Panopticism in the Utopian Visions of Ledoux and Le Corbusier:
## A Comparison of Chaux, Ville Contemporaine, and Ville Radieuse.

by Cynthia Chung

Le Panopticon de Jeremy Bentham a marqué un tournant dans la conception des institutions. Cynthia Chung montre comment ce modèle se reflète dans deux projets utopiques urbains: celui de Claude-Nicolas Ledoux à Chaux, et ceux de Le Corbusier.

"Morals reformed, health preserved, industry invigorated, instruction diffused, public burdens lightened ... all by a simple idea in architecture!"

J. Bentham, 1791.

The Panopticon, as first developed by Jeremy Bentham in 1791, was essentially a new architectural scheme for a penitentiary, formulated in response to the penal reform movement occurring in France and England at the time. The Panopticon however, was not merely an exercise in prison design. In addition to the obvious applicability of the model to schools, asylums and hospitals, the working principles of the Panopticon addressed a more pressing issue of late eighteenth century society, that is, the maintenance of power and surveillance of a population during a period of emerging democracies, increased populations, burgeoning industrialization and rampant desire for social reform. In the absence of a single, identifiable power structure, the problem of governing and disciplining an increasing population seemed even more critical. Needed was a means of social control which would act effectively towards a humanitarian, if somewhat idealized, end. As articulated by Foucault, in Power and Knowledge, Bentham's Panopticon functioned as such a technical device of social control and surveillance. Indeed, Bentham thought of his Panopticon as "the great innovation needed for the easy and effective exercise of power".[1] Because the Panopticon characteristically functioned as an enclosed, self-contained unit, and
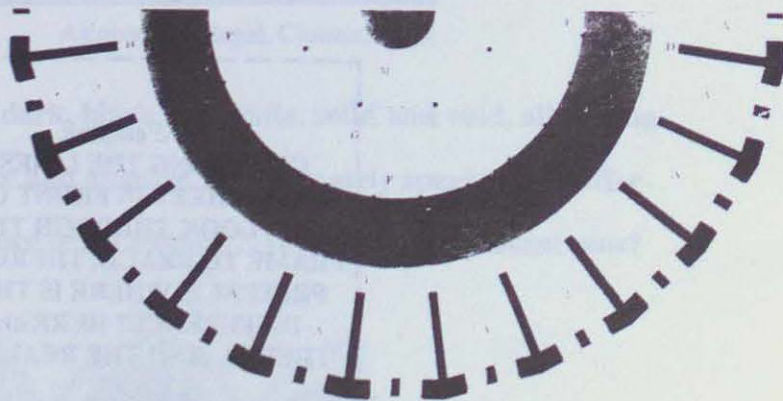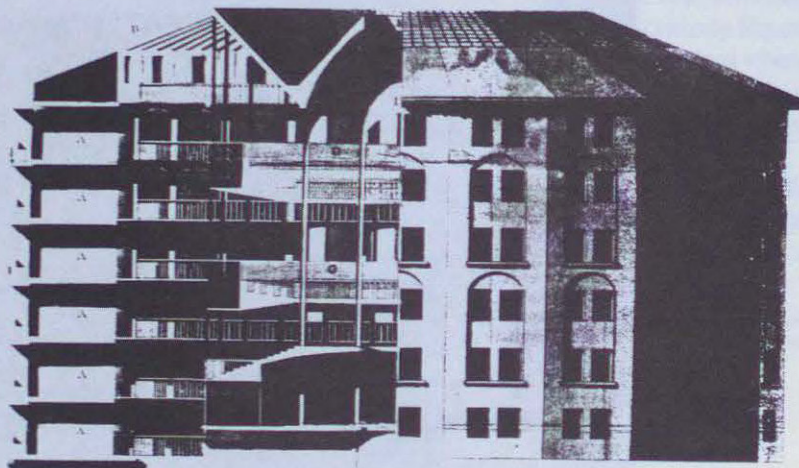
The "Penitentiary Panopticon", Jeremy Bentham, Samuel Bentham, Willey Reveley, 1791.

its existence was based on an idealized vision of social reform, the panoptic plan was utopian in both form and intent. The following is an attempt to demonstrate the applicability of Bentham's panoptic model at the city scale by comparing the utopian schemes of Ledoux at Chaux, and Le Corbusier with La Ville Contemporaine and La Ville Radieuse. Although Ledoux's plans antedate Bentham's model, Ledoux and Bentham were nonetheless social contemporaries. The presence of Panopticism in Le Corbusier's plans reflects an underlying continuity, from the end of the eighteenth century to the middle of the twentieth, in the utopian belief of social engineering through the deliberate manipulation of space.

The physical layout of the Panopticon consists of a central observation tower surrounded by a perimeter building which encircles the central tower like a ring. This outer ring is divided into cells, each cell extending the thickness of the perimeter building. Each cell has two windows, one opening towards the inside, thus allowing for a view of and from the observation tower, and, an outer window which allows day light to pass through the entirety of the cell.[2] Surveillance in such a system is easy, efficient, and effective. An overseer of the Panopticon is positioned in the central tower. In each cell is placed a convict. With the effect of backlighting, one can observe from the tower, standing out precisely against the light, small captive shadows in the cells of the periphery.[3] Surveillance is easy because it eliminates the need to patrol individual cells (as required in traditionally organized penitentiaries). The system is efficient in that only one overseer is needed to overlook many more penitents. Furthermore, the observation tower is arranged such that the penitents never know when they are being watched. A
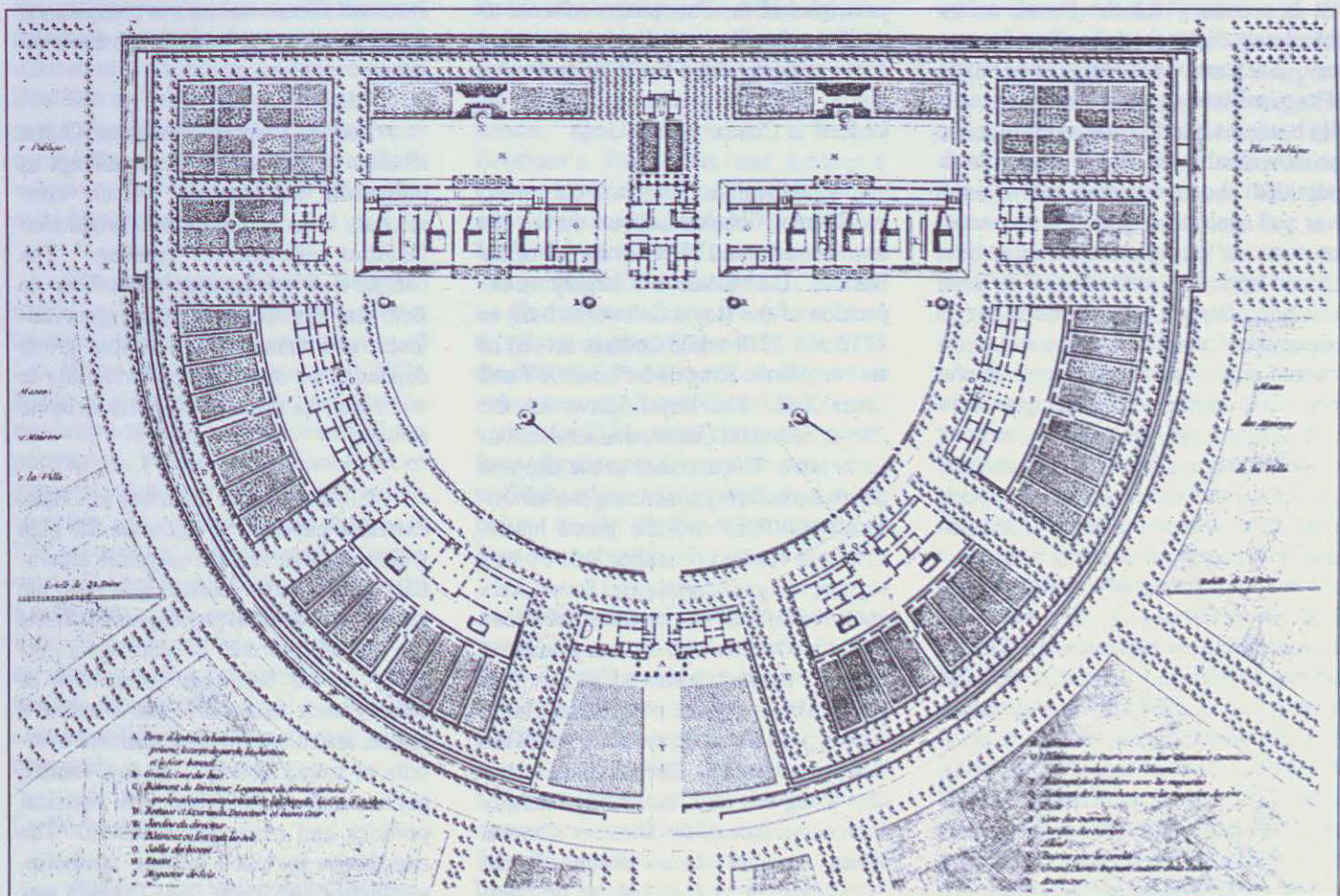
Executed Plan of La Saline de Chaux, Claude-Nicolas Ledoux, 1773.

"Knowledge is power" summarized well the importance of gaining access to the bodies of individuals, to their acts, attitudes, and modes of everyday behavior.

system of venetian blinds and staggered doorways installed in the central observation tower ensures a sense of surveillance that is at once visible and unverifiable. The Panopticon is effective in that the penitent simply comes to assume that surveillance is constant. In short, the principle of the dungeon is reversed; daylight and the overseer's gaze capture the inmate more effectively than darkness "which afforded after all a sort of protection".[4]

Three working principles of the Panopticon contribute to its effectiveness. First, the Panopticon relies on the principle of the Gaze. Bentham writes "It is necessary for the inmate to be ceaselessly under the eyes of an inspector". Such an inspecting gaze because, of its consistency and continuity, eventually becomes internalised. At this point, the individual is his own overseer, each individual thus exercising surveillance over and against himself. Furthermore, the sense of being watched is so impressed upon the prisoner that it stays with him after his release into society.[5] Second, the Panopticon allows an unconditional access of the overseer to the individual inmate. Prisoners placed in each cell become objects whose actions are inspected, registered and classified. Each prisoner in effect becomes a specimen of Enlightenment inquiry, contributing to knowledge upon which the exercise and maintenance of power depends.[6] Foucault elaborates on this theme by demonstrating the importance of opinion among enlightened society. Opinion represented a "mode of operation through which power would be exercised by virtue of the mere fact of things being known".[7] Hence, the axiom "knowledge is power", and vice versa, summarized well the importance of gaining access to the bodies of individuals, to their acts, attitudes, and modes of everyday behavior.[8] Third, the Panopticon worked on the idea of an ordered and

clearly legible space. The observation tower is centrally placed within the Panopticon, accentuating its status and function. Thus it occupies a singular and unique position. In contrast, the individual cell is merely a repetition of its neighboring cells. The circular arrangement of the prison cells does not allow even an "end" or "beginning" cell to be defined. In addition, the ordering of the space functions to define the limits of possible human interactions. The solid walls seperating cells prevents communication between inmates. Inmate and overseer, however, are intimately engaged as directed by the strategic placing of windows. In summary, the working principles of the Panopticon adhered to the formula of power through transparency, and subjection by illumination.[9]

Ledoux at Chaux

Cité Idéale at Chaux was conceived by Claude-Nicholas Ledoux during his imprisonment in 1793 after the fall of the Bastille. Cité Idéale was largely an expansion of the Royal Saltworks built in 1773 and 1779 while Ledoux served as architect to the King under Louis XV and Louis XXI. The Royal Saltworks, the Arc-et-Senans at Chaux, was semi-circular in plan. The entrance to the site was through a building containing the administrative offices and the guard house. This was flanked on either side by two curving wings of dormitories for workers and were divided into separate pavillions by craft. On axis with the entry building was the Director's house, which served as the focal point of the plan, occupying a central position along the diameter of the semi-circular plan. The salt sheds were also along this axis, extending laterally from either side of the Director's house. When Ledoux later expanded the Saltworks into a Cité Idéale, he completed the circular plan with the addition of various civic buildings. These included a church, stock exchange, houses

of culture, and the Oikema, a phallus-shaped building whose purpose was to instill virtue through sexual satiety. A "green belt" of trees replaced the more traditional city wall to mark the town boundaries.

Beyond the obvious symbolism of the Enlightenment found in Ledoux's plan, that is, the pure geometry and the images of sun and light the town's circular arrangement evoked, the spatial configuration served well the working principles of Panopticism. The focal point of Chaux was the Director's house. Here, knowledge of individual workers was registered, activities regulated; the Director's house was no less conspicuous than Bentham's central observation tower.

Ledoux's Arc-et-Senans and Chaux is often noted as the first attempt at industrial architecture which consciously links and integrates production facilities with workers' housing.[10] The comparison of Ledoux's workers to Bentham's prisoners is apparent; surveillance and management of this group depended on their constant visibility at work and, for full effectiveness, at home as well.

Environmental legibility at Chaux extended beyond the elaborate site plan which emphasized the physical separation of functions. Ledoux also used the idea of architectural physiognomy, that is the use of symbolic or isomorphic imagery in the buildings themselves to convey their function. The Director's house, articulated with traditional symbols of respectability, was low-roofed, pedimented, embellished with classical porticos and rusticated columns. The courthouse included fascias, symbolizing justice and unity. The Oikema was penis-shaped, an overt and blatant indication of the building's association with sexual pleasure. Accordingly, worker

housing was of plain flush ashlar masonry built in a simple vernacular style.[11] The open belt of green space is analogous in function to the outer open windows of Bentham's cells. As the outer window serves to silhouette each penitent in his cell, so the open greenbelt serves to silhouette persons coming to or leaving Chaux. More solid boundaries, such as the city walls of medieval towns, indicate a specific boundary over and beyond which one is no longer subject to the rules and surveillance of the town's jurisdiction. In such a physical setting, one can escape the town's boundary and subsequently be free from observation. The elimination of these definite city boundaries and their replacement with the open greenbelt parallels the replacement of solid stone walls of a penal dungeon with Bentham's glass windows. Both the open greenbelt and the glass windows serve to extend the overseer's visibility. Both subvert as well the protection offered by solid boundaries.

The application of the Panoptic model in Le Corbusier's work is less obvious. Indeed, the physical layout of La Ville Contemporaine and Ville Radieuse is neither circular, nor is its size conducive to a close surveillance of the population. Furthermore, procedures of power that are at work in more modern societies are numerous and diverse.[12] The principle of visibility evident in the work of Ledoux and Bentham was clearly a reflection of the desire during the Enlightenment to replace the intrigue of royal power with a new openness. Nonetheless, Panopticism in the twentieth century still functioned to serve disciplinary ends.

Le Corbusier

Although not a planner by training, the Swiss-French architect Le Corbusier was nevertheless a prolific and influential urbanist, designing several plans for cities in and outside of France. Le Corbusier's most articulate utopian schemes, however, were found in "a contemporary city for three million", or Ville Contemporaine. Proposed in 1922, it contained most of the ideas he later developed in Ville Radieuse, 1930.

The rectangular plan of Ville Contemporaine emphasized two cross-axial major streets intersecting in a central commercial district. This central district included twenty-four identical cruciform skyscrapers which would "contain the city's brains, the brains of the whole nation. They are symbolic of the careful planning and organization of all activity in the city. Everything is concentrated in the towers: apparatus for abolishing time and space, telephones, cables, and wireless; the banks and business affairs and the control of industry; finance, commerce, specialization".[13] As in Bentham's Panopticon and Ledoux's Chaux, Le Corbusier's Ville Contemporaine envisioned a central complex inhabited by members of society conferred with great administrative powers. In fact, Le Corbusier extends the centrality of this "seat of power" upwards. Whereas the observation tower and the Director's house secured a lateral direction of observation, Le Corbusier's sixty-story cruciform skyscrapers allowed an aerial surveillance of the city's inhabitants living below in the twelve-story apartment houses surrounding the central district.

To the left of the business district would lie a civic and cultural center, beyond which would extend a rectilinear landscaped park. A large-scale grid incorporating the central cross-axis was superimposed on the city and served as a highly efficient, strictly vehicular street network. A smaller grid pattern was used for the residential superblocks, with buildings set up either along the perimeter of the superblocks or as continuous slab apartments sited within the block. The industrial district would be sited outside the city and separated from it by a greenbelt.

Evidently, Le Corbusier saw no advantages in mixed-use areas. Every function within a working city, residential, commercial or administrative, was carefully assigned a defined space. The geometric ordering and symmetry of the city, from the extensive grid network to the "Cartesian" skyscrapers, further contributed to order and environmental legibility. It was precisely the lack of order which Le Corbusier found in the cities of his time that he felt contributed to the squalor and blight of the congested industrial city. With order, the individual within the city could function with increased productivity and efficiency. He or she would know (as would everyone else in the city) exactly where to go for certain activities. Furthermore, one would not waste time meandering through city paths or streets. The grid network effectively connects any two origin-destination points of the city with straight lines. The individual moves about in the city as a well-disciplined subject, restrained from any randomness in activity by the strict ordering of his environment. Such a definitive environment left little to chance, emphasizing instead a certain degree of "truth-telling" to one's behavior in the city.[14] Once finished their daily activities, one would retire to the home, a standardized unit in mass housing complexes.

The productivity and efficiency of Le Corbusier's city evolved from his application of Taylorism to social problems of the city. This philosophy was introduced by the American Frederick W. Taylor (1856-1915). It described a system of labour discipline and workshop organization intended to instill human efficiency.[15] Applied to the city, and in particular to Le Corbusier's Ville Radieuse, Taylorism was an urban equivalent of factory production. In the
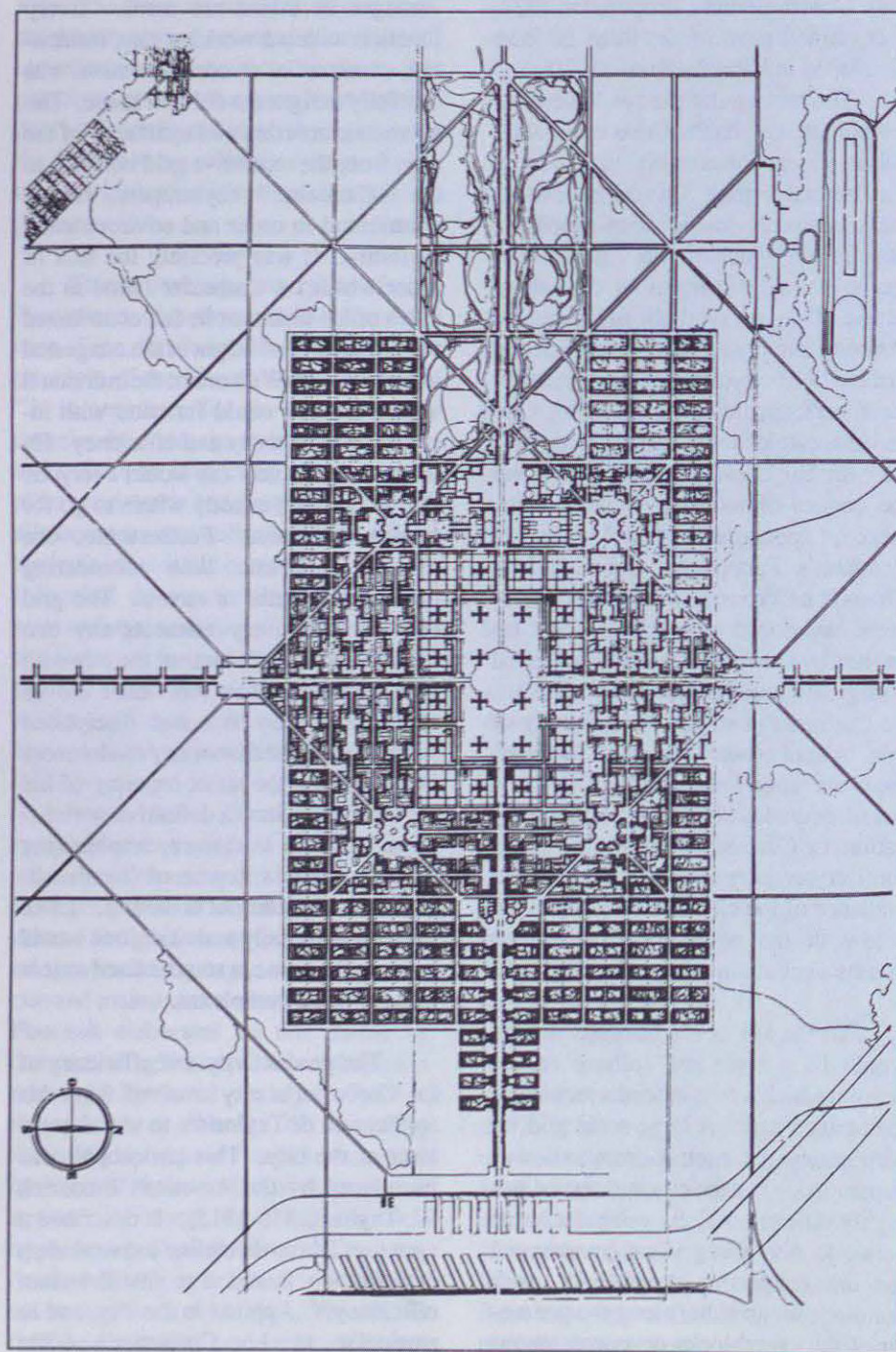
La Ville Contemporaine, LeCorbusier, 1922

factory, the stages of manufacturing are separated and rationalized. In the city, the activities of life would be segregated into discrete parts. As such, housing was in one place, work in another, and leisure somewhere else. In turn, these separate parts were standardized; administration was conferred to anonymous skyscraper towers, with a "universal standard and complete uniformity in detail".[16] Rationalized units of city space contributed to an environmental legibility with which discipline of citizens could surely be maintained. Indeed, Taylorization was the "Benthamization" of the modern period.[17]

Ville Radieuse was also characterized by a highly developed, multi-leveled transport system. In order to insure rapid movement of wheeled transport through the city, Le Corbusier sought a total separation of motor freeways from building lines and pedestrian ways. The freeways were characteristically linear, and were set in a grid of superblocks, 400 by 600 meters in area. Linearity and expansivity ensured speed. Le Corbusier claimed "a city made for speed is a city made for success". The city's transportation system would be additionally served by a subway and an underground commuter rail system linking the various outlying components of the city to the city center. The city center of the Ville Radieuse was no longer dominated by an administrative core as in La Ville Contemporaine, but instead with a multi-level traffic interchange, containing motorways, railway stations, bus stations and, above and between skyscrapers, an airport.

It is clear that the urbanity and animation of the traditional city street is severely compromised in such a plan. The street served merely as an element in

a system of vehicular transportation, and no longer promoted the chance or random encounter of strolling pedestrians. However, Le Corbusier's transportation system ultimately functioned as more than just an efficient circulation network. It was in fact a highly developed communication system which allowed Bentham's principle of the Gaze to function despite the physical incongruity of La Ville Radieuse and the Panopticon.

The principle of the Gaze is based essentially on an imposed relationship between two subjects, the overseer and the observed individual. Initially, the Gaze requires the actual physical presence of an overseer within the physical proximity of the observed. The distance between overseer and observed is determined by that minimum distance needed for visual (or audio) exchange to take place. The overseer is eliminated when the process is internalised. What is essentially exchanged or communicated between the overseer and observed individual is information that "I, the overseer, am within inspecting distance of you, the penitent". It is precisely the possibility of such a confrontation, whether visual or physical, between overseer and penitent, which perpetuates the power of the Gaze. The spatial configuration of Bentham's Panopticon and Ledoux's Chaux was confined to the actual physical distance needed for such an exchange. With an elaborate, efficient transportation and communication system, the distance between overseer and observed meant an efficiency in the transfer of knowledge. The possibility of confrontation remains omnipresent, the Gaze travelling with equal omnipotence along Le Corbusier's highways.

The notions implicit in Panopticism in both Ledoux and Le Corbusier's Uto-
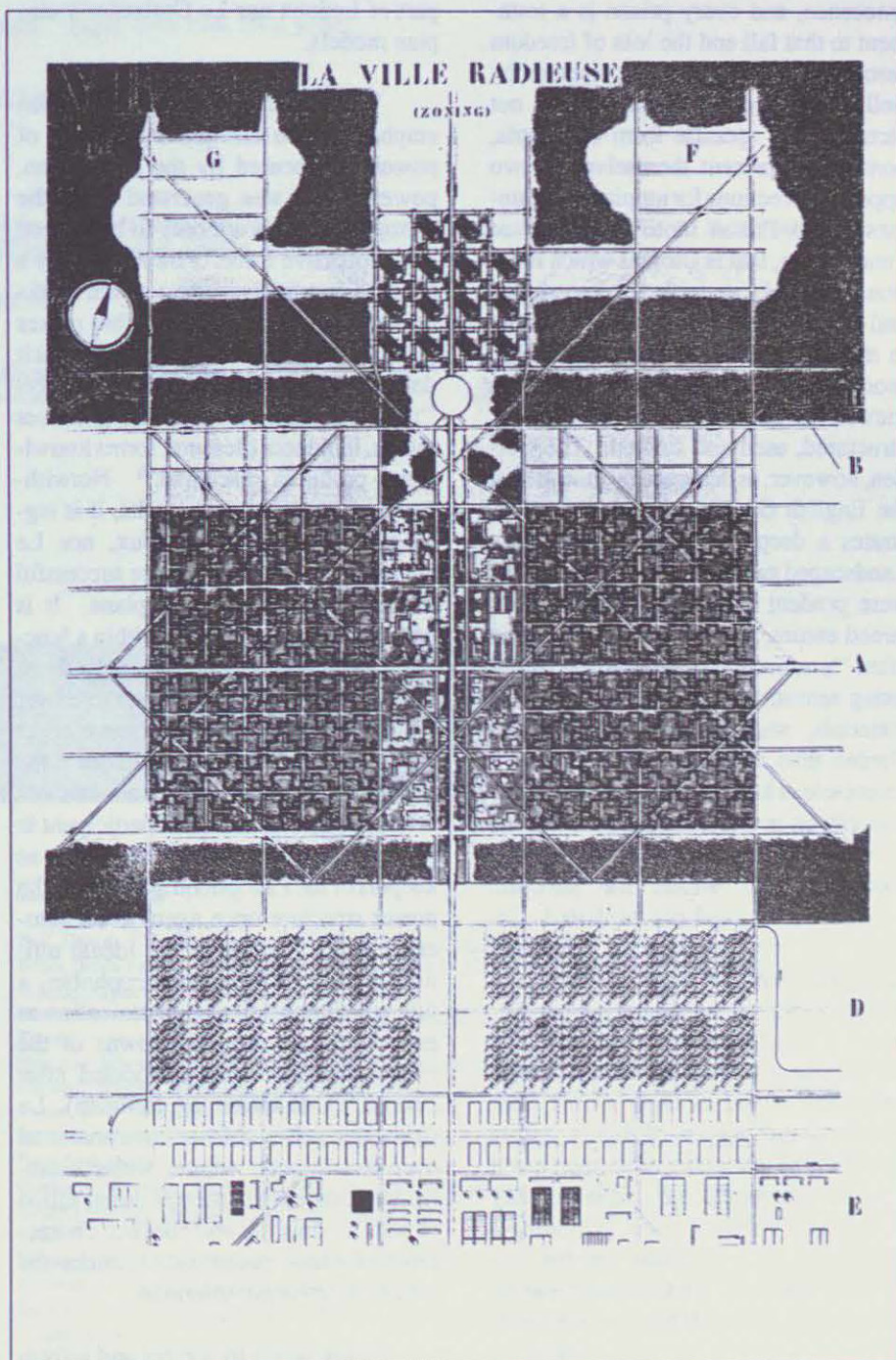
La Ville Radieuse, LeCorbusier, 1930.

pias are further revealed in the oft-cited division between Prison and Garden. Every garden is a reminder that man was banished from paradise when he lost his innocence, and every prison is a testament to that fall and the loss of freedom associated with guilt.[18] As presented by Bell, these two institutions, while not dictating any specific form of Utopia, nonetheless present themselves as two opposing directions for utopian programmes. The Prison motif manifests as Panopticism, that is Utopias which function ultimately as tools for knowledge and power. The relationship with Nature is marked, at best, with disregard and, more often, with exploitation. Nature is viewed as an element to be ordered, structured, used and studied. The Garden, however, as designed by disciples of the English Garden movement demonstrates a deep appreciation of Nature. Landscaped gardens of England and Italy were prudent in allowing views to untamed nature, and the garden itself was often "a collection of objects and stimulating sensations, rare and exotic plant materials, sculpture".[19] The utopian Garden thus is both a place for and a receptacle of knowledge. In contrast, the Panopticon is a tool or machine for the extraction of knowledge. Nature plays a secondary role within the panoptic scheme, not exalted but exploited. Indeed, the raison d'être of Ledoux's Saltworks was the literal extraction of wealth and produce directly from Nature.[20] Carved stone urns projected from the flat planar walls of the worker dormitories and served as large spouts from which the salt waters of Salins visibly flowed. The unloading of lumber, razed from the forest of Chaux, occurred daily in the town's central plaza, providing a continuous demonstration of the exploitative process. Le Corbusier was no less obvious in his advocacy of man over nature: "A city is the grip of man on nature, a human operation directed against Nature, a human organism both

for protection and for work".[21] Le Corbusier's blatantly inorganic rectilinear landscaped parks are evidence of his views. Clearly, Garden ideals were not part of Ledoux nor Le Corbusier's utopian models.

While the foregoing discussion emphasizes the disciplinary aspects of power as procured by the Panopticon, power which was generated from the Panopticon needs not only to be viewed as a repressive force. Power includes a positive, productive aspect which works to make power desirable. What makes power acceptable is simply the fact that it doesn't only weigh as a force that says "no", but that traverses and produces things, it induces pleasure, forms knowledge, produces discourse.[22] Notwithstanding such virtuous results, it is significant that neither Ledoux, nor Le Corbusier, nor Bentham were successful in the realization of their plans. It is perhaps because everyone within a functioning Panopticon is entrapped, those who exercise power as well as those over whom it is exercised.[23] Bentham is never specific about exactly who resides in the central tower. The overseer nonetheless is trapped as he is an active participant in the individual or group of individuals as keepers of the Panopticon and returns the power structure once again to an autocratic rule. Ledoux's Cité Idéale ultimately suffers from claustrophobia, a fate which translates to ghettoization as experienced in company towns of the early twentieth century modeled after Ledoux's Cité Idéale (eg. Pullman). Le Corbusier suffered from environmental over-determinism which, while establishing total environmental order, failed to plan for disorder and conflict, characteristics which paradoxically make the urban environment tolerable.

In his vision to correct and reform convicts through a simple architectural design, Bentham shared with Utopian

builders a belief in the possibility of ameliorating human society through built form. However, in their visionary plans, Ledoux, Le Corbusier, and Bentham were ultimately short-sighted in their failure to consider the actual participants in their Utopian design.

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Notes

1. Bentham in Michel Foucault, <u>Power/Knowledge: Selected Interviews and Other Writings 1972-1977</u>,(New York, 1980),   p.148.
2. <u>Op. cit.</u>, p. 147.
3. Michel Foucault, <u>Discipline and Punish: The Birth of the</u>   <u>Prison</u>, (New York, 1975), p. 200.
4. <u>Op. cit.</u>, p. 200.
5. Foucault, <u>op. cit.</u>,(1980), p. 155.
6. David Bell, ''The Prison and the the Garden'' in <u>The Fifth Column</u>, (Vol. 5, No. 3/4, 1986), p. 22.
7. Foucault, <u>op. cit.</u>, (1980), p. 154.
8. <u>Op. cit.</u>, p. 125.
9. <u>Op. cit.</u>, p. 154.
10. Tony Shuman, ''Utopia Spurned: Ricardo Bofill and the French   Ideal City Tradition'', in <u>Journal of Architectural Education</u>, (Vol. 40, No. 1, 1986), p. 22.
11. Kenneth Frampton, <u>Modern Architecture: A Critical History</u>,   (London, 1980), p. 16.
12. Foucault, <u>op. cit.</u>, (1980), p. 148.
13. Le Corbusier, 1922, in Norma Evenson, <u>Le Corbusier's the Machine and the Grand Region</u>, (New York, 1969).
14. Roschburg, 1986, p. 191.
15. Mary Macleod, ''Le Corbusier in Algiers'' in <u>Oppositions</u>, (Vol 19/20, 1980), pp. 53-81.
16. Le Corbusier in I. Tod and M. Wheeler, <u>Utopia</u>, (London,   1978), p. 141.
17. Taylor, (1985), i.
18. Bell, <u>op. cit.</u>, p. 20.
19. <u>Op. cit.</u>, p. 24.
20. <u>Op. cit.</u>, p. 25.
21. Le Corbusier in Tod, Wheeler, <u>op. cit.</u>, p. 138.
22. Foucault, <u>op. cit.</u>, (1980), p. 119.
23. Bell, <u>op. cit.</u>, p. 21.

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