OfficeLand:
History, Ecology, and the Plant-in-the-office

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"What new images and forms of the body and kinds of powers that regulate it are coming into existence contemporaneously with the dramatic shifts in political economic organization that is being brought about by flexible specialization?"
—Emily Martin[1]

"Cubicle Dwellers really have no history. Suddenly, there they were, in every office everywhere. If you look at old pictures of offices, the workers just sat around with no walls separating them. They could see from one wall of their company to the other. They were all typing on big loud typewriters. Nowadays, try to find an office like that. Good luck. It won't happen. I guarantee. If you do, good for you. But you won't. It doesn't work like that anymore." *—The Cubicle Dweller's Survival Page[2]*

What kinds of histories can we offer to explain the office, that ubiquitous and ever more connected place where Americans spend their working lives? Its formal development closely follows the progress of modern, globalizing capitalism, and we can trace its latest transformations, as businesses morph and change into ever more flexible and agile configurations, but we need more than a chronicle of its features. How do we understand the ecology of that vast landscape and explain the evolution of its particular habitats, inhabitants, and the habits that join them.

My invocation of ecology is not casual. The model of a complex system guided by the inexorable logic of natural selection informs nearly every aspect of this new configuration, from management philosophies to facilities planning to concepts about the health of employees. As Emily Martin observed, the "the complexly interconnected world in which we now live seems to say that both the [complex systems] model and its implications fit the current nature of reality. All is in flux, order is transient, nothing is independent, everything relates to everything else, and no one subsystem is ever in charge."[3] Grow or Die has become the watchword of companies, workers, and their tools in the most brutal Darwinian sense, though the new ethic demands a growth in complexity and interdependence, not merely in size or power.[4] This is no longer the crude social Darwinism of the first industrial revolution. Robert Wright argues that mutually beneficial relationships, Non-Zero sum interactions, in contrast to zero sum, winner-takes-all, games like war have produced our increasingly complex and productive organizations, from

chiefdoms to the nation state to the global economy.[5] The new workplace is explained both as a result of these evolutions in the market-as-a-system and as a specific ecological niche increasingly perfected for the accommodation of the mobile worker.

To understand the office as an ecological system, the analogy must be applied rigorously, providing explanations of the form-generating processes without reference to external plans, goals, or notions like progress. In the terms defined by Gilles Deleuze, explanations of the office-as-a-system must include accounts of its content and expression, the content of work and working and its expression as a workplace in the activities of work.[6] Such histories begin from the bottom-up, recognizing that each new development emerges from aspects of the previous formation, which also persists in some altered form. There are plenty of rigidly hierarchical offices and executives within the hotels, dens, and clubs of the new workplace.[7] The fundamental premise of such an analysis could not offer a greater challenge to romantic historiography: "to conceive the genesis of form (in geological, biological, and cultural structures) as related exclusively to immanent capabilities of the flows of matter-energy-information and not to any transcendent factor, whether platonic or divine."[8] Which means that the specific form of the office emerges, blindly, from the interactions of its many participants, and not from the intentions of its planners. Still, progress is promised in many invocations of systems theory, offering greater connectivity and a smoother flow of information as virtues themselves. Such goals are implied at many levels and as "a drive toward increased perfection, or a promised land, or even a socialist pot of gold at the end of the rainbow."[9] How can we understand offices without such goals, how do we examine the history of an emergent form?

Writing an architectural history without notions of progress requires measurements of accomplishment other than increased flow or complexity and historical subjects other than the system itself. In his book Pandemonium, Branden Hookway charted the ascendancy of systems thinking in the economic, political, and military circles after World War II and the steady transformation of the city-as-a-citadel into the metropolis-as-a-system. He recorded the influence of those ideas on the development of the modern office and offered a compelling image of its new architecture: a computer screen, white noise generator, and plant sitting on a Herman Miller Action Office cubicle. But if the office is really an emergent formation, then it has

been shaped by the everyday tactics of its occupants, as well as the logic of the system-as-system. Biological life modified the geological habitats it territorialized, and cultural life is now modifying that biological milieu genetically. Even the prescient Quickborner Team, who planned the first office landscape in the 1950s, could not have imagined the dreary conditions lampooned by Scott Adams in the cartoon strip Dilbert.[10] They might argue that better flows of communication would relieve the suffering of the cubicle dweller, but it is precisely the unpredictable resistances to more efficient flows, the accretions, reinterpretations, and even sabotage of the office-as-system, which shape the actual formation we now encounter. As Mies van der Rohe advised in his own encounter with industrialization: "Let us accept changed economic and social conditions as a fact. All these take their blind and fateful course. One thing will be decisive: the way we assert ourselves in the face of circumstance. Here the problems of the spirit begin. The important question to ask is not "what" but "how.""[11]

CUBICLES

While the small office has a long history, large bureaucratic offices only appeared during the American Civil War, as a result of the dramatic growth in industrial production. The techniques for handling the increase in paper work began a steady exchange between the office and the factory that continues to this day, though the two sites have industrialized at different rates. Office mechanization only took off after World War I, with new machines and furniture being patented and produced at a furious pace. But even in the 1930s as Lewis Mumford recorded the full ascendancy of Frederick Taylor's techniques of scientific management and Henry Ford's assembly line, he noted the increasing importance of "form, pattern, configuration, organism, historical filiation, [and] ecological relationship" in the arts, medicine, and planning. "We now realize that the machines, at their best, are crude uncertain approximations compared to the flying duck: our best electric lamps cannot compare in efficiency with the light of the firefly: our most complicated automatic telephone exchange is a childish contraption compared with the nervous system of the human body."[12] The image of nature was transformed from that of the machine to that of a system.

The acceleration of those ideas after World War II became evident in research agendas and the further automation of the factory. And

even as highly rationalized, seemingly mechanized offices were being completed, like the CIGNA headquarters by Gordon Bunshaft and Florence Knoll, the Quickborner management consulting group were quietly inventing a new form of office layout: the Bürolandschaft or office landscaping.[13] Based on a rigorous analysis of the paths of communication within an office, charted through exhaustive interviewing techniques and diagrams, they dissolved the walls of the office-as-production-line. The analogy to a natural landscape was evident in their pathway diagrams, and in the compelling idea that the form of the office layout was not designed, but emerged from the process of analysis. Their detailed diagrams of communication paths and intensities were the tools that generated the landscape plans, which resembled nothing so much as the meandering "desire paths" that animals, savages, and undergraduates chart with their feet.

Those ideas were rapidly communicated throughout the planning community and by 1964 the Herman Miller furniture company had formalized them in a revolutionary line of office equipment: Action Office I. Under the guidance of their research director, Robert Probst, they developed the first moveable panels, worksurfaces, and storage units that came to define the cubicle and made office landscaping possible. By the late 1960s, the effects were visible everywhere, and the concept of organic planning offered a new kind of proportion or regulating system for office layouts:

> The rigid patterns of office layout that had become standard during World War I, assumed the character of time worn tradition by 1960.... The executive cubicles that fringed the perimeters were themselves scaled to the window bays, while in the interior, precise mathematical relations governed the placement of desks, lighting and equipment. In effect, a kind of classical harmony had been achieved so that, as in a Palladian façade, a logical order reigned that united the smallest part with the whole. But it failed for precisely that reason. Classical systems are inherently inflexible. Since they embody intellectual-aesthetic ideals of harmony and order, to disrupt any one element is to destroy the whole. Change is inadmissible. When a classical order is imposed upon an organic system - one whose parts are related by functions and processes that are themselves in flux - the result is apparent order and actual chaos. An office is such an organic system. Its organicism, however, is not revealed in those hierarchical charts that bear so curious a relation to feudal concepts of the social orders on earth and in heaven. But, since the actual relations between office personnel defy the caste system codified in charts and embodied in layouts, attitudinal and physical barriers were created that seriously blocked lines of communication.[14]

In close sympathy with structuralist ideas in anthropology and sociology and exhibitions like Architecture without Architects and Learning from Las Vegas, the natural forms of Bürolandschaft planning offered anti-authorial design strategies that appealed to the generation of '68.[15] As Francis Duffy reported about his own efforts to spread such ideas, "Anthropology with its rigorous comparative techniques, its search for cross-cultural patterns between artifacts, behaviour, societal norms and their technologies was an obvious model for architectural research. The interrelated three-part model

of buildings, people and technology . . . was firmly implanted."[16] The techniques of the Quickborner Team were quickly applied to hierarchical offices in Europe and then America. The landscaping of the management offices of Dupont Nemours 1967 make the paradigm shift clearly visible.
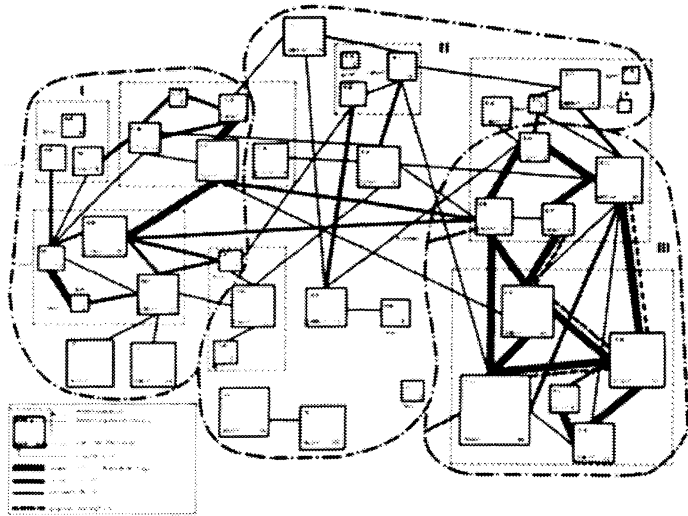

The fashion for total landscaping according to the organic methods of Quickborner passed relatively quickly, though its components, especially the cubicle, became a standard part of the office layout palette. In Duffy's observations at the time, he reported a spectrum of different "scenery" types selected according to business type and location: cellular, group, open plan (though rectilinear), and landscaped. In his most recent summary, he explained the dynamic variety according to the interaction among four types of office work and the arrangements to which they lend themselves: individual processes (Hive), group processes (Den), concentrated study (Cell), and transactional knowledge (Club). The impact of new communications technology has been overwhelming, both in terms of physical accommodation and redefining office arrangements, introducing new possibilities like hoteling, hot-desking, and tele-commuting, whose signature image would have to be the employee in a coffee shop with a laptop computer and cell phone. Nevertheless, the rationalized layout of the factory-like hive retains an important place in the office, and it is the combination of the older ethic of discipline and control with the three-sided, low-walled cubicle that created Dilbert's world. It is at that level that the strategies of resistance and accommodation become so interesting, especially when we ask "how" people have asserted themselves in the face of circumstances.
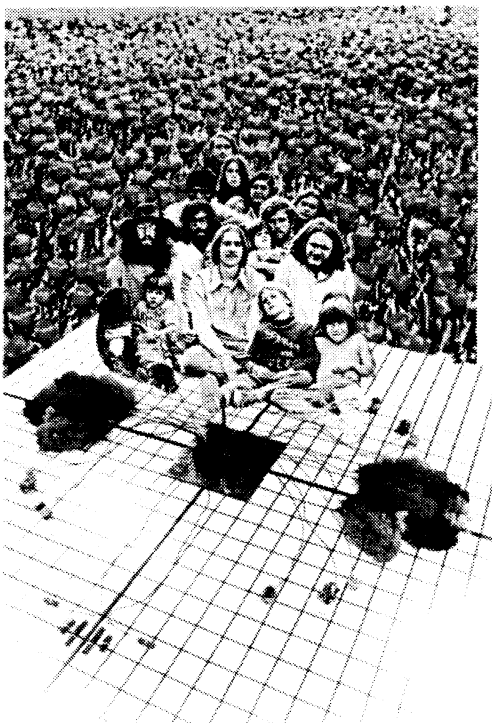

PLANTS

One of the most intriguing and largely unexamined histories within the new workplace would have to be the use of plants. Even in the most perfectly preserved of the hive-like arrangements of the 1950s, such as the Bunshaft's CIGNA offices, we can detect a more recent photograph by the appearance of the tropical plant-in-a-pot. The deployment of indoor planting strongly characterized the Büronlandschaft layouts from the beginning, though they were later at some pains to explain that "landscaping" was a much larger planning idea and not merely associated with the decorative use of plant materials. Plants served both as another form of mobile space divider, and as non-orthogonal elements to further disrupt the older image of the office-as-factory, introducing new suggestions of the office as home or cafe.
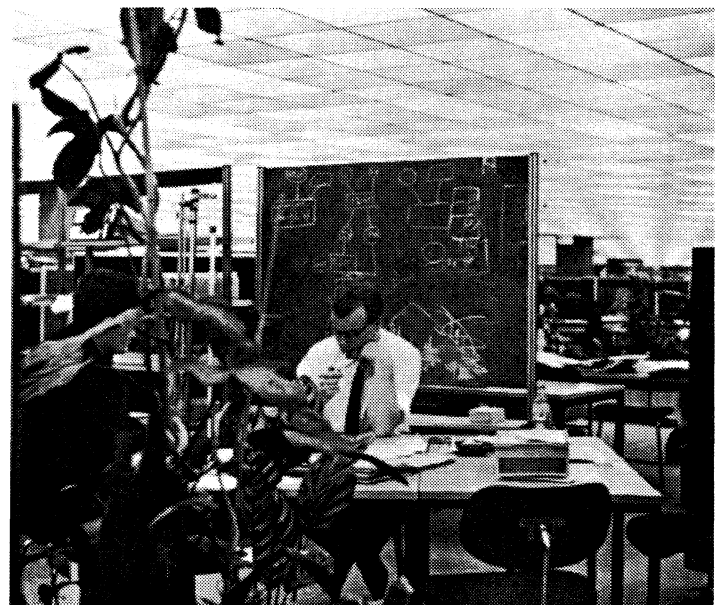
I have found no rigorous history of the indoor plant, though one can find evidence of the plant-in-the-window in almost every period and locale. Those plants would have been relatively local plants whose growing season was extended by being brought indoors. The possibility of the plant in the middle of the room began with the importing of tropical understory plants in the mid-nineteenth century, the palms, ferns, and rubber plants of the Victorian glass house (remember the desperate plant transplanting mission of Captain Bligh and the Bounty). The totally mobile indoor plant was only made possible by the refinement of the fluorescent light in the 1930s and the subsequent increases in interior lighting levels, which are nevertheless still lower than exterior levels by at least an order of magnitude. But although the physical conditions existed in the immediate post-war period, we only see a real increase in the use of plant material in the office after 1970, when office landscaping converged with new concerns about pollution and environmental quality.[17]

Perhaps the most prescient image from that period was Superstudio's "network of energy and information extending to every properly habitable area," a network in which "nomadism becomes the permanent condition: the movements of individuals interact, thereby creating continual currents . . . as with fluids, the movement of one part affects the whole."[18] That extended, distributed network used the natural landscape as the condition of enclosure. Mountains, cactuses, and meadows appear in their different proposals, like so much furniture, and their final image uses a sea of tulips as a backdrop for a human gathering at one of the node points of the network. The plant-in-a-pot carries a whole host of such referents in its mobile form and their deployment came to characterize a host of newly green urban habitats like the fern bar and the atrium, which has a complex history that parallels the plant-in-the-office.

The plant-in-the-office attained an even more powerful role after the tightened ventilation standards of the energy crisis produced the "sick building syndrome" of the 1980s.[19] With the new awareness of indoor air pollution, growing plants were discovered to not only produce oxygen, but to metabolise toxic substances like benzene and formaldehyde. They became tools for environmental management: indicators of environmental quality, like the canary in the coal mine, and a technique for improving it. This made the idea of the office as an ecological niche more technical, and in the spirit of "nothing is independent, everything relates to everything else," the worker immune system became one more element in the business-as-complex-system. Health maintenance was directly linked to productivity and became another object for management. [Fig. 6]

Understanding the plant-in-the-office as a mobile decorative element and a tool for health maintenance, allows us to understand the content of the workplace as more than productive work. In this sense, work and health operate as a kind of conceptual pair, partly opposed, but even as health became a product for management, the idea of work was modified by reference to health. Frederick Kiesler arrived at a similar conclusion in the late 1930s, when he applied complex systems analysis to design, arguing that man coevolves with his natural and technological environments. They each change one another, and even a quantity as rigidly objectified as the "needs" on which functional planning is based can be shown to change over time as well. His most astute observation, and one which certainly puzzled the readers of the Architectural Record, was that health was the final criterion of building design.[20] The extension of the complex systems model to the most intimate activities of the human body and to the most anonymous process of the world marketplace make evident how important such an ambiguous measure can be. While health remains a central concern of doctors, and is now a regulated product of the HMO, our experience of healthiness belongs to a much broader set of social and cultural conditions. As Ivan Illich observed, healthy can be used as an adjective to describe any number of activities, and the aspirations for the plant-in-the-office exemplify that broader sense of the term.[21] In the generic sense, health is an index of comfort, happiness, and relief from suffering and, like aesthetics or leisure, opposes the reduction of the human condition to needs that can be satisfied by work. I have heard two doctors express the same urge, to somehow write prescriptions for their patients that provided a change of life, something more than a vacation and less than a pilgrimage.

UNDER-STORY LIGHT

As a designer, I have spotted another development related to the plant-in-the-office. The first Bürolandschaft schemes eliminated walls and rectilinear arrangements, and introduced the mobile plant, but they were all deployed below the same ceiling of flatly uniform light. That pattern of office illumination had originally been conceived as wholly natural. It had been modeled on skylighting, and the "cool-white" lamps that powered it sought to precisely reproduce the cool color of illumination transmitted by a cloudy sky. But the uniformity of the lighting and its tendency to appear as glaring

reflection in computer screens eventually overrode its appeal as a natural condition. Through the 1980s and 1990s, schemes of indirect lighting with darker ceilings and dappled patterns of distribution became the hallmark of healthier and more comfortable offices. The similarity of that dappled light with the lighting of the forest understory should remind us that the tropical plants that now serve as indicators of the healthy office belonged to the original ecological niche in which human life evolved. Does this new formation-office plant and dappled light-indicate an unconscious attempt to return to those original conditions? It should certainly remind us that, like the factories that preceded them, the new forms of working must still operate with our slower biological bodies. The everyday efforts to establish a healthy workplace offer a stubbornly inventive form of resistance in the new workplace, finding forms of expression, for example, in the preference for offices with plants and dappled light.

NOTES:

[1] Emily Martin, *Flexible Bodies: Tracking Immunity in American Culture-From the Days of Polio to the Age of Aids* (Boston: Beacon Press, 1994), 245.

[2] The cubicle dweller's survival page. http://www.suba.com/~neveu/

[3] Martin, *Flexible Bodies*, 250.

[4] "Grow or die" state of organizations," in Robert Probst, *The office-A facility based on change* (Elmhurst, Illinois, The Business Press, 1968), 13. G. Ainsworth-Land, *Grow or Die: The unifying principle of transformation* (New York: Wiley, 1986).

[5] Robert Wright, *Non-Zero: The logic of human destiny* (New York: Pantheon Books, 2000).

[6] Gilles Deleuze and Félix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia* (Minneapolis: University of Minnesota Press, 1987).

[7] Duffy calls them hives and describes the evolutionary interaction among the types of work and work place. Francis Duffy, *The New Office* (London: Conran Octopus, 1997), 60-7.

[8] Manuel De Landa, *A Thousand Years of Non-Linear History* (New York: Swerve Editions, 1997), 263.

[9] De Landa, *A Thousand Years of Non-Linear History*, 273.

[10] http://www.peanuts.com/comics/dilbert/

[11] Ludwig Mies van der Rohe, "The New Era," in Philip Johnson, *Mies van der Rohe* (New York: The Museum of Modern Art, 1953)

[12] Lewis Mumford, *Technics and Civiliation* (New York: Harcourt, Brace and World, 1934), 371.

[13] A revised version of their 1963 publication. Ottomar Gottschalk, *Flexible Verwaltungsbauten: Panung Funktion Flachen Ausbau Einrichtung Kosten Beispiele* (Quickborn: Verlag Schnelle, 1968).

[14] "From Grid to Growth," *Progressive Architecture* (November, 1969): 100.

[15] Bernard Rudofsky, *Architecture without Architects: A Short Introduction to Non-Pedigreed Architecture* (New York: The Museum of Modern Art, 1965). Robert Venturi, Denise Scott Brown, and Steven Izenour. *Learning from Las Vegas* (Cambridge: The MIT Press, 1972).

[16] Francis Duffy, *The Changing Workplace* (London: Phaidon Press, 1992), 3.

[17] The USDA records the amount imported tropical foliage plants for interior applications. They showed an increase from $27.7 million in 1970 to $313 million in 1980 to $521.4 in 1985. Stuart D. Snyder, *Building Interiors. Plants. and Automation* (Englewood Cliffs, NJ: Prentice Hall, 1990), 7.

[18] Emilio Ambasz, *Italy: The New Domestic Landscape. Achievements and Problems of Italian Design* (New York: Museum of Modern Art, 1972): 240-51.

[19] A summary of "The Indoor Air Quality Dilemma" and "Biological Solutions to Indoor Pollution." In Stuart D.Snyder, *Environmental Interiorscapes: A Designer's Guide to Interior Plantscaping and Automated Irrigation Systems* (New York: Whitney Library of Design, 1995)

[20] Frederick Kiesler, "On Correalism and Biotechnique: A Definition and Test of a New Approach to Building Design," *The Architectural Record* (September, 1939): 60-75.

[21] Ivan Illich, *Medical Nemesis: The Expropriation of Health* (New York: Bantam Books, 1976).