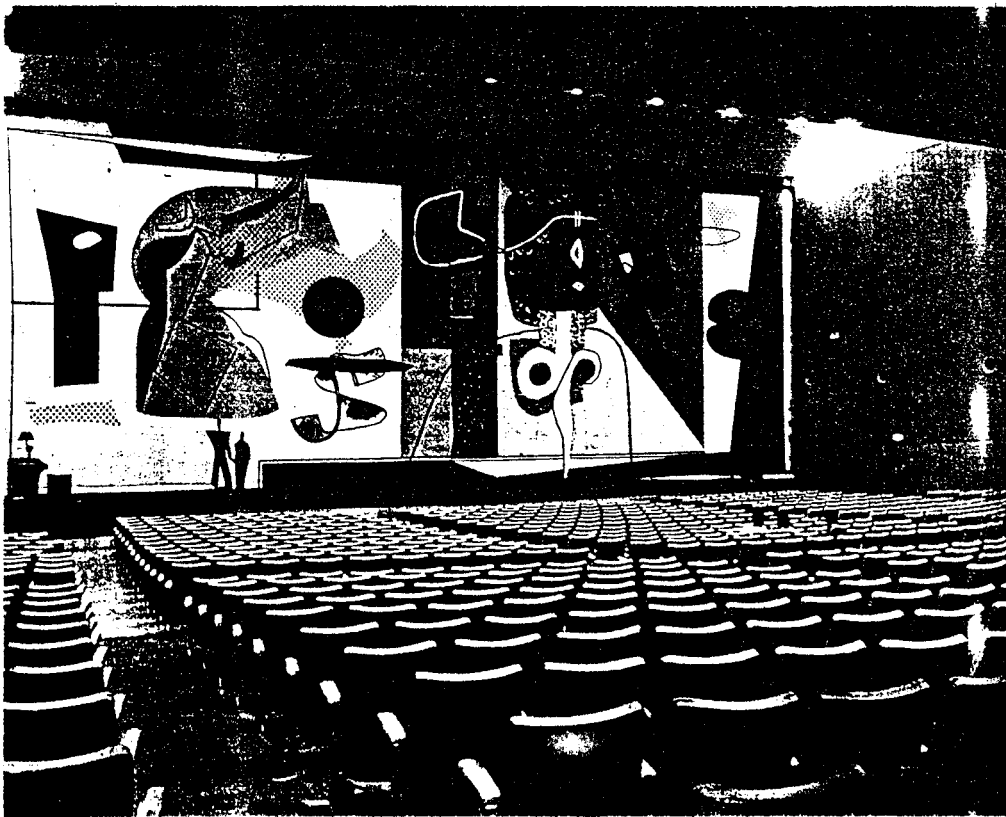


74c



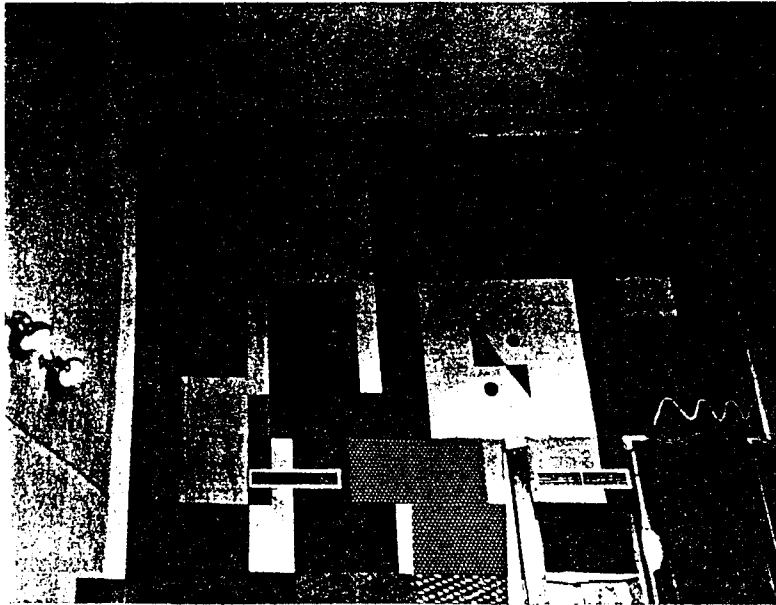
74.d

Taking another look at the palaces, and particularly at the drawings- the tapestries and the enamelled door - we can now understand the relationship which seemed nonexistent at the beginning. This relationship binds together the theories of L-C and the conception and design criteria for Chandigarh, particularly the Capitol. Their layout was purely based on aesthetic composition; "Just as Gris and Picasso have been able to seize fragments of the visible world, raw fragments of appearance, and held them together into a new aesthetic entity on canevas, so L-C has been able to take the most unpromising, the crudest results of empirical engineering and bring them together into a complete harmony in design and purpose."<sup>51</sup>

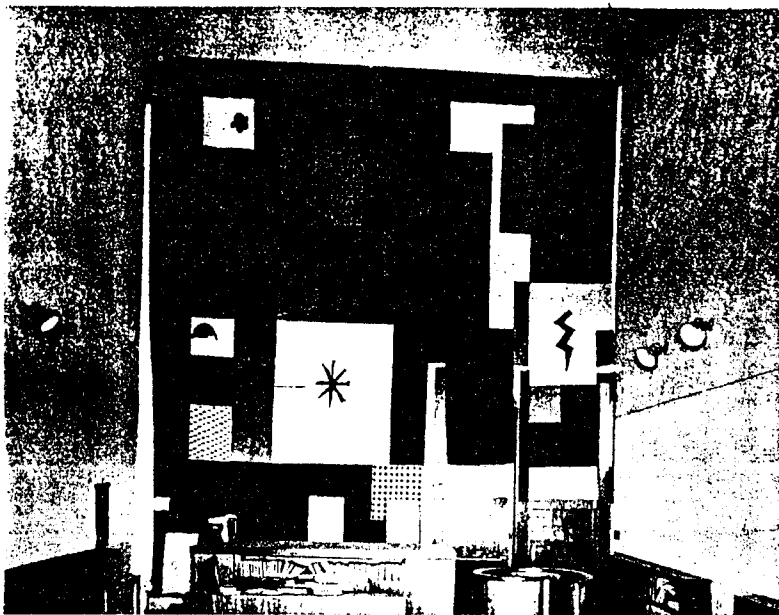


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-77-

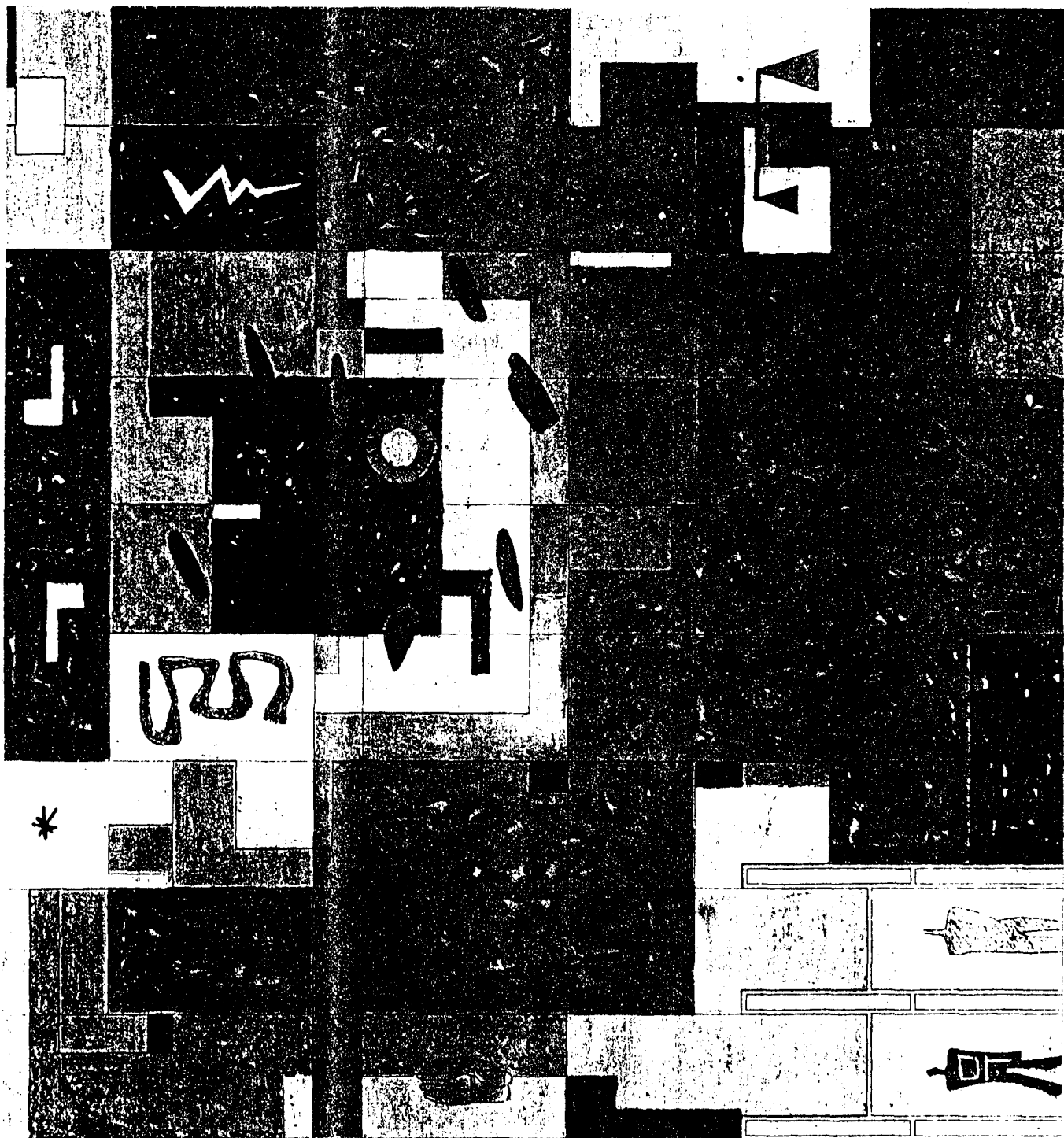


75.b



75.c





The architecture of the Capitol designates the climax of L-C's career as a designer, representing the accomplishment of ideas and concepts that were being developed throughout his productive lifetime.

The Secretariat building, having an elongated plan that is divided into similar compartments, is similar to the Unite d'Habitation. The use of pilotis to allow for circulation below the building and the reproduction of landscape on top of the building as a roof garden; the use of ramps that strengthen the concept of promenade architecture; the use of ramps that are stemming out of the building having the form of a door knob; in addition to the use of pure forms in the Assembly building - tetrahedron and hyperboloid - with the use of a grided brise-soleil give the building a certain mechanical character. The parasols, open hand, the form on the truncation of the hyperboloid, the bull's horns in the tapestries signify a meaning of peace interpreted by L-C, in very much suitable Chandigarh's will to progress and change to become liberal, democratic and peaceful.

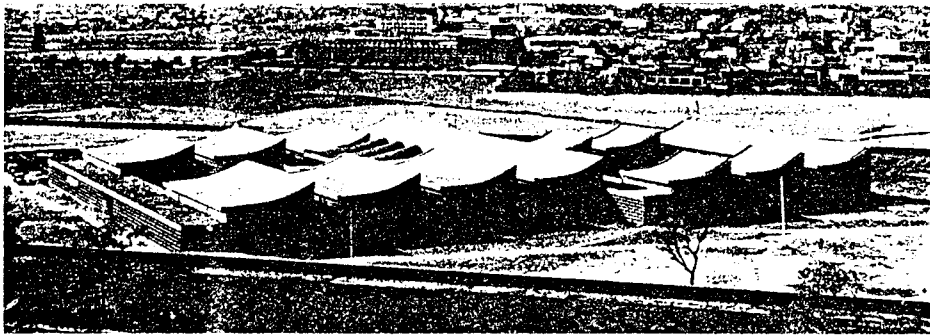
"Le Corbusier's solution responded to analogous issues with equal formality, but in the terminology of this "Indian Grammar" he bridged the gap between East and West, ancient and modern, by seeking out correspondances of principle."<sup>52</sup>

The city of Chandigarh has been a major influence on making Punjab one of the richest states of India. It has invited industry and technology with open arms. However, if it continues on growing, it might be affected negatively: "... its positive qualities will be undermined by speculation, bureaucratic graft and laissez-faire construction. The growth has also had its political stresses. In 1966, the Punjab was again divided, and the new state Haryana now occupies half of the Parliament building... Sikh aspirations towards independence [were] stimulating unrest in the Punjab with the threat of further divisions."<sup>53</sup>

52. CURTIS, William: Le Corbusier: Ideas & Forms - pp.198

53. Ibid - pp.200

The effect of Chandigarh's architecture on the new Indian generation of Architects was tremendous; it has set down a standard, a starting point from which they could learn. Although sometimes missused, L-C's architectural language has brought about certain respectable architects; Balkrishna Doshi, Charles Correa and Raj Rewal.<sup>54</sup>



76.

"The Chandigarh monuments idealize cherished notions of law and government with deep roots: they span the centuries by fusing modern and ancient myths in symbolic forms of prodigious authenticity. Although recent in fabrication, they possess a timelessness that will insure them a major place in the stock of cultural memories."<sup>55</sup>

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54. Ibid - pp.200

55. Ibid - pp.201

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3. Aerial view of Chandigarh  
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8. The Jan Marg (V2 road)  
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9. New Delhi, aerial view of the King's Way and Capitol Buildings in the distance  
Ibid - pp.271
10. The Jan Marg with wall "protecting" residential sector  
Ibid - pp.235
11. Main street in Jaipur, India  
Ibid - pp.235
12. Plan of Capitol, Chandigarh  
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13. From the roof of the Secretariat: the Assembly (at left) and the High Court.  
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14. The Secretariat and the Assembly seen from the High Court  
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15. The High Court seen from the pedestrian path above the Assembly parking  
Ibid - pl.87
16. The High Court at the foot of the Himalayas. A vast scale!  
Architectural Forum, April 1961 - pp.102
17. Secretariat under construction. Primitive technology.  
a) BOESIGER, W.: Le Corbusier: Oeuvre Complete - pp.139

- b) Progressive Architecture. Mar. 1956 - pp. 123
- c) *ibid* - pp. 123
18. The Secretariat, with "motor way" passing under it.  
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19. Secretariat, pilotis and brise-soleil.  
*ibid* - pp. 212
20. Justice Courts; parasol, brise-soleil, and portico.  
JARDOT, Maurice: Le Corbusier: My Work. pp. 279
21. The Legislative Assembly; parasol (gutter), brise soleil, portico, pools...  
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22. L-C sketch showing Governor's Palace ending the V2 axis.  
Von Moos, S.: Le Corbusier: Elements of Synthesis. pp. 275
23. L-C sketch showing axis towards Governor's Palace and its trans-  
vers axis linking Assembly and High Courts.  
*ibid* - pp. 271
24. Model of Capitol.  
JARDOT, M.: Le Corbusier: My Work. pp. 174
25. Secretariat, N-W facade.  
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26. High Court from Assembly portico.  
*ibid* - pp. 45
27. Assembly, viewed from High Court portico.  
*ibid* - pp. 44
28. Reflection of the Assembly portico in the pool.  
BOESIGER, W.: Le Corbusier: 1910-65. pp. 220
29. Assembly, viewed from Governor's Palace.  
*ibid* - pp. 225
30. The Secretariat, with "motor way".  
*ibid* - pp. 212
31. Secretariat roof garden.  
*ibid* - pp. 211
32. Sections through Secretariat.  
BOESIGER, W.: Le Corbusier: Oeuvre Complete 1946-52. pp. 139
33. Secretariat plans.  
*ibid* - pp. 138
34. Secretariat, studies on the section through the offices.  
*ibid* - pp. 136
35. Palace of Justice, main (N-W) facade.  
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36. Justice Palace, entrance portico.  
VON MOOS, S.: Le Corbusier: Elements of Synthesis. pp.274
37. Justice Palace: plans and longitudinal section through the courts.  
BOESIGER, W.: Le Corbusier: Oeuvre Complete 1946-52. pp.128
38. Justice Palace: sections and elevations.  
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39. Justice Palace: view from South with annex (right) and parking.  
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40. Justice Palace: ramp inside the entrance portico.  
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41. Justice Palace: depressed parking at the back, towards entry at the corner.  
Architectural Record. Dec.1956 - pp.189
42. Justice Palace: view of the corridor from the ramp.  
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43. Justice Palace: roof terrace.  
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44. Justice Palace: water spout, splash breaker and channel going towards the pools in the front side.  
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45. View of Justice Palace (far), and N-E facade of Assembly (right).  
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46. Assembly: S-E (main) facade.  
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47. Assembly: main elevation and plans.  
BOESIGER, W.: Le Corbusier: 1910-65. pp.218
48. Assembly: sections.  
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49. Assembly:"Forum" with shell of the Upper Chamber.  
VON MOOS, S.: Le Corbusier: Elements of Synthesis. pp.277
50. Jaipur, the Jantar Mantar, astronomical observatory, built 1718-34.  
ibid - pp.276
51. Maze of ramps and stairs connects levels of hyperbolic Assembly Chamber (left) to offices and lounges around the perimeter of the building.  
Architectural Forum. Sept.1962 - pp.100
52. Assembly "Forum", three to four stories high columns, with strip of clerestory light.  
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53. The "Forum".  
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54. Assembly: the enamelled door under the portico (Governor's entrance).  
CURTIS, W.: Le Corbusier: Ideas and Forms. pl.152
55. Assembly: view from Secretariat, with depressed parking and pedestrian circulation bridging on top.  
a) Global Architecture: G.A.30 - pp.38-39  
b) Architectural Forum. Sept.62 - pp.99
56. Interior of Hyperbolic Assembly Hall  
ibid - pp.102
57. L-C sketches concerning the Hyperbolic Assembly Hall.  
a) BOESIGER, W.: Le Corbusier 1910-65. pp.219  
b) JARDOT, M.: Le Corbusier: My Work. pp.210
58. The Assembly skylight, with reflecting and refracting devices.  
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59. Assembly Chamber, with acoustic perforated sheet metal shaped as clouds.  
Architectural Forum. Sept.1962 - pp.103
60. Justice Palace: acoustic tapestry for the High Court (Chief Justice's room), approximately 1,500 sq.ft. 1954.  
JARDOT, M.: Le Corbusier: My Work. pp.241
61. Governor's Palace, at the end of the embankment.  
ibid - pp.214
62. The Open Hand and the Pit of Contemplation.  
ibid - pp.176
63. Justice Palace: the glare inside the courts.  
JENCKS, Charles: Le Corbusier and the Tragic View of Architecture. pp.156
64. The buildings are too dispersed!  
CURTIS, W.: Le Corbusier: Ideas and Forms. pl.242
65. L-C in Chandigarh, with sketchbook in hand.  
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66. The upturned crescent above the Governor's Palace.  
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67. Variations on the same theme.  
a) Diwan-I-Khas, Fatehpur Sikri, India, late 16<sup>th</sup>c.  
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67. b) Karli Chaitya Hall, India, 2<sup>nd</sup> - 1<sup>st</sup> Century B.C.: The Buddhist Parasol.  
 ibid - pp.193
- c) Jantar Mantar, Delhi, early 18<sup>th</sup> C.  
 ibid - pp.196
- d) L-C sketch of an oxcart wheel.  
 ibid - pp.197
- e) Forms over the Parliament Building.  
 ibid - pp.196
- f) The Secretariat: parasols with the same form.  
 ibid - pp.198
- g) The Open Hand...  
 ibid - pp.200
- h) The extended hand of the Modulor man is also opened upwards.  
 JARDOT, M.: Le Corbusier: My Work. pp.211
- i) L-C sketch of bull with same form in the horns.  
 FRANCLIEU, FRANCOISE: Le Corbusier sketchbooks. Vol.2 - pp.396
- j) L-C sketch: the form is linking the sky to the ground.  
 ibid: Vol.3 - pp.361
- k) L-C sketch of cock or rooster; the same form again.  
 ibid: Vol.3 - pp.1089
- l) Japanese motif.  
 ibid: Vol.4 - pp.445
68. Variations on the same theme, or form.  
 JARDOT, M.: LeCorbusier: My Work. pp.211
69. Corbusian Signs and Symbols to be reproduced in sunken reliefs and tapestries throughout the buildings of the Capitol in Chandigarh.
- a) VON MOOS, S.: Le corbusier: Elements of Synthesis. pp.323
- b) BOESIGER, W.: Le Corbusier 1910-65. pp.232



- c) BOESIGER, W.: Le Corbusier: Oeuvre Complete 1946-52. pp.153  
 d) ibid - pp.153
70. A most reliable school.  
 JARDOT, M.: Le Corbusier: My Work. pp.208-209
71. More signs.  
 a) FRANCLIEU, F.: Le Corbusier Sketchbooks, Vol.3 - pp.974  
 b) ibid: Vol.3 - pp.1092  
 c) ibid: Vol.3 - pp.801  
 d) ibid: Vol.3 - pp.980  
 e) ibid: Vol.3 - pp.377  
 f) ibid: Vol.3 - pp.604  
 g) ibid: Vol.3 - pp.525  
 h) ibid: Vol.2 - pp.826
72. The development of forms, signs symbols, and thus theories was not achieved through architecture, but through sketching and drawing, and later on applied architecturally.  
 a) facial expressions.  
     ibid: Vol.2 - pp.700,702,703,704,705  
 b) The Human Bestiary.  
     i) ibid: Vol.2 - pp.374,377,383,706,707  
     ii) ibid: Vol.2 - pp.713,714,716,718,759,760,787,788,789,790,804  
         Vol.3 - pp.142,144,145  
 c) Entangled hands.  
     ibid: Vol.3 - pp.656,657,658,659,662
73. The Engineer and the Architect.  
 JARDOT, M.: Le Corbusier: My Work. pp.306-307
74. Open Hands.  
 a) FRANCLIEU, F.: Le Corbusier Sketchbooks, Vol.4 - pp.450  
 b) ibid: Vol.3 - pp.968  
 c) ibid: Vol.2 - pp.614  
 d) JARDOT, M.: Le Corbusier: My Work. pp.278
75. Tapestries in the courts of the Justice Palace.  
 a) ibid - pp.240  
 b) BOESIGER, W.: Le Corbusier 1910-65 - pp.204  
 c) ibid - pp.204  
 d) ibid - pp.205
76. L-C school of art at Chandigarh.  
 VON MOOS, S.: Le Corbusier: Elements of Synthesis. pp.136

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