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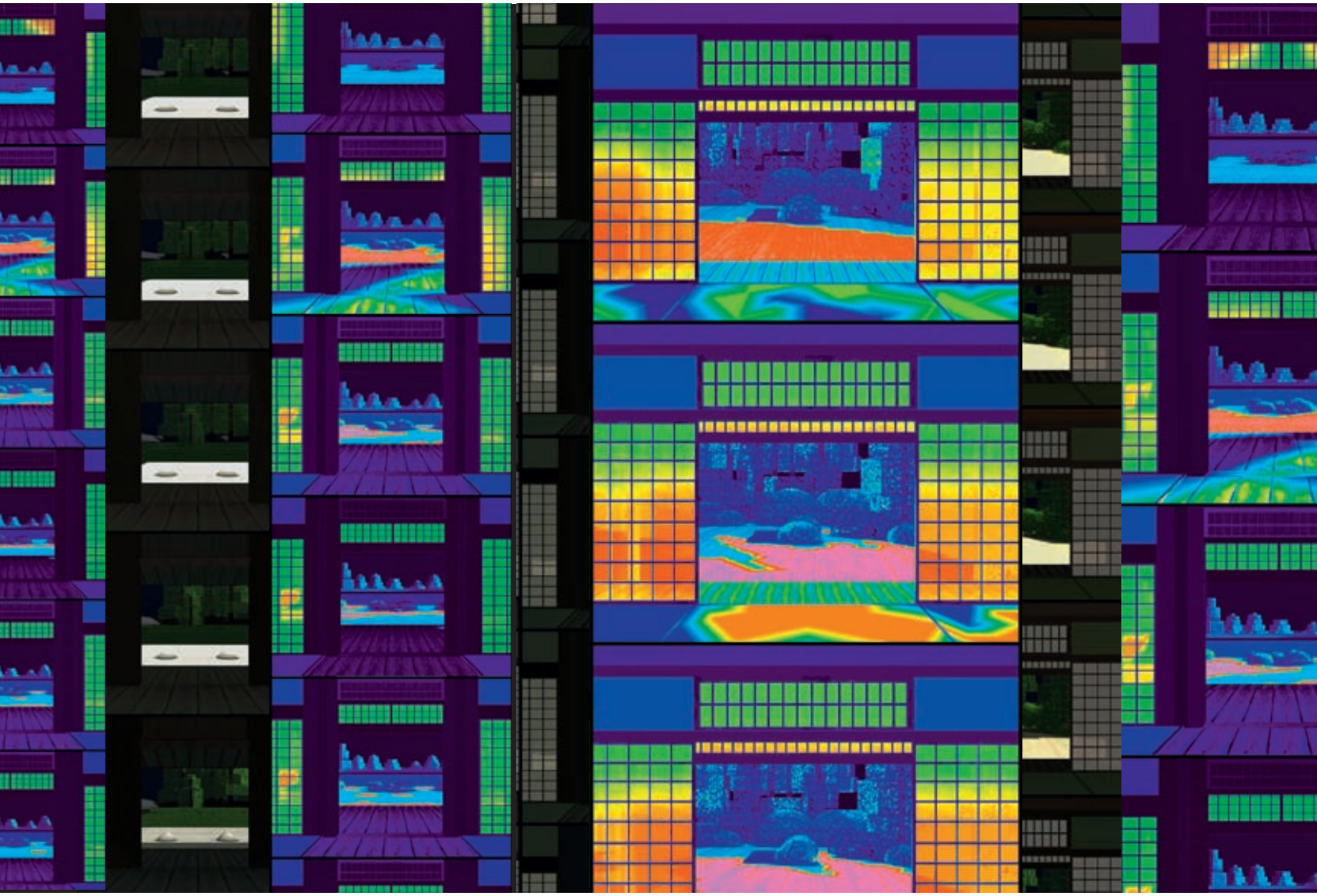

Checkerboard Cascades: forestry and design in the American Northwest

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Abstract

In the American Pacific Northwest, forests came to acquire a distinct status in the cultural imagination. Rather than acting as natural environments or as sites of pure industrial production they became, due to historical and political circumstances, a staging ground for the articulation of ethics, blending the supposed positions of developers and environmentalists into a continuum of material expressions. This practice, termed in the text *denaturalisation*, is the framework through which American forests can be understood as highly designed environments, and as such they provide us with a theoretical lens for understanding landscape, architectural and regional planning operations, in order to reconstruct a narrative of a New World mode of operation in the woods.

Forests / denaturalisation / Pacific Northwest / New Forestry / industrial history

Introduction

In the Old World, forests were always defined through their extraneous position to human civilization; whether harbouring a series of transgressions to the social norm or detached from daily life as royal reserves, sylvan environments acted, by default, as the mirror image of European society. However, once transposed to post-colonial America, forests and their administration acquired a new status in the cultural imagination of a society that pushed its frontier westwards through an unprecedented composition of enchantment with nature and trails of resource extraction. I would argue that the main site of forest experimentation in the United States – the American Pacific Northwest region – can be scrutinised both historically as hosting various examples of a practice that radically diverge from its origins in the Old World, and theoretically as a highly designed environment which collapses the antagonisms of preservationism and development, of ecology and extraction, and of foresters and industrialists.

Once understood as such, American forests become an optic for design operations on a range of scales: from the individual building of an international headquarters compound for a forestry conglomerate by SOM and Sasaki, Walker and Associates, through a federally administered social experiment of integrated timber production and distribution units following the New Deal era to a regional plan on a massive scale based on ecological principles of managing old-growth forests. I would then make the case that the woods of the Northwest not only present us with a unique territory in which organisation and form are acting as the decisive determinants of growth and progress but also expose a social and political model in which the forests – as material compounds and as ethical categories – are conceived of and are operating from within culture.

Spheres of denaturalisation

The modern history of the Northwest was initiated in the instant that the Northern Pacific Railroad Company connected its tracks through the territories. Along with the tracks came the railroad land grants; in a bill enacted by Congress under President Abraham Lincoln in 1862, [1] the Northern Pacific was granted twenty miles square for each mile of track as a means of subsidising its operations through sale and resource extraction. This enactment constituted the single largest land grant in American history, [2] which provisioned land in accordance to the procedures of survey and sale specified in the 1785 Land Ordinance. (Fig. 1) Land was granted thus in alternating square mile sections, leaving federal lands in between, in what became known as the checkerboard pattern. (Fig. 2) This discontinuous pattern of provision was designed as both a speculative move in which the federal government was hoping to sell the land it

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Figure 1 A map from 1878 showing the extent of the railroad land grants in the United States.

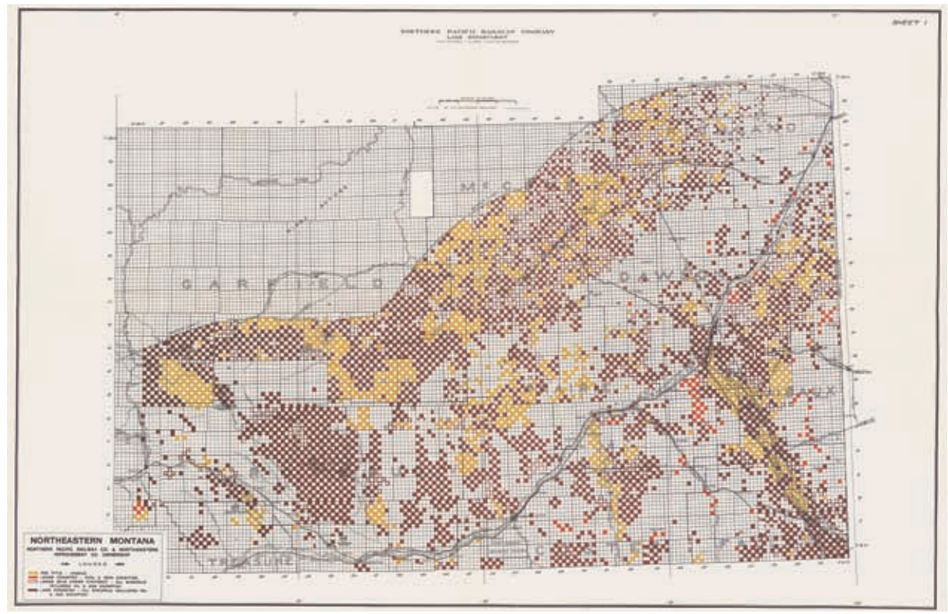

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Figure 2 The alternating sections of provision as seen in a railroad company ownership map.

Figure 3 Clear-cut patterns materialising the structures of the One-Mile Grid on railroad lands in Washington.

USDA FARM SERVICE AGENCY

Figure 4 An aerial view of present-day Montana demonstrates the discontinuous ecological and managerial patterns that are the result of checkerboard provision.

maintained in a higher price prompted by the rail, and a political one, expressing a hesitation to provide private companies with uninterrupted tracts of land in unincorporated territories. Most importantly, the land grant introduced a formal constitution in the territories: a gridded artifice of land distribution and resource extraction habits.

In a setting in which no cities were in place, this artifice assumed the role of an originary act of creation. It is vital here to point out its structural logics and its essential divergence from other practices of urbanisation. If the origin of the modern city is commonly associated with a revolt against nature, that is, with the ethical project of the Enlightenment that raised the question of whether the natural is to be understood as an all-containing system or as a category of human life, then the Pacific Northwest history can be seen as offering an excursion into an alternative trajectory of development. Rather than the naturalisation of the city, it could in fact be described theoretically as a denaturalisation of the environment. [3] Advancing through this process of denaturalisation is still in check with the enterprise of modernity in the sense that it is a project of rational control. Its implications are nevertheless fundamentally different: once the city is stripped of Aristotelian idealisations and denied as the prime geography for politics, habitation is perceived as the by-product of artificial processes. We should understand the radical essence of such a proposition as opposed to the ethos of anti-urban sentiments and fascination with nature that reinforced, through transcendentalist ideas, a received narrative of the American city.

Transcendentalism argued for ethics that originate in the constant, individualist and direct interaction with the natural; Nature was from the outset understood as an ideal condition, informing a reflection of human politics, [4] which were to take place mainly in the context of built environments. This dichotomous condition is a founding definition of the socio-political structures of cities in the United States, as articulated by Lewis Mumford and other narrators to become emblematic for design discourse. [5] However, once this dichotomy collapses its implications are annihilated; in the framework of denaturalisation, pristine moments do not exist as part of the spectrum of human experience. What is left is merely the contaminated instantiations of the natural, distinguished by their level of processing. In this curious condition, human operations become simultaneously more natural and more artificial, which in turn means another kind of political division. Rather than the familiar rift between developmentalists and preservationists, the discourse revolves around the desired levels of denaturalisation. And indeed, realpolitik in the Pacific Northwest region demonstrates the tight affinities between loggers and foresters, which accumulate in a complex and multi-faceted cultural account of nature and habitation.

This account is inextricably bound up with the conceptualisation and administration of forests in the region. The checkerboard pattern of ownership soon materialised as a formal expression of extraction zeal through the clear-cutting method practiced by railroad companies. (Fig. 3) Moreover, through a long and convoluted history of acquisition, exchange and transfer, the land grants of the 19th century formed the base for the holdings of timber companies, which are today the largest private landowners in the country. The striking pattern, as a result of different management strategies on federal and private forests, became the schema of a distinct ecological structure that would be elaborately analysed by Richard T.T. Forman and at the same time be described by some as an ecological emergency on a national scale. For our purposes, it will suffice to highlight these close associations of forestry and form as a leitmotif of an American practice and a relentless driver of development. (Fig. 4) Once the forests are understood essentially as highly designed environments and a category for habitation, certain design experiments can be deciphered beyond their specific historical and material circumstances to construct a lineage of projects that operate under the logics of denaturalisation.

Pilot project

Modern American forestry was largely enunciated and circumscribed through the endeavors of one man, Gifford Pinchot, the first professional forester in the country and the first head of the U.S. Forest Service. Earlier attempts at formalising a regulation for public lands began with the Forest Reserve Act of 1881 that allowed for the removal of land from the public domain and its designation as forest reserve, [6] laying the foundations for centralised mechanisms of regulation, [7] which were consolidated under the Bureau of Forestry and ultimately as the U.S. Forest Service in 1905. These efforts were introjected with a precise ethical content under Pinchot's leadership and his close connections with Theodore Roosevelt and his administration. As a public figure, Pinchot was frequently associated with conservationist and environmentalist convictions, a conception that has been reinforced in recent years, in which his figure has often been used to legitimise a tradition of environmental organisation in the American context. [8] What concerns us here, though, is the earlier phase of his career and the ways in which methods and concepts that were developed back then served to inform the formal impetus of the nascent forest industry. This phase was epitomised in what became the first expression of a New World practice, and in many ways a pilot project for managing forests in America: the Biltmore Estate in North Carolina.

In this context, Pinchot's education at the French Forest School in Nancy and his affiliations with Dietrich Brandis are of major importance. Through this milieu, he was introduced to silviculture, which at that time took the form of an advanced practice of forest management combining scientific methods with economic considerations. [9] Silviculture, in generalised terms, represented the first European attempt at denaturalisation of forest environments, and a definite antecedent to the American experience. Upon his return, Pinchot was ready and able to project this mode of knowledge onto the New World, disregarding his precedents' tendency for mystification. His position under Fredrick Law Olmsted at the Biltmore Estate required the scientific management of four thousand acres of forestlands and work towards its exhibition at the World Columbian Exposition. [10] In this project, Pinchot begins with a formal and structural analysis of the site, identifying the fragmentary appearance that is the result of its subdivisions as well as a practice of local, non-systematic cutting. He then recognizes its different parts, which correspond to landscape features and ground conditions along the river and on the side of the hills. These observations become instrumental in facing the difficult challenge of efficiently managing a forest in which various ages and types of trees co-exist in the same areas. Pinchot's answer to this challenge leads to a striking design project in which the forest is reorganised into 92 op-

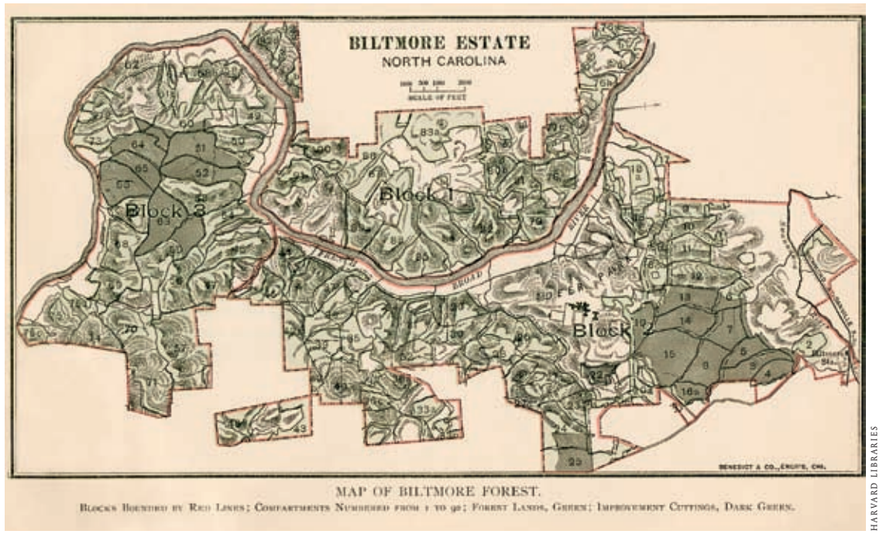

Figure 5 The Biltmore Forest project, presented by Pinchot for the 1893 Columbian Exposition.

erational units and then grouped into three blocks according to the land conditions. (Fig. 5) In this way, not only does the project enable a correlation of improvement cutting with the logics of a pre-existing road system but, more importantly, a new, adapted system of crop rotation is envisioned, applying shorter cycles and techniques of selective cutting in order to provide, through form and organisation, an integrated structure of harvest, hauling and processing, supporting an expanding and profitable forest. [11] With that, New World forestry practice was constituted, and Pinchot notably introduced it to the American public not merely through scientific principles but also through its productive implications and close affinities with formal operations. Later, when forests were considered nationally, these concepts of management would not only enable the argument for sustained-yield forestry but would also determine the nature of actual experiments taking place in the woods of the Pacific Northwest.

Islands of stability

One such experiment, articulating an environment of denaturalisation through an unprecedented intensity of correspondence between federal organisations and private industrialists, was formalised in the 1940s at the Shelton cooperative unit in Washington. The history of earlier attempts at private and public cooperation in the forest industry can be traced back to the land exchange acts of 1922 and 1925, in which the Forest Service was allowed to negotiate exchange of land with private owners within six miles of designated national forests. This legislation sparked a series of deals in which companies, eager to get rid of their depleted land, profited substantially from the federal tendency to aggregate forest areas for better management capacity. After the Depression this indirect cooperation was supplemented by direct agreements in which the Forest Service supplied raw material to private sawmills to generate revenue, first through the work of the Lumber Code Authority that was organised under the National Recovery Administration in 1933 and then with the 1944 Sustained-Yield Act. Under the former, the internal concerns of the industry were met with increased national inclination towards regulation. In the latter, federal enactment established integrated harvest-production-distribution units for private companies.

Once more, these transformative moments were facilitated through the work of an expert forester. David T. Mason, graduating from the Yale Forestry School in 1907, turned to working for federal agencies and soon established, through his scientific, 'capital-efficiency' approach, tight relationships with industry leaders, amongst them the directors of Weyerhaeuser Timber Company. [12] This position launched a successful private consulting business that enabled Mason both to practice some of his theories on real forest sites and also to channel his convictions about the need for self-regulation and analytic management through participation in almost every significant organisational effort in the industry. Mason joined the feverish debates on the Sustained-Yield act with the aim of achieving a higher-level stabilising mechanism for the industry. In his vision, Pinchotian sustained-yield management practice could serve as a scientific blanket term under which contingencies between regulator and regulated could be smoothed while sustaining desirable levels of harvesting. This enhanced framework was unmistakably geography-specific, as the act emphasised the long-term presence of industrial elements and the integration of real communities in given localities, under the recognition that Western forestlands had been physically disintegrated – and were therefore less stable – by their history of ownership patterns. Notably, this interpretation of sustained-yield contrasted with the one promoted by foresters' organisations, in which the forest's continuous productive capacity rather than its potential profitability was the decisive factor. While the two positions were not mutually exclusive in practice, [13] we should understand the Sustained-Yield Act as an industry-oriented enterprise, drafted and enacted with little help from conservationists and forest agencies.

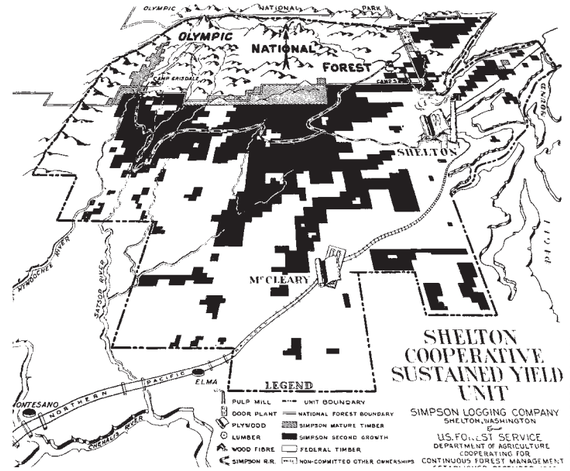

Figure 6 The Shelton Unit scheme exposes the interdependency of infrastructure, federal lands and manufacturing facilities within the integrated interior of the project.

Under its authority two kinds of partnerships, named at this point 'Units', were envisioned. Cooperative Units, which were to join federal and private ownerships and management in order to produce 'catchment areas', were large enough to permit continual, cyclic harvesting of timber. Federal Units sought to achieve the same end by operating solely on federal lands and reserving raw materials exclusively for local operators. Both avowed a social agenda of community stability, anchored notably through the sanctioning of monopolistic market conditions.

These Units, in theoretical terms, were the most advanced attempt to fuse the positions of industry and forestry into a systematic plan. With the design of these new organs, not only were their own regulatory structures articulated but a far-reaching enterprise of social engineering was also imagined; a new interiority, in which growth and management concurred to provide planned islands in a sea of economical and social uncertainties. At this point, denaturalisation is transformed from being a discursive term into a unitary signifier of developmental ideology. In other words, whereas federal agencies saw in these hypotheses a chance for increased regulation, industry in fact structured them to proclaim "L'État, c'est moi", substituting political form with content, and contingency with indifference.

In practice, one Cooperative Unit and five Federal ones were established under the act. [14] The Cooperative Unit in Shelton, Washington and the Federal Unit in Lakeview, Oregon were the only ones to survive long-term; [15] the former represents the more radical experimentation on the ground, and a stark demonstration of the units' conceptual deficiencies. Established officially in 1946, the Shelton Sustained-Yield Unit was immediately at the centre of a bitter controversy. The agreement between the Simpson Logging Company and the Forest Service allocated an area of 270,000 acres for the Unit, comprised of the company's lands and parts of the Olympic National Forest, in order to form a supply base for which the company would have access through its prioritisation in buying the timber from the federal areas. The production goals were set at around a hundred million board feet per year in the first decade, to be reduced later in accordance with 'allowable sustained yield'. The agreement was presented to the public in idealistic terms as an unprecedented attempt to create a working circle of land, labor and community, stabilised for a hundred years of public welfare. [16] Spatially, the Unit lucidly expressed this artificial interior, integrating production facilities with road infrastructure, loggers' camps with federal forests and social development with industrial extraction endeavors. (Figs. 6, 7) For optimistic Forest Service officials, administration was redefined at this moment of application through the ethical agency of "master loggers [...] becoming community builders". [17] The industrialist at this point is rhetorically enshrined through the ethics of land to become a natural leader of a new form of political community – an island of socialised capitalism in which Pinchot's equation is in fact inverted and "the inhabitants of a town" are now managed as a "community of trees". [18] The failure of this striking model should be attributed specifically to the manner in which it delimited its uncharted environment; it was largely those who were kept out of the plan – small operators, surrounding communities, competing corporations – who adamantly opposed its assumptions and ultimately sabotaged its further implementation. [19]

Figure 7 Two photographs of the Shelton Forest, taken in 1933 and 1954, used by the Unit's proponents to demonstrate its improved condition as a result of a long-term, stabilising land management.

Total landscape

This real political environment was complemented with the 'environmental move' in the American discourse on nature. Influenced by earlier debates on the role of the wilderness in American life, promoted within the Forest Service by Aldo Leopold and Robert Marshall as a challenge to the focus on resource management, and by the work of landscape architects such as Ian McHarg or Phillip Lewis, who redefined disciplinary boundaries by introducing visual analysis, ecology and social values to the design process, the environment was brought to the fore as the defining concept of the time. Seen in light of the dynamics of denaturalisation discussed here, this shift can be regarded through its politicising re-imagining of forests rather than as a radical turning point in their management. At this moment, forests were discussed as permeable environments, and their structures were defined through species correspondence and reasoned in terms of biological legacies to coalesce into a system that diffuses modern sustained-yield techniques with its subjects and envisions a transformation of the subjects themselves. Trees are no longer what Pinchot imagined them to be – the basic units of forestry – and neither can the forest be conceived of as a single community, an interior that can be controlled or directed. As a result, the administration of forests acquires a simultaneously detached and participatory position – an ever provisional expression of environmental risk management. [20]

This idea of the environment was evidently related to a contemporary milieu of political theories that challenged modern concepts of community, association and control. This theoretical landscape stretched between conceptions of the transfiguration of state into control apparata which infiltrate all structures of society to the hypotheses in which the human body itself is either broken down into pure substance or dissolved into its surroundings; in other words, it is between the ephemeralised forms of sovereignty and the disembodiment of the political subject that the environment was articulated, to be systemised and perpetuated by practice, and momentarily captured by design.

To blend interiority with exteriority by assimilating formal mechanisms of subjection into a new landscape – this was the epochal task taken on and materialised in the Weyerhaeuser Co. headquarters compound outside Tacoma, Washington. Designed by SOM with Sasaki, Walker and Associates and completed in 1971, the project was significantly transposed by executive order of president George H. Weyerhaeuser from the authorship of Gordon Bunshaft in the New York office to the management of Edward C. Bassett of the San Francisco branch as a Western architect was deemed "more compatible" with the task. [21] Being one of the earlier independent company headquarters projects in America to adopt the Bürolandschaft (office landscape) system for its interior, as well as representing an advanced attempt at the complete integration of a building with its surrounding, it should be read as a lucid paradigmatic expression of redefined corporate environments and of forest management logics, fused through a revised ontology of landscape design. Accordingly, the project was narrated as a "building that makes its own landscape", a dam, or a horizontal skyscraper. These depictions, whether impressional or metaphorical, expose the inherent difficulty of describing the project through its contemporary design terms. What is made clear however, is its intentional ambiguity, which blends the physical and the managerial to the point of absolute identification. This ambiguity, pursued through the simultaneous, relentless redesigning of internal and external landscapes, is in fact itself the apparatus of the forest industry at that moment, crystallising the ideologies of its operations in intricate configurations. As such, it deserves our close attention.

The project, organised in five deep office floorplates, supports its ambivalent apprehension as a building-turned-landscape: recessed strips of windows amplify the extreme horizontality of its layout; the receding slabs, in turn terraced and vegetated, neutralise its massive impact, and its location on the valley floor above a natural reflecting pool consciously acts to diffuse and naturalise its presence. The siting, specifically, is not only a refined expression of the interdependency between environment and architecture in the project but also exposes a sublimation of forestry techniques and their application through design terms. [22] Unlike a building in a garden, the project is implanted within a selective forest clearing that leaves, according to Pete Walker, a "naturalistic edge to the site"; figure and ground are hence reversed at the outset, only to have their tracks covered over time by the careful orchestration of foliage. [23] This radical proposition is further developed, from the inside, through a deliberate collapsing of surrounding views, planted vegetation and works of art, which amalgamate to enhance a striking effect of seamless continuity, and ultimately by the Bürolandschaft system itself. The Office Landscape system, originating in Germany, was first introduced in an American design publication in 1964 [24] and was soon after experimented with in individual floor plans in different parts of the country. While considered to be a European innovation, the system was in fact based on earlier American conceptions of increased communication and productivity, wrapped in the terminology of system analysis and cybernetics and presented as a smooth, designed environment. The fundamental difference between the office organisations produced in Germany, Sweden or the Netherlands and their American counterparts is to be found in their political assumptions; while the European instances implicitly proclaimed a social-democratic agenda of decentralisation and cooperation, American corporate structures soon internalised and appropriated the system for their own needs of increased efficiency and control, resulting in its subversive subsumption.

The Weyerhaeuser project elucidates this process and its implications clearly when compared with an immediate predecessor, the 1964 John Deere Headquarters in Moline, Illinois designed by Eero Saarinen and Hideo Sasaki. [25] This project was cited by Reinhold Martin as an exemplar of an environment in which communication flows bind humans and machines under the same imperatives only to result in curious disintegrative moments of design; the entropy nested within organisation itself. [26] Advanced as that project was in articulating an organicist setting for managerial coercion, it still lacked flexibility and integration when seen against the Weyerhaeuser undertaking; these differences are evident in both its landscape and its interior. The divergence of site design lays in the aforementioned strategy of diffused cultivation; while the Deere building recreates its own landscape, it nevertheless adheres to the modern paradigm of their inherent antagonisms, which in Weyerhaeuser is transcended and transformed. (Figs. 8, 9) In Weyerhaeuser, the environment as such – from the microscopic to the visual, the intimate to the social – becomes the medium for the exercise of power. Like any political machine, administering such a complex system required an elaborate procedural structure. Whether through the incessant relocation of workstations by the in-house space planner, [27] the innovative use of 'white sound' or the infiltration of top executives into open office arrangements, the design of interiors in the Weyerhaeuser headquarters projected, first and foremost, a politicised landscape.

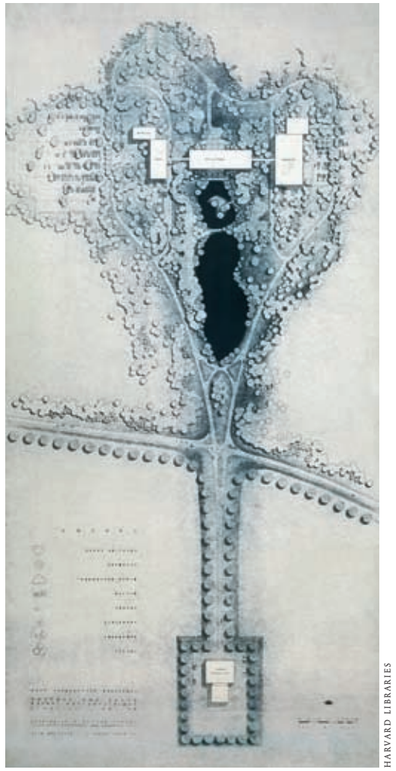

Figure 8 A plan of Sasaki's John Deere headquarters project expresses the clear dichotomy between building and landscape, acting as figure and ground.

Figure 9 The landscape plan of the Weyerhaeuser Co. compound reveals Sasaki and Walker's strategy: a "clearing in a forest".

And thus we venture beyond the historical and conceptual boundaries of Martin's theoretisation. Whereas his reasoning of the 'network of networks' and its architectural register – the curtain wall – can be applied in the John Deere building, it is short-circuited in the doctrinal shift from building to landscape and, I would argue, from East to West. It is within this setting that design is repositioned and pulled off the universal grid to be restructured as the agent of ideology.

In the continuum that stretches from the glazing to the water bodies, and from the custom-made tapestries to the trees outside, design itself is anything but immaterialised (Figs. 10, 11a, 11b). The Weyerhaeuser project is not only an instantiation of a Western corporate power in a transformative historical point but also stands for a short-lived promise of a reciprocal relationship between the architectural and the political, in which their entanglements produce and reproduce total environments of denaturalisation.

New forestry

The careful design of contained environments was echoed by Weyerhaeuser's operations in the woods. The 1960s signaled a transformation for the company that was to spread throughout the industry: from the forest to the environment, and from the tree to the land. The harvesting of the first sustained-yield forests at the beginning of the decade was a first indicator of a new corporate consciousness, focused on the advanced management of land as its main endeavor. This was closely followed by a series of operations and reorganisations starting with agreements in Canada and cumulating in the single largest land acquisition in company history in the Southern states. [28] As the headquarters were built, Weyerhaeuser moved to form its own real estate company [29] and was soon to be involved in the novel business of genetic engineering. The environment, crystallised for a brief moment in corporate landscapes, was processed and projected onto an expanded spectrum of industrial practice.

Within the spheres of denaturalisation, the actions of industry are constantly entangled with the ethical positions of professional forestry. These ethics, largely demarcating the discourse in our present moment, were lucidly articulated in what can be described as forestry's most significant theoretical and technical effort since the cooperative units: the set of practices known as New Forestry, which outlined the intuitions of the subsequent Northwest Forest Plan and of the massive industrial di-

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Figure 10 The siting of the project, as well as its extreme horizontality, resist an easy disciplinary categorisation, which led to its reading as "a building that makes its own landscape".

ESTO, EZRA STOLLER

Figure 11 a,b In its interior design, its glazing and artworks, the project further supports the impression of a seamless continuity with the outside forests.

vestiture that would follow; in a disciplinary attempt to reconstruct its own interior, forestry's applied research informed its abstract principles to integrate ecological perspectives, scientific knowledge and long-term landscape planning into a focus on the maintenance of complex eco-systems rather than merely the regeneration of trees. [30] Founded around the work of Jerry Franklin, a University of Washington professor of ecosystem analysis and chief plant ecologist for the U.S. Forest Service, New Forestry grew out of a series of field research initiatives conducted by an integrated group of scientists and land managers at the H.J. Andrews Experimental Forest in Oregon, operated by the Forest Service.

Franklin and his teams began looking into the affinities between tree cutting and floods, and soon moved on to systematise their efforts by studying the dynamics of water, energy and nutrients, which led in turn to a growing concentration on the uncharted role of large organic debris as a structural element in the long-term survival and productivity of the forest. These inquiries were developed into a full-scale theoretical effort that resulted in new conceptions and management techniques for old-growth forests. [31]

The theorisation of ecological processes that began in the scientific outposts of the West reached its apogee during Franklin's year-long fellowship at the Harvard Forest site. This period cumulated in a pivotal text written in collaboration with landscape ecologist Richard Forman, which supplied the academic basis for what would become New Forestry as well as for further attempts at integrative ecological planning of federal lands in the Northwest. [32] This text should be read first and foremost as a pioneering attempt to anchor ecology – as a mode of knowledge – in the physical form of forests. (Fig. 12) As the authors acknowledge from the outset, this form in the Northwest is constantly destabilised and reiterated by "an onslaught of changes [that] has resulted from forest cutting". The task of associating spatial patterns with human actions on the one hand, and with natural processes on the other, becomes therefore an even more intricate one; to that end, the theory of landscape patterns developed by Forman through his work on tropical and East Coast forest structures coalesced with Franklin's experimental methods and regional perspective to present a systemic model, built around the habitudes of practice. The checkerboard cutting pattern, particularly important for its frequent use, is then appropriated to act as a definitive operative schema for forests and their management. In this framework, significantly moving beyond the notion of visual analysis, introducing a change in the landscape becomes the means of interacting with ecological processes. Deliberate acts of landscape design therefore constitute the ultimate medium through which patterns are informed and environments articulated. [33]

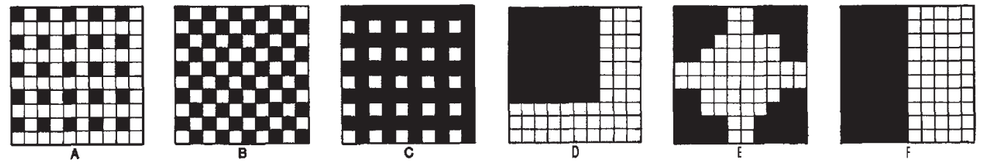

Figure 12 Forest patterns used by Franklin and Forman to associate formal procedures with ecological effects.

This insistence on formal structures and the relentless introduction of stabilising elements came together in the presentation of the Northwest Forest Plan. Envisioned to administer an area of ten million hectares, the plan that was adopted in 1994 was grounded on the experiments and scientific assessments authored by Franklin in collaborations with Jack Ward Thomas of the Forest Service, John Gordon at the Yale School of Forestry and K. Norman Johnson from Oregon State University. The series of inquiries from the group, who became known as the 'Gang of Four', framed the premises of the plan in proper biotical terms, through ecological notions and from a managerial standpoint. (Figs. 13, 14)

These were first worked out through the deliberations of an interagency scientific committee, headed by Thomas, which was set to focus on the endangered Northern Spotted Owl and develop a study for the conservation of its forest habitat. This committee, strictly scientific in its orientation, developed a formal network scheme for old-growth forests in the region based on the patterns and habits of the specimen. The committee's conclusions were expanded by the Gang of Four in their report to Congress, intended to supply congressmen with an organic view of old-growth environments as habitats of numerous species and propose an ecological and, it was hoped, a permanent solution to the problem of properly defining an environmental plan. The report attempted to formalise such a plan through the provision of a modular structure of choice for decision-makers, enumerating risk levels, economic outcomes, and management strategies. However, as the model's simulations were run, the report came to undermine the prospects of its sponsors: the authors had to admit the irreconcilability of sustaining existing levels of yield with the protection of old-growth ecosystems. Congress, sending off the experts of ecology to do its work, was faced with a choice as their report backfired. Unable to translate this dilemma into political action, the matter was suspended and left for the next presidential term.

The Clinton administration was thus faced with a difficult federal-industrial gridlock in the Pacific Northwest; the president and his officials, set to repudiate the 'false choice' between economy and the environment, were nevertheless determined to devise a plan that could transcend the regional impasse. For that end, science itself had to be reformed and saturated with the language of political thinking. Formally speaking, this was done by appointing a Forest Ecosystem Management Assessment Team (FEMAT), whose work was to serve as the base of a comprehensive federal plan. The president, perhaps in a typical pursuit of a third way solution, entrusted this team with the design of the habitat of single species while concurrently securing conditions for the support of all known associated populations. That instruction was the underlying current that informed the paradoxical position assumed by the plan – making the case for biodiversity while structuring its spatial patterns based on the perquisites of a single specimen. It is not within our main focus here to evaluate technical aspects of the Northwest Forest Plan in strictly scientific terms; it is enough to note that the spotted owl population, evidently a central indicator of the plan's success, declined in the years following its implementation, to rise again later, in little correlation with the projections. Neither shall we dwell on the structural inadequacies that accompanied the plan's presentation, which largely impeded its realisation, especially in terms of experimental forestry research goals and expected yields. [34] What is important is to realise that the ideas expressed in the plan crystallised the ethics of the forestry profession as it envisioned denaturalisation at that historical moment vis-à-vis industry, politics and society. Franklin's 'sharing the sandbox' ideas led naturally to institutionalised forms of forest administration, differing from previous stabilisation efforts not only in their scale or complexity but in their challenging of the mere possibility of independent spheres of knowledge.

Unplanned divestiture

As seen before, in the dynamics of the region the workings of one side frequently animate the system and prompt a reaction from opposing interests. The forest plan, with its unprecedented claims for orchestrated regionalism and meticulous provision of checks and balances, evidently engendered the response of the industry, whose aftermath was to become clearly apparent. As environmentalists encroached, private capital initiated a process of massive reorganisation. This project differed from previous industrial shifts in its specificity and manifestation in spatial and political terms. In other words, industry can be understood as absorbing and reusing the environmentalist notion of denaturalisation in the forests. Due to reduced yields from federal land, the industry rapidly shut down manufacturing operations and divested itself of lands throughout the region. This divestiture was presented on the surface as an inevitable response to the actions of the administration, but in fact signaled an acute transformation of ethics. As the companies became gradually more finance-oriented they came to see land, rather than forest, as their principal asset. For that end, manufacturing was considered to be an immobile burden and the political climate of the Pacific Northwest unfavorable. Industrialists thus turned to other territories – other forests to operate in. Along with that shift the industrial product itself was immaterialised and reduced to a secondary status. The spatial nature of new industrial development was therefore paradoxically accompanied by a devaluation of the specificity of operation; plantations, production facilities, or subdivisions

became the different expressions of the same totalising structures. In 1999 Plum Creek, beneficiary of the historical railroad land grants and the largest private landowner in the United States, registered itself under a Real Estate Trust status for tax purposes. A few years later, it had already sold most of its lands in the region for the sake of expansive acquisitions in low visibility regions in the South, where the political culture is unlikely to allow for large-scale planning initiatives to emerge. The Northwest Forest plan, with all of its shortcomings, was able to achieve at least one concrete result: it pushed the ethics of those who live on and off the forests to the next conceptual phase, the one which we still are struggling to apprehend at the present time.

Back in the East

The disciplinary organisation of the last decade, collectively termed 'Landscape Urbanism', which was developed in academic circles only to gain momentum more recently in the works of practitioners, is frequently presented as a North American approach with global implications. This narrative for landscape architecture seeks to legitimise its contemporary engagements by drawing connections between the regional concepts of Patrick Geddes, the performative aspects of the works of Frederick Law Olmsted, the ecological convictions of Ian McHarg and the process-driven methodology of James Corner. Within the boundaries of this argument, development and preservation are always polarised to represent opposing positions. Ecology, as a result, is understood either as a metaphor for the city or for design itself. James Corner writes: "[…] ecology, creativity, and landscape architecture must be [understood as] metaphorical and ideological representations […]. What is significant […] is how ecology and landscape architectural design might invent alternative forms of relationship between people, place, and cosmos" [35], and with that, form as the ultimate medium for design is denied and substituted with the management of flows, circulation and processes.

Landscape Urbanism therefore relies heavily on a regional basis – the environments of the eastern United States in which the 'threat' of urbanisation is a main engagement. This fact betrays its self-definition as representative of the American condition. The case of the checkerboard forests and the advance through denaturalisation in the Pacific Northwest present not only different dynamics of nature and artifice or direct correlations between design operations and ecological systems but also a parallel trajectory for positioning landscape architecture in America today.

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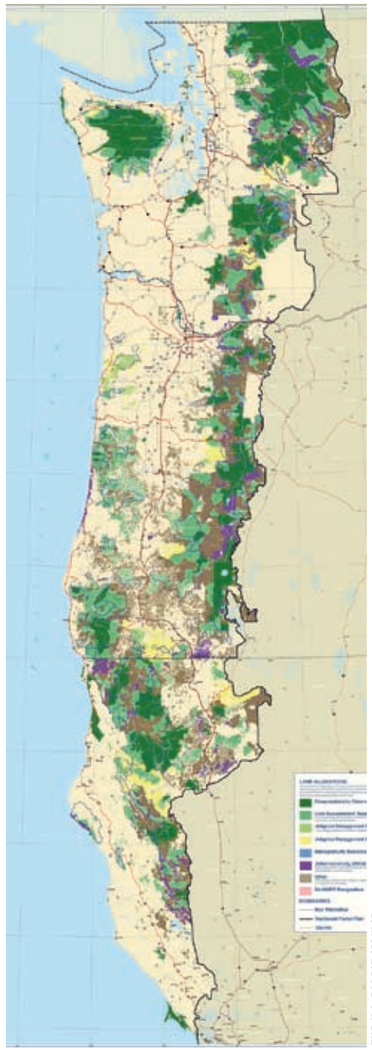

Figure 13 The Northwest Forest Plan, adopted in 1994, represents the United States' largest experiment in ecologically based regional planning.

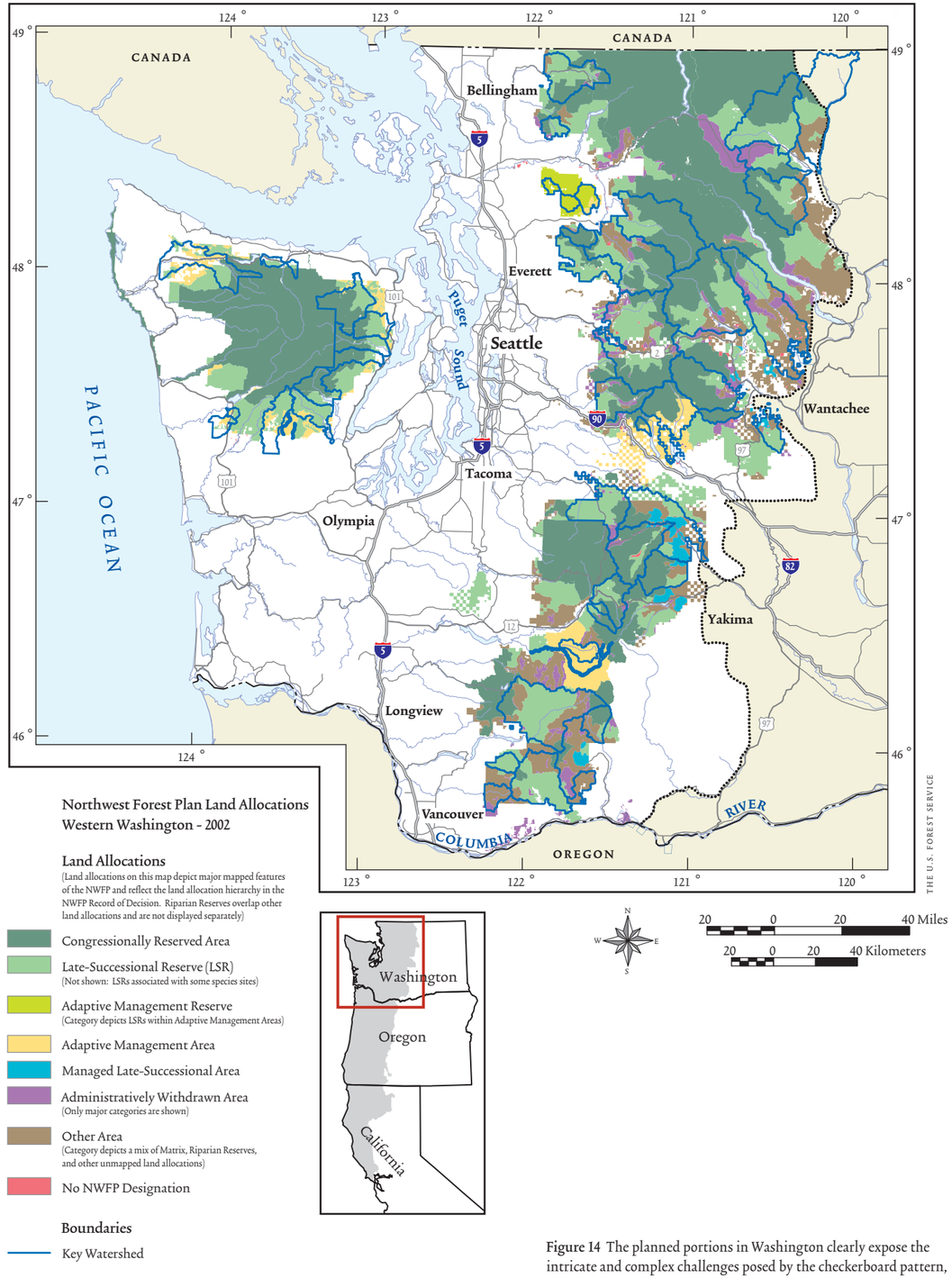

Figure 14 The planned portions in Washington clearly expose the intricate and complex challenges posed by the checkerboard pattern, put in place more than a century before.

Notes

1 Officially entitled "An act to aid in the construction of a railroad and telegraph line from the Missouri river to the Pacific Ocean, and to secure to the government the use of the same for postal, military, and other purposes".

2 More than 175 million acres were given to railroad companies under this and subsequent acts, which represented more than 10 percent of the total area of the United States.

3 Agamben and Arendt used denaturalisation as a political term in order to describe the deprivation of man's rights, usually as an expression of the will of a sovereign. Here, it is used differently: not relating to the human body but rather to its environment.

4 Whitman, for one instance, argued for such ethics by claiming that "as the greatest lessons of Nature through the universe are perhaps the lessons of variety and freedom, the same present the greatest lessons also in New World politics and progress". See Whitman, *Democratic Vistas*.

5 I refer here mainly to Mumford's reading of the public sphere as the place in which separate subjects come together to take part in a shared display of the civic. Sarah Whiting and her rereading of Habermasian definitions took this line of argument further by analysing American cases.

6 In the Harrison, Cleveland and McKinley administrations, 45 million acres were designated under the Act.

7 The actual purpose of the reserved lands was not specified until the Organic Act of 1897, which defined this purpose as to "...improve and protect the forest within the reservation, or for securing favorable conditions of water flows, and to furnish a continuous supply of timber for the use and necessities of citizens of the United States". It is noteworthy that 'supply' is mentioned as the key factor for environmental action.

8 See for instance Smith (editor), *Thinking through the Environment: A Reader*, or Miller, *Gifford Pinchot and the Making of Modern Environmentalism*.

9 Silviculture was developed throughout the 18th and 19th centuries, mostly in Germany and France, as an independent scientific branch. Early systematised attempts to discuss forests in empirical terms can be seen in Heyer's theoretical *Das Verhalten der Waldbäume gegen Licht und Schatten* (The Behavior of Forest Trees in Relationship to Light and Shadow) of 1852, and in the practice developed by the British colonial experimentation in India led by Brandis.

10 See Pinchot, *Biltmore Forest, the property of Mr. George W. Vanderbilt; an account of its treatment, and the results of the first year's work*. It should be mentioned at this point that earlier American writers emphasised, in a less scientific manner, the need for forest policies. Most notable of these is George Perkins Marsh's Man and Nature, which devised an argument that associated deforestation and cultural degradation.

11 The cycles were dramatically shortened to 25 years, as opposed to the usual 150 years, in order to resolve the problem of diversity in tree ages. The growth factor was internalised through the clearing of degenerated areas and their allocation for planting purposes, supplied by an impressive nursery, initiated by Olmsted.

12 On Mason's decades-long correspondence and work with Weyerhaeuser, the timber giant, see Richardson, *David T. Mason, Forestry Advocate: His Role in the Application of Sustained Yield Management to Private and Public Forest Lands*, Ch. 1-3.

13 See Clary, What Price Sustained Yield?: The Forest Service, Community Stability, and Timber Monopoly under the 1944 Sustained-Yield Act, *Journal of Forest History*, 31(1), p. 4.

14 These are the Shelton Cooperative unit and the Vallecitos, New Mexico (Carson National Forest); Grays Harbor, Washington (Olympic National Forest); Flagstaff, Arizona (Coconino National Forest); Lakeview, Oregon (Fremont National Forest) and Big Valley California (Modoc National Forest) Federal Units.

15 Most Units were in disarray already in their first years, to be gradually closed down or eliminated. The Shelton Unit finally closed down in 2003. The Lakeview Unit is still in operation, after numerous processes of change and adaptation, and can no longer be defined, essentially, as the same unit.

16 "We will search far, and the world over, to find a more carefully drawn or more comprehensive plan of forest conservation; or one more specifically geared to the public welfare", in Greeley, Trees and Jobs for 100 Years, *American Forests*, 53(2), pp. 56-60, 88-89.

17 Ibid, p. 57.

18 Clary points out the problematic nature of this assumption: "It remained to be seen whether technicians trained to manage timber and grass could manage people adeptly... It also remained to be seen whether a Federal sustained-yield Unit would be an effective tool of people management" in Clary, What Price Sustained Yield?: The Forest Service, Community Stability, and Timber Monopoly under the 1944 Sustained-Yield Act, *Journal of Forest History*, 31(1), p. 10.

19 What Price Sustained Yield?: On the failure to establish other Cooperative Units in Libby, Montana and Quincy, California, see The Forest Service, Community Stability, and Timber Monopoly under the 1944 Sustained-Yield Act, *Journal of Forest History*, 31(1), , p. 9.

20 The affinities between environmental legislation and what Ulrich Beck termed the "regime of risk" were succinctly discussed in Martin, Environment, c.1973, *Grey Room*, 2004 (Winter, n.14), pp.78-101.

21 In Dean, Evaluation of an Open Space Landscape: Weyerhaeuser Co., *AIA Journal* 66(8), p. 40.

22 This reading of the project is contrasted with its understanding as merely a corporate landscape. See for instance: Milligan, Corporate Ecologies in *JoLA*, Spring 2010, pp. 6-23.

23 Not surprisingly, Pete Walker referred to its site design as "forest management... more than landscape design." See Montgomery, A Building that Makes Its Own Landscape, *Architectural Forum* 136(2), p. 20.

24 The Hamburg-based Schnelle brothers, who developed Bürolandschaft as part of their work with management consultants at the end of the 1950s, popularised it throughout Germany, where is was seen in designs for the BP prototype in Hamburg, or The Osram Offices in Munich (1963). These experiments integrated the newly introduced technology (within European contexts) of air-conditioning to create deep floors of differentiated working environments. For its first introduction to an American audience, see Office Landscape: Interior Design Data, *Progressive Architecture* 45, pp. 201-203.

25 The fact that the two landscape designs involved Hideo Sasaki exposes an interesting shift in his firm's composition and approach.

26 In Martin, *The Organizational Complex*, pp. 213-231.

27 Curiously, this technique of constant reorganisation, relocating a third of the employees every year, was conceived of as the most efficient response to changes in company structure. While the in-house planner estimated the adaptation period to be ten to fourteen days after a major change, the company's manager of corporate services calculated the costs of the changes to be substantially lower than in parallel systems of cubicle space. See Dean, Evaluation of an Open Space Landscape: Weyerhaeuser Co., *AIA Journal* 66(8), p. 44.

28 The acquisition of Dierks Forests in Arkansas and Oklahoma added 1.8 million acres to the company's holding. This transaction was two times larger than the original purchase that formed Weyerhaeuser in 1900.

29 The Weyerhaeuser Real Estate Company (WRECO) began operations in 1969, focusing on single family and community planning and design, to become one of the largest real-estate companies in the United States.

30 See Franklin, Towards a New Forestry, *American Forests* 95(11-12), pp. 37 - 44.

31 Once older forests were understood as important sources of biodiversity, management techniques that retain trees in diverse ages were developed. Later, the Forest Service went on to specify requirements for size and density of old-growth forests as an integral part of its planning efforts.

32 This text significantly combines elements of ecosystem theory, geographic spatial theory and economic observations to provide an analysis that focuses "on the ecological structure, functioning and change of a landscape". See Franklin and Forman, Creating Landscape Patterns by Forest Cutting: Ecological Consequences and Principles, *Landscape Ecology* 1(1), p. 6.

33 It is essential at this point to highlight the continuous involvement of landscape architects with the Forest Service, especially around the concept of visual resource management, which sought to identify and orchestrate landscapes of special aesthetic and social values through selective cutting and other forestry techniques. These included Berkley professor R. Burton Litton Jr. and his decades of involvement with the Pacific Southwest Research Station that resulted in several key research papers. Nevertheless, the direct association of formal operation and ecological effect infiltrated landscape architecture through the works of non-designers – scientists such as Forman and Franklin.

34 For a critical evaluation of the plan's shortcomings see Thomas, *Sustainability of the Northwest Forest Plan –Dynamic vs. Static Management*, a paper presented at the Forest Service Pacific Southwest Region Review of the Northwest Forest Plan Implementation, June 2003.

35 Corner's reading framed in many ways the premises of Landscape Urbanism. See Corner, Ecology and Landscape as Agents of Creativity, in Thompson and Steiner (eds.), *Ecological Design and Planning*.

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