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RESEARCH ARTICLE

Géographie Volontaire and the Territorial Logic of Architecture

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This article explores the architectural and intellectual history of *géographie volontaire*, a series of experiments in inserting design volition into the study of territory. From the 1940s until the 1970s, an important group of geographers, engineers, state administrators, urban planners, and architects in France used the novel term *géographie volontaire*, or 'volitional geography,' to convey their ambitions for a comprehensive organization of space, from the modernization of housing and industry to the shaping of the national territory at large. It was therefore less a subdiscipline of geography than a particular logic for intervention, originating in wartime national planning and carried by the ambitions of postwar reconstruction and development. Focusing on the relationship between knowledge and design, the article reveals how *géographie volontaire* circulated in the institutions of government and the hallways of academia and how it shaped state-led architecture and planning projects. Corresponding to postwar revisions of international modernism, *géographie volontaire* extended the conventional scales of architecture and urbanism to the territorial. Yet more than just a change in scale, it implied both a particular political economy and a particular organization of knowledge. Shaped by the intersection of architectural and geographical knowledge, territory became a central logic for the state-led management of postwar capitalism.

Keywords: *géographie volontaire*; territory; postwar modernism; geography; regional planning; France

Introduction

'Volitional geography [*géographie volontaire*] is to be understood as a reflection, oriented toward action, on the efforts which mankind undertakes deliberately and collectively in order to modify the spatial conditions of a community's existence' (Labasse 1966: 16). With these words from his 1966 book *L'Organisation de l'espace: Eléments de géographie volontaire*, Jean Labasse defined a type of expertise that had rapidly gained currency in government institutions, universities, and the design professions in postwar France. His study took stock of the relevance of that expertise to domains as diverse as housing, agriculture, transportation, water management, urbanization, and national economic development. According to Labasse, *géographie volontaire* was a scientific approach born out of the growing realization, from the 1930s onward, that the 'geography of laissez-faire capitalism had failed' (Labasse 1966: 15). But that did not mean it was in any way anticapitalist. The ultimate goal of *géographie volontaire* was to organize private enterprise geographically, through what Labasse described as the 'controlled evolution of landscapes' (Labasse 1966: 13). Even though he insisted such practice did not belong to any particular political ideology, Labasse had to admit that it would be possible only in countries where government intervention in economic and social life was generally accepted. Perhaps surprisingly, a major precedent for his *géographie volontaire* was the Tennessee Valley Authority. Set up as part of the American New Deal in 1933, this federal organization had overseen the development of an expansive river valley region particularly affected by the Great Depression. Its work, spanning an area that covered much of Tennessee and portions of six other American states, included flood control, hydroelectric power generation, fertilizer manufacturing, and various economic and social programs. With large parts of Europe in rubble at the end of the Second World War, such a comprehensive approach seemed uniquely suited to the formidable task of national reconstruction and development. Labasse was therefore eager to subsume, within his overarching geographical program, the state-led construction of public infrastructure, mass housing, and New Towns that had changed the face of France in the two decades preceding publication of Labasse's book in the mid-1960s.

Yet geographers like Labasse were not the only ones to proclaim such a comprehensive agenda for postwar development. Even if they did not use the term *géographie volontaire*, architects and urban planners at this time were also articulating a new, expansive scale for their practice. Le Corbusier had long been fascinated by the large-scale realizations in the Tennessee Valley, and more than a few modernist architects during the 1950s and

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1960s imagined their utopian projects to literally cover the surface of the earth (Busbea 2007). Transcending the focus on what could be conventionally defined as a town or a city, this new approach turned regions, nations, continents, and even the planet as a whole into objects of design. The establishment in 1963 of the *Délégation à l'aménagement du territoire et à l'action régionale* (DATAR; Delegation for Territorial Planning and Regional Action), France's centralized body for regional planning led by the country's powerful corps of engineers, seemed only to galvanize such an approach at the national level.[1]

The adjective in *géographie volontaire* stood not for the voluntary, but for the decisive, resolute, and strong-willed nature of this approach (hence my translation as 'volitional geography'). In short, *géographie volontaire* conveyed the idea that the geographic conditions of a nation were not a random product of nature and society but the intentional result of concerted, expertly informed action. Proponents distinguished *géographie volontaire* from the discipline of *urbanisme* or urban planning not only because it abandoned the conventional focus on cities but also because it suggested a new relationship between knowledge and action. Consequently, *géographie volontaire* could be defined as the combination of two things: the scaling up of design to the national territory at large and the application of expert knowledge — be it topographical, hydrological, geological, or geographical in the widest possible sense — to state planning. The rise of *géographie volontaire* was linked to the proliferation of expertise in domestic and international policy so characteristic of the Cold War era (Farish 2010; Hecht 2011). At the same time, it corresponded to the expanding scope of architectural modernism, registered in books such as Vittorio Gregotti's *Il territorio dell'architettura* (1966). Both developments might suggest a relatively straightforward historical role for disciplines such as geography, planning, urbanism, or architecture: through their multidisciplinary labor, experts effectively contributed to national modernization and economic growth. Yet disciplinary knowledge was neither an autonomous sphere nor simply a consequence of such larger developmental projects. If the state-led management of postwar capitalism operated through specific concepts of territory, as Labasse suggested, what was the role of geographers, architects, and planners in shaping this approach? Such conceptual work is my focus here.

Géographie volontaire was less a subdiscipline of geography or the delirious invention of architects than the carrier of a particular logic for government intervention and postwar development. If it was not just the achievement of an isolated thinker or the province of a few academic treatises, tracing its history requires an analysis of how new ways of thinking and designing territory circulated in a variety of environments, within and beyond the state. My goal with such an analysis is to elucidate the relationship between knowledge and design that *géographie volontaire* implied. Doing so provides insight into how particular strands of geographic and architectural thinking helped shape a moment in the biography of capitalism; specifically, a period usually identified as the 'golden age' of the welfare state. In what follows, I first examine how g*éographie volontaire* informed French government debates and policies; then how it emerged and circulated in the hallways of academia, in and beyond the discipline of geography; and finally how it shaped state-sanctioned architecture and planning projects. This analysis demonstrates not only how *géographie volontaire* extended the conventional scales of architecture and urbanism but also how it implied both a particular political economy and a particular organization of knowledge. Such an argument has contemporary implications. In the last decade, geography has again gained particular appeal in the field of architecture. As designers devise new territorial projects to address the urgent challenges of global climate change, the study of *géographie volontaire* reveals their reliance on assumptions unwittingly inherited from the past.

State Territory

Although Labasse was not wrong to situate the intellectual roots of *géographie volontaire* in the critiques of liberal capitalism following the Wall Street crash of 1929, he turned a blind eye to the politics of its more immediate origins. These lay with the Vichy state, France's authoritarian, conservative, and anti-Semitic government during the first half of the 1940s. One of that regime's most urgent concerns — especially after the bombardments of the Renault factories in the suburbs of Paris in 1942 and 1943 — was what experts called 'industrial congestion.'[2] The concentration of key industries and infrastructure around the capital was a danger to national military and economic interests, and only a comprehensive relocation of industry at the scale of the French hexagon was deemed an appropriate solution. Furthermore, state-commissioned experts insisted that this industrial and military strategy should be linked to the modernization of France's rural regions — another key point in the Vichy government's conservative agenda. In 1942, its *Délégation générale à l'équipement national* (General Delegation for National Infrastructure/Planning), a state institution instrumental to the development of urbanism and planning in postwar France, commissioned a team of experts, led by engineer and businessman Gabriel Dessus and including geographers and historians (Voldman 1997). The team's work was published by the Ministère de l'Économie nationale (Ministry of National Economy) in 1949 as part of *Matériaux pour une géographie volontaire* (Materials for a Volitional Geography), a book that established the notion of *géographie volontaire* in French political culture (Dessus, George, and Weulersse 1949).

In the book, to which the geographers Pierre George and Jacques Weulersse also contributed, Dessus expounded a comprehensive theory for the geographic localization of French industry. He regarded such a policy as a vehicle for solving urban overpopulation and bad housing conditions and showed particular enthusiasm for the modernist concepts of Le Corbusier. Housing, he argued, needed to be an essential part of industrial relocation. The authors left little doubt — as had Le Corbusier — as to who would bear this rationality and its executive power: the state. Vichy government elites, most of them engineers from the Ecole polytechnique and the Ecole des ponts et chaussées, relied

on a long-standing tradition of political thought advocating authoritarian decision making guided by scientific expertise. Labasse's conviction that *géographie volontaire* was free of any particular political doctrine reflected the intellectual tradition of Henri de Saint-Simon, the 19th-century founder of technocratic ideology (Picon 2002).

Scholars have long emphasized the instrumental role of geographic knowledge in state formation and political governance. At least since the early modern period, engineer-geographers have been working for European states, making maps, building fortifications, and thinking about the social questions of the day (Godlewska 1993; Desportes and Picon 1997). Yet the rubric of 'applied geography' appeared only when geography became a modern, academic — read: 'non-applied' — science in the late 19th century. When John Scott Keltie wrote *Applied Geography: A Preliminary Sketch* (1890), he attempted to show how geography could be applied in the interests of commerce. Convinced that commerce brought civilization, he focused on the importance of geographical knowledge for the British Empire. In France, Marcel Dubois proposed applying geography to colonial administration (Claval 1993). And in Germany, Friedrich Ratzel's geographical theories stood explicitly in the service of imperial expansion (Smith 1980). This colonial perspective was also applied to the metropole itself, with the suggestion that geography assist in the management and development of domestic territories. In turn-of-the-century Germany, 'internal colonization' was used to describe policies as varied as the construction of garden cities, agricultural modernization, and the resettlement of farmers.[3] For the geographer Isaiah Bowman, the Great Depression that struck the American countryside in the mid-1930s was a problem for which it was 'the business of government to find a cure based on sound scientific work' (Bowman 1934: 176). By mapping marginal farmlands, he showed that geographic expertise could be an 'adjunct of statesmanship' (Bowman 1934: 175). The Second World War further strengthened the applications of geography to state planning, and territory became an increasingly privileged tool for state intervention, mediated by a growing number of experts.

While they distanced themselves from the authoritarianism of Vichy, the postwar French governments of the Fourth and Fifth Republics continued to promote state planning on these terms. More than other European countries, France relied on centralized planning to address postwar reconstruction and economic development in the decades after the Second World War. This brought geography, planning, and architecture unparalleled opportunity. Even though experts' political leanings diverged widely — from Communist to far right — the postwar state offered a key platform for exchange between different forms of expertise. Eugène Claudius-Petit, minister of reconstruction and urbanism from 1948 until 1953, was a crucial figure in promoting *géographie volontaire* as an approach to urban and regional planning and development. His ministerial agenda centered on the *Plan national d'aménagement du territoire* (National Plan for Territorial Planning). Publicly presented in 1950 and galvanizing the ideas of Dessus and regionalist geographers such as Jean-François Gravier in the state apparatus, the plan advocated for a 'harmonious distribution' of people and activities over the national territory. In his influential book *Paris et le désert français* (Paris and the French Desert) of 1947, Gravier had posited that the overwhelming concentration of people, industry, infrastructure, and culture in the capital — intensified by the recent immigration from the countryside — constituted a geographical imbalance that was not just economically inefficient but generative of all sorts of social ills. His denunciatory analysis of the country's hypercentralization in Paris included concrete remedies, which, with much support from Claudius-Petit, would come to shape the mindset of state-commissioned experts in the following decades. Their solution was a radical decentralization of industry away from the Paris region, to be accompanied by a wholesale redistribution of the population to French provinces. National economic development could be achieved only through such geographic volition. But Claudius-Petit's plan was infused with ideas not only from decentralist geography; it was also influenced by architectural modernism. He was a proselytizer of the ideas of the Congrès internationaux d'architecture moderne (CIAM; International Congresses of Modern Architecture) and an admirer and close friend of Le Corbusier. In 1945, the two visited the projects of the Tennessee Valley Authority together, and both were deeply influenced by the experience (Pouvreau 2003). *Géographie volontaire*, in short, required not only geographic knowledge but architectural vision.

The immediate impact of Claudius-Petit's policies was small, his concrete achievements limited to the relocation in the provinces of some factories initially planned for the Paris region. Industrial location theory was almost immediately criticized as naive (Wendeln 2011), and the mass production of housing in large estates or *grands ensembles* from the mid-1950s onward might have seemed volitional, but the random localization of such housing at the peripheries of cities all over France hardly amounted to rational comprehensive planning. Land was often purchased ad hoc, and housing slabs were laid out without apparent concern for site or surroundings. Ultimately, acknowledgment of this situation shaped the planning of the French New Towns, arguably the first large-scale achievement of *géographie volontaire*. Launched by the centralized government of Charles de Gaulle in 1965, the New Towns were meant to decentralize Paris and promote regional development. Nine of them — five around Paris and four in the provinces — were eventually constructed. The New Towns, together with the regional planning and development policies of DATAR over the following decades, constituted the belated actualization of Claudius-Petit's *géographie volontaire* in France, even if fundamental gaps remained between planners' ambitions and their real impact on urban and regional change.

Despite the Cold War-era argument that *géographie volontaire* could find direct application only in the authoritarian states of the Communist bloc (French 1961), large-scale territorial planning became integral to democratic government, in France and elsewhere. In Britain, for example, public concern over regional disparities

and anxiety over the uncontrolled growth of London and other large cities in the 1930s had informed governmental efforts to distribute the industrial population. The government explicitly welcomed geographers, and during the 1940s a comprehensive centralized planning apparatus was established, with major policies for the distribution of industry, the creation of New Towns, and the establishment of a comprehensive planning system for the nation.[4] The Greater London Plan of 1944, developed by town planner Patrick Abercrombie, was but a part of this new machinery. Prominent geographers such as Eva Taylor and Dudley Stamp played an equally crucial role. Britain's first Land Utilisation Survey, which Stamp coordinated at the London School of Economics from 1930 to 1934, represented the capital's sprawl as a giant many-tentacled octopus and singled out Britain's unproductive agricultural land and industrial sites (Cosgrove and Rycroft 1995). This was geography in the name of national planning and productivity, and such an approach to geography dovetailed perfectly with state ambition in the wake of the Second World War, following the statement of Lord Justice Scott that 'town planning is the art of which geography is the science' (Stamp 1960: 120). Yet if geography was the science of state-led territorial planning, what kind of knowledge did it actually entail?

Geography's Territory

Since the late 19th century the discipline of geography in France had been fundamentally shaped by the tradition of writing biographies of distinct regions. The influential geographer Paul Vidal de la Blache and his followers aimed to identify the collective traits of what was called 'regional personality,' by focusing on the *longue durée*, on enduring qualities rather than the dynamics of economic and social change. Such work often emphasized the mutuality of influence between human beings and their environment. Skirting environmental determinism, Vidal de la Blache claimed that such influence was always circular, without direct or simple causality. The approach informed two complementary concepts, that of *milieu* (environment) and *genre de vie* (way of life). Geographers thus forged a method for thinking about national identity through regional difference. Bringing geography into close relationship with history, they tended to approach the national and the local as mutually constitutive rather than oppositional realms.

Architecture had only a minor and largely passive place in this type of geography; it was illustrative of regional identity rather than a motor of spatial change. The geographer Jean Brunhes, often in tension with Vidal de la Blache, provided perhaps the most thoroughly studied geographic perspective on architecture during this period. In his 1925 *Géographie humaine*, he considered houses, roads, and cultivated fields as the essential facts of geography (Brunhes 1925). His approach to the typology of urban and rural buildings was inspired by the idea of regional traits and served to support arguments for a regionalist approach to architectural form, in opposition to what was promoted as 'international' modernism during the interwar period (Vigato 1994; Ponte 1997). During the second half of the 20th century, however, such an approach to regional tradition in architecture was marginalized. The geographer Jean Dollfus's publication in 1954 of *Aspects de l'architecture populaire dans le monde* (Aspects of Popular Architecture Across the World), a visual catalogue of vernacular building types across the planet much in the style of Brunhes, was ignored, both in the field of architecture and in geography. But academic interest in regional architecture disappeared not just with the increasing government support of architectural modernism; its disappearance also coincided with the relative decline of a particular geographical concept of the region. George Kimble registered this shift when he wrote in 1951 that regional geographers were simply 'trying to put boundaries that do not exist around areas that do not matter' (Kimble 1951: 159). Ironically, the intellectual demise of regionalism happened precisely at the cusp of mass tourism: an increasing number of middle-class families were now in search of *terroir* in cuisine and environment, exactly those traits of regional character that architects — and a growing number of geographers — declared irrelevant. For many postwar geographers, history was no longer as useful as it once was in explaining wholesale regional change caused by rural migration, new agricultural technologies, and new industries.

But geographers did not merely explain changes underway. Their conceptualizations actively contributed to such changes. In the context of postwar France, geography needs to be understood as a discursive field that exceeds the academic discipline of geography and is actively shaped by a range of experts. During the postwar decades, an important strand of geographic thinking shifted the purview from representation to action, a shift that was accompanied by a conceptual transformation of geographic territory. Beyond analyzing regional identity and the terrestrial distribution of human activities, geographers set themselves a new task: to think the economy spatially. That required a new approach to territory. Even if geographers in the wake of Vidal de la Blache did not necessarily ignore economic factors and networks and even if some had been active in state administration, the descriptive tradition of regional geography was increasingly perceived as anachronistic and of little practical use in the postwar period.[5] While French geography had traditionally defined regional space differentially and heterogeneously, a significant number of geographers now began working with a more abstract and often quantitative understanding of regional territory. If descriptions were still included in geographic discourse, they no longer highlighted topographic features or regional 'personality' but the economic, social, and political opportunities and constraints for development. Even though some postwar geographers vehemently rejected such an approach, the turn to applied geography was crucial to postwar debates.

Related to demands for useful application were questions of method, as quantification and model building gained ground to the detriment of the older craft of description. Such a shift was not limited to France or to the field of geography.[6] In social science, models that

could produce applicable, generalizable knowledge were preferred over the kind of practice that leaned more toward learned art than objective science. Not only was such a scientific approach more amenable to a state bureaucracy that wished to govern through expertise; a number of geographers wishing to produce relevant — instrumental — knowledge willingly pursued this route. In Anglo-American geography, the predominance of economic model building amounted to nothing less than a 'quantitative revolution' (Barnes 2008). Despite considerable resistance and the continuing relevance of the regional geographic tradition claimed by Étienne Juillard and Philippe Pinchemel, among others, French geography was not spared from this revolution and also came to take recourse in models and statistics (Claval and Johnston 1984).

A particularly consequential approach to modeling was location theory, which centers on the examination and prediction of what economic activities are located where and why. First proposed in Johann Heinrich von Thünen's *Der Isolierte Staat* of 1826, this approach was formally developed during the first half of the 20th century, most notably by the geographer Walter Christaller. In the 1930s he had argued for the existence of a hierarchically structured network of settlements in an urban system, based on the example of southern Germany. Called 'Central Place Theory,' this idea was highly valued by the Nazis, who employed Christaller during the early 1940s to apply his theory in the *Generalplan Ost* (General Plan for the East), concerning the future development of Polish land through a system of ethnically German settlements after the war (Rösslør 1989). During the 1950s, Christaller's theory was enthusiastically taken up by Anglo-American geographers (Claval and Johnston 1984). Christaller's basic assumption — of territory as an isotropic, homogeneous, boundless flat surface — proved useful at a time when geographers aimed to contribute to economic development rather than theorize its geographic consequences. Such 'spatial economics' could grant geographers the scientific allure that both government and academy increasingly valued in the postwar decades. At the same time, many French geographers resisted adopting the rigid geometries and network models of their Anglo-American colleagues. Rather than abandon the notion of the region as the focus for their discipline, geographers such as Michel Phlipponneau, Pierre George, and Labasse promoted a resolutely forward-looking approach to regional geography (George et al. 1964). The new approach was concerned not with ethnic or historical traditions but with the demands of economic and social justice and regional imbalances within France. Based at the University of Rennes, Phlipponneau cast his geographical expertise as a contribution to Brittany's regional development on exactly these terms (Wendeln 2011).

Geographic abstraction, quantification, and modeling helped to turn the notion of the region into a projective instrument. Regions were no longer seen as irreducibly differentiated or unique; instead they came to be understood as internally structured and interrelated. These relationships were conceptualized as nodality and polarization, terms that replaced the fuzzy and at times mystifying notions of *milieu* and *genre de vie* — albeit not without adding their own fuzziness, even if they were generated by reference to mathematical and economic concepts. In France, DATAR was the primary engine of these conceptual shifts.[7] The economic models that found their way into the new practice of geography did so largely via this powerful, centralized state institution for regional development, which was dominated by engineers rather than geographers. Their models included polarized growth and economic base theory — which grounds demographic projection in studies of the 'engine' of local economies. The concept of 'growth poles' proved especially influential, leading to the targeting of eight provincial cities as *métropoles d'équilibres*, metropolitan countermagnets to balance the predominance of Paris and thus stimulate regional growth.

The Languedoc-Roussillon region offered the administrators of the centralized state one of the first large-scale experiments. Compared to the wealthy and densely populated Côte d'Azur, the western side of the French Mediterranean coast was a comparatively unpopulated swampy area suffering from depopulation and economic decline. The region was targeted by DATAR as a prime location for the state-led development of mass tourism during the 1960s (**Fig. 1**). The modernist architecture of new 'tourist stations,' such as Jean Balladur's La Grande Motte or Georges Candilis's Leucate–Le Barcarès (**Fig. 2**), represented the ambition to design a comprehensive regional territory, which ranged from highways and artificial pleasure ports to camping grounds and mosquito removal (Picon and Prélorenzo 1999; Avermaete 2005). To realize such enormous and complex projects, planners had to stave off land speculation by secretly buying up vast amounts of land through intermediaries. This was exactly the type of situation for which *géographie volontaire* could offer a particular logic for managing private development territorially; it was a geography that viewed territory as a function of both state intervention and the dynamics of a market economy. That meant accepting both the omnipresence of the state and surplus value as the basic motor of territorial development. While regional balance could never be permanently achieved because of the inherent dynamics of capitalist development, it needed to be continually pursued through state intervention. This idea of soft guidance corresponded to the ideology of state planning, which went back to the mid-1940s when the national Monnet Plan had set the basic parameters for postwar reconstruction.

Architecture's Territory

Architecture and urbanism could not offer the comprehensive view of territorial development that was promoted by geographers like Labasse. Largely unfamiliar with ongoing international debates in architectural modernism, Labasse dismissed both the conventional master plans of France's Beaux-Arts–trained architects and urbanists and the interwar dogma of the Athens Charter, which reduced urbanity to a relatively static spatial order based on four functions: living, working, circulation, and recreation. Yet

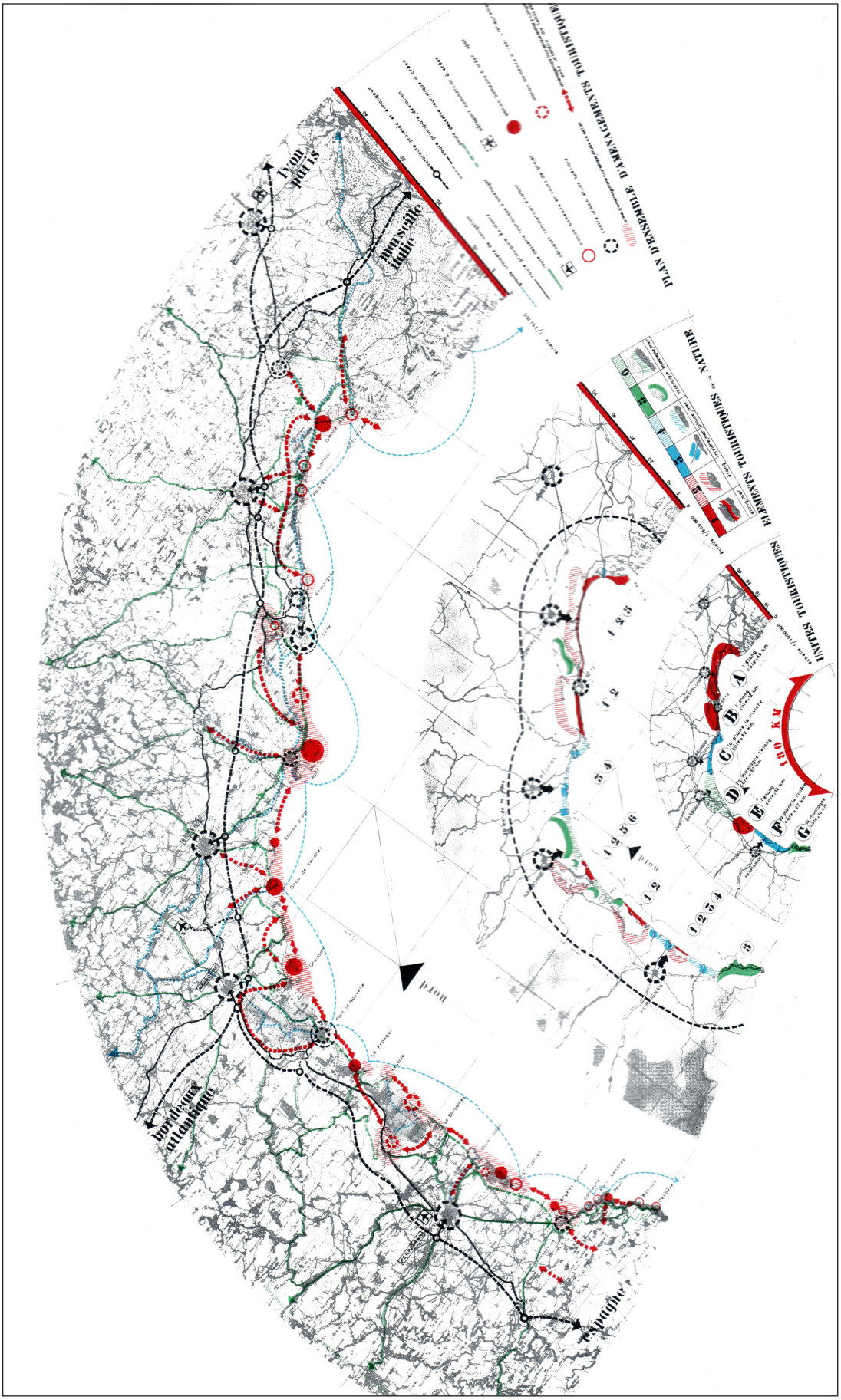

Figure 1: The overall plan for the development of the Languedoc-Roussillon into a mass tourism region. The coastal landscape of old towns, lagoons, and beaches was conceived as an integral part of the region's new tourist infrastructure, to be made accessible by the new highway system and modern 'tourist stations.' Source: *Urbanisme* 86 (1965): 30.

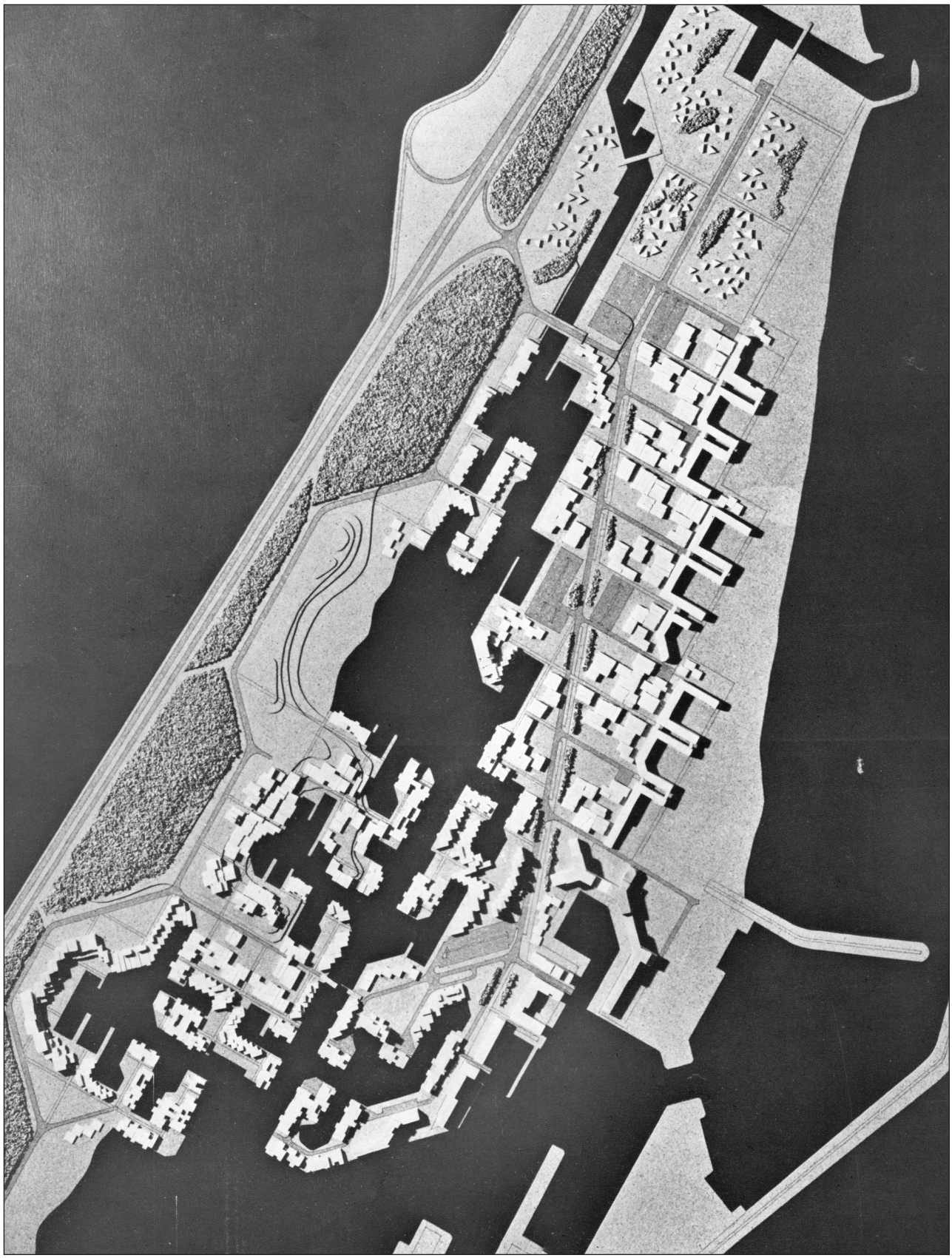

Figure 2: Model photograph of the 'tourist station' of Leucate–Le Barcarès, designed by Georges Candilis. Source: *Techniques et architecture* 31(2) (1969): 94.

the fields of architecture and urbanism had changed significantly since 1933, within CIAM and far beyond, and Leucate–Le Barcarès was only one example of that shift. One of the crucial revisions in the 1950s and 1960s was the expansion of architecture's purview from the urban to the territorial (Sarkis 2011). Moving away from the reductive assumptions of the Athens Charter, modernists, especially those of the younger Team X group, such as Candilis, embraced an extremely broad range of scales, from the intimacy of everyday life to the territorial dimension of cities, nations, and even continents. Le Corbusier had already suggested this range of scales in the 1930s with his Plan Obus for Algiers. The project's mile-long curvilinear slabs superimposed onto the existing topography of Algiers were meant to reshape the small-scale realities of everyday life, suggested by the 'infill' into these slabs of individual dwelling units that the inhabitants themselves could design. Other precedents, both from the late 1920s, include Herman Sörgel's continent-size Atlantropa project and Henri Prost's plans for a coastal highway between Marseille and Genoa.

The territorial scope envisioned by these proposals became central to modern architecture only in the postwar period — not in the least because of the support of governments interested in, and able to fund, developments on an unprecedented geographic scale. Megastructures and mat building projects emerged in countries as diverse as Japan and Brazil and proliferated quickly with the ongoing globalization of architectural media. While some clung to a rhetoric of national development, others aspired to a cultural internationalism. The explicit premise of utopian projects such as Archigram's Plug-in City or Constant's New Babylon was to transcend nation, city, and locality — just as postwar geography was shifting from the intricacies of place to the abstractions of space. These projects were geographic forms of architecture in the sense that they constituted an artificial territory aspiring to cover the globe, irrespective of existing topography and physical features of the landscape. One of the most precise connections between architecture and geography was made by Constantinos Doxiadis, whose proliferating global practice as an architect and urban planner was based in the 'rational location of settlements in space' (Doxiadis 1968: 57). Embracing the mathematical geography that was becoming popular at the time, Doxiadis enthusiastically applied Christaller's Central Place Theory, which led to a settlement system based on hexagonal honeycomb patterns that could grow infinitely (Doxiadis 1968).

The scaling up of postwar architecture under the influence of such conceptions of territory has been cast by Mark Wigley (2001) and others as a factor of architecture's immersion in a culture of networks. Yet its new territorial logic is not fully explained by such culture. The design of the French New Towns, for example, is the result of a much more intensive and mutually transformative exchange between architecture and geography than what a self-identified avant-garde of architects imagined. These large-scale, state-led projects set off one of the most direct and intensive moments of collaboration between architects and geographers in the postwar period. In multidisciplinary design teams coordinated by several centralized government institutions, architects and geographers worked directly with economists, planners, sociologists, and engineers. While the architects involved in such multidisciplinary teams were still largely trained in Beaux-Arts schools, they were much different from the older generation of architects who had built the *grands ensembles* during the previous decade. This was a young generation with far more diverse inclinations and exposures. Many of them became politicized in the protests of May 1968, at a time when Henri Lefebvre had become a hero of architects across France. Many of them were also drawn to the social sciences and to sociology in particular (Cupers 2014). Young offices such as Atelier de Montrouge, which was responsible for the conceptual design of the New Town of Le Vaudreuil, stood for a new model of architectural practice. Against the ideal of the Prix de Rome – winning architect as single author – their work was collaborative and interdisciplinary (Blain and Delaunay 2008). Sociologists were thus naturally included in the planning teams, and so were geographers. They included not only prominent academic figures such as Pierre Merlin, who would later write the first historical accounts of French New Town planning, but also droves of relatively unknown geographers — for example, Elio Boulakia and André Darmagnac, who worked on the new urban center of Evry, the New Town to the southeast of Paris. If the concepts for the French New Towns were not so much architectural as sociological or geographical, this was not because of the interests of a single architect but rather the result of collaborative forms of expertise.

While the resulting designs seem at times miles away from the radical territorial projects of the 1960s architectural avant-garde, they share an underlying logic. French visionaries such as Yona Friedman or David Georges Emmerich had expanded architecture to encompass the design of the environment in its totality. Friedman's *urbanisme spatial* (spatial urbanism) in particular conjured up a dense but floating world of endless urbanity in which architectural form was nowhere and everywhere. Dissolving the stability of architecture into a multiplicity of activities and events was not only suggestive of the new leisure society; it also seemed more generally to facilitate the dynamism of postwar consumer culture. Despite their libertarian allure, most of these visions still assumed the construction of an overarching infrastructure: a megastructure framework that was the responsibility of a strong, paternalistic state (Busbea 2007). That split personality was the result of the attempt to marry the volition of a centralized state with individual freedom and consumption, and it came to characterize French New Town designs as they were gradually being conceived, revised, and ultimately built.

For the New Town of Le Vaudreuil, the architects of Atelier de Montrouge proposed what they called a 'combinatory urbanism.' This was a theoretical conception of urbanity as comprising communications, patterns, elements, relations, and structures. The idea of a field of relations found architectural expression in a three-dimensional mesh that could be programmatically filled in at random to create diverse private and public spaces (**Fig. 3**).

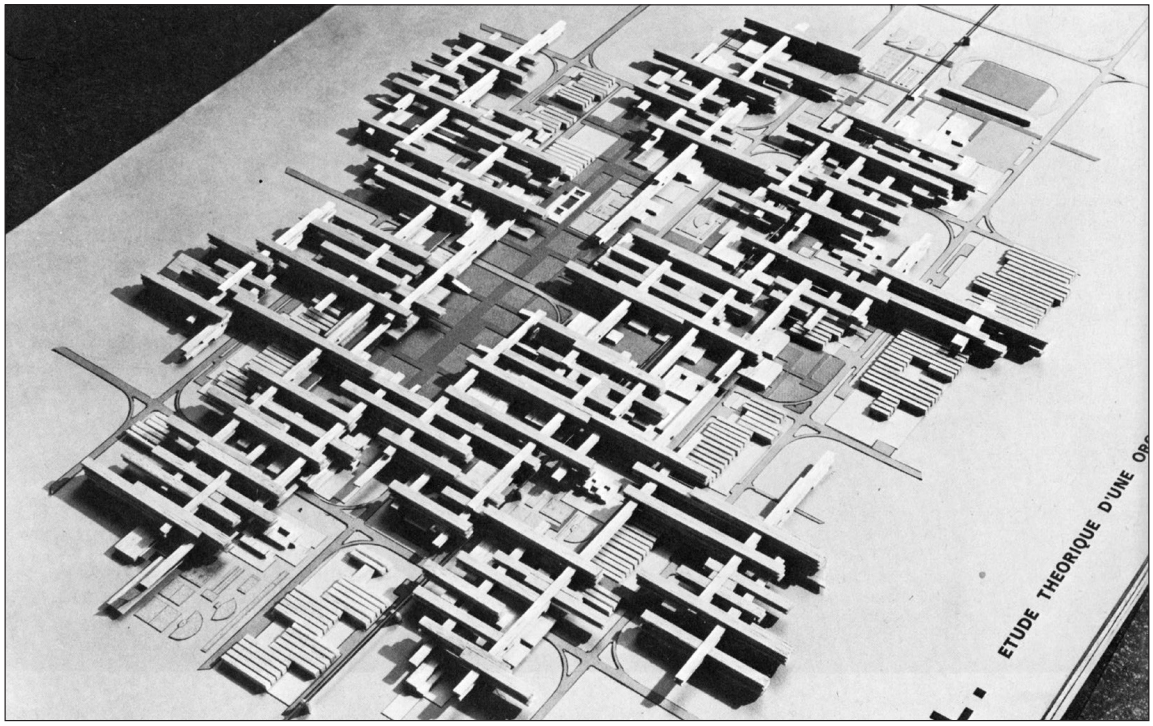

Figure 3: Atelier de Montrouge's project for Le Vaudreuil, proposing the urban territory as a three-dimensional woven structure. Source: 'Le Vaudreuil: Une méthode d'étude et de réalisation,' *Cahiers de l'IAURP* 30 (1973): 54.

The result would be a total environment in which everything was interconnected. Flexibility was thus combined with an overarching spatial logic, and the result was no less megalomanic than Friedman's *urbanisme spatiale*. What was ultimately built was the size of only a small village and less than revolutionary in architectural terms. Yet other New Towns did get built at a vast, unprecedented scale. Especially for the New Towns in the sprawling Paris region, planning had to take account of an already suburbanized context, one that often changed faster than planners could envision. The resulting approach was at once more 'soft' and more expansive than the conventional master plans that had continued to shape urban development in France until the early 1960s. While such planning was still to be geographically volitional, it also needed to be realistic, meaning it had to take as its basis the dynamics of the market and, thus, consumer choice in the urbanization process. Consequently, planning could no longer revolve around a static master plan.

Designers thus faced the complexity of an actual geography rather than an imagined one. Even though projects were no longer generated in a tabula rasa, they were inflated at the scale of ever-larger swaths of territory. Instead of the imposition of a set of functional zones allocated to specific human activities on empty land, the existing territory was reinterpreted as a field of relations and connections, force lines and attraction poles. Only such an approach would be able to efficiently reorganize very large areas of suburban or exurban land while inserting entirely new forms of urbanity that could compete with the center of Paris. For the New Town of Evry in the exurban outskirts of Paris, this approach amounted to the large-scale and flexible programming of new development zones distributed in the midst of existing suburban developments. For the New Town of Cergy-Pontoise, it meant drawing up an *armature urbane* (urban armature) for the existing territory, which included the old village of Pontoise, nearby forests, and an old river bend turned into a lake. A similar approach characterized the New Town of Trappes, later renamed Saint-Quentin-en-Yvelines (**Fig. 4**). Planners reinterpreted existing landscape features as new recreational facilities that became central elements in the New Town's projected identity.

When built half a decade later during the 1970s, the look of some of these proposals had changed dramatically, even if their conceptual underpinnings were the same. The urban centers of New Towns like Cergy, for instance, were still megastructures, but they downplayed that fact in various ways. During the 1970s, experts and the general public alike fundamentally criticized the kinds of megalomanic urbanism sponsored by the centralized state in collaboration with large private developers. They saw the New Towns as the last gasp of such unwarranted megalomania. Where they could, planners thus cloaked their projects — many of which were already underway — in a new aesthetic, informed by a desire for more intimate environments and for more attention to the site and the historic urban fabric of the city. Based on arch-modernist concepts such as the vertical separation of vehicular and pedestrian traffic, the center of Cergy-Préfecture was still a single architectural environment united by a plinth — an artificial territory dedicated only to pedestrians, two stories above the existing ground. But with a fine-grained articulation of diverse programs distributed on top of its artificial topography, designers meant to give the new center an intimate scale and the characteristics of 'Latin' inner-city neighborhoods like those of central Paris (**Fig. 5**).

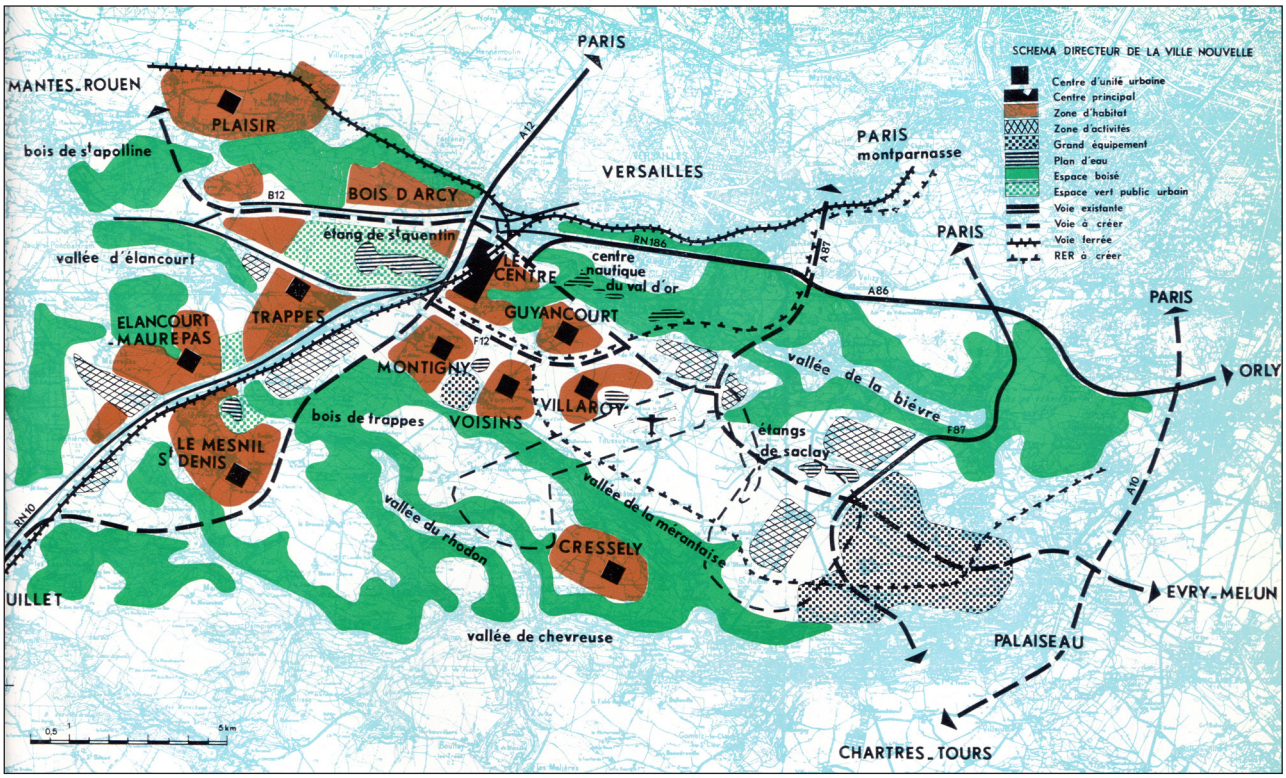

Figure 4: Structural plan of 1970 for the New Town of Trappes (Saint-Quentin-en-Yvelines). The New Town plan comprises a series of new settlements inserted in the existing suburban territory, as a result of which the entire region could be re-envisioned: ponds, forests, and 'unused' open land were reconceived as recreational space. Source: *Techniques et architecture* 32(5) (1970): 46.

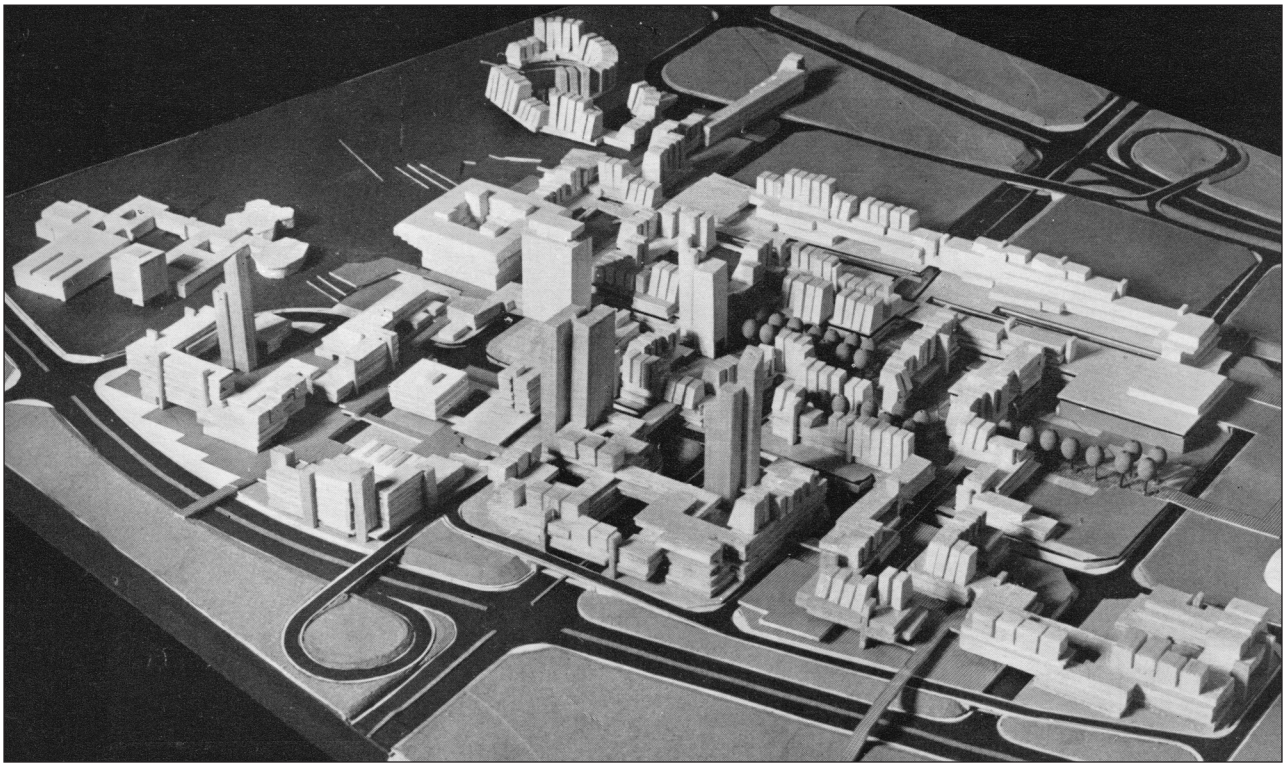

Figure 5: Model of the urban center of Cergy-Préfecture in 1970. Most of the program — administrative centers, a large shopping mall, shops and small services, a cultural center, offices, and housing — was located on a plinth, underneath which was a commuter rail station and one of the town's major traffic arteries. Source: *Techniques et architecture* 32(5) (1970): 54.

Since the 1970s, the restructuring of state intervention has corresponded to the gradual disappearance of such government-sponsored territorial projects — and with it, the receding of a central platform on which architecture and geography could intersect. Yet architects seem to have discovered geography once again. The scaling up of architecture to the shape of the earth's surface resonates strongly with designers today.[8] But that surface is hardly an empty slate, either physically or — especially — epistemologically. If geography is the domain of knowledge that has over the past centuries laid claim to the earth's surface as its central subject of inquiry, architects in search of a territorial scope would be hard pressed to avoid it. And yet, rather than engaging with geographical knowledge on its own terms, architecture more often invents its own geographies. Even if this is specific to architecture's peculiar form of disciplinarity, it might still be beneficial to ask what kind of geography architecture wishes to engage. Without such a question, its import to contemporary architecture occurs with the naive assumption that knowledge of the earth's surface is transparent and free of politics. Not surprisingly, some of today's architects in search of a territorial project have returned to the 1950s and 1960s (Sarkis 2001) — to a time when the megastructure offered architecture a last chance to shape the geography of the contemporary city, as Reyner Banham pointed out (1976). The encounter between architecture and geography at this time was neither direct nor frontal but mediated by the state project of managing postwar economic development. This imperative transformed architectural practice and its scale of intervention: more than just modernism going mainstream, it was architecture going territorial. If architecture developed such a territorial perspective, it was not because of its autonomy but because it was tied up with complex collaborations embedded in geographical scales of production beyond conventional scales of building. Such collaboration centered on a single challenge: how to marry the volition of government with the volatility of capitalism. In addressing that challenge, architects and geographers not only shaped urban and regional development but aided in the course of a particular political economy. With its refusal to relegate architecture to creative projection and geography to critical analysis, *géographie volontaire* might still offer a fruitful, transdisciplinary approach for addressing the complexity of territorial changes today. Such an exploration should begin by considering architecture and geography as both critical of and complicit with the forces that shape our contemporary environment.

Competing Interests

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Notes

[1] *Géographie volontaire* could even be described as synonymous with *aménagement du territoire* (territorial planning). I use *géographie volontaire* throughout, however, to elucidate the relationships between architecture, geography, and the state implied by the term and to extend the specific disciplinary and institutional framework of *aménagement du territoire.* On the longer history of *aménagement du territoire*, see Desportes and Picon (1997).

[2] On industrial relocation policies and their role in regional development in France, see Wendeln (2011).

[3] The colonial dimension of geography and its relationship to state formation as well as modern architecture merits further attention. See my forthcoming article 'Soil and Settlement: The Environmental Epistemology of Modern Architecture,' *Journal of Architecture*.

[4] For instance, the Royal Geographical Society was invited to give evidence by the Commission on the Distribution of the Industrial Population (the Barlow Commission); see Willatts (1971).

[5] On intersections between regional geography and state administration, see Ozouf-Marignier (1989).

[6] For a more general sketch of the disciplinary changes in postwar human geography, see the chapter on geography in Backhouse and Fontaine (2010).

[7] See, for instance, the reflective essay on DATAR's first couple of years by its director, Guichard (1965); see also Laborie, Langumier, and de Roo (1985).

[8] In the French context, see, for example, the state-funded research programs of 'L'architecture à la grande échelle' since 2006. For the United States, see 'Territory: Architecture Beyond Environment,' ed. David Gissen, special issue, *Architectural Design* 80(3) (May/June 2010); and the magazine *New Geographies*, sponsored by the Harvard Graduate School of Design and established in 2009.

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