

The French Reconstruction after World War II: A Laboratory for Repairing the Present and Preparing for the Future

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ABSTRACT

This paper will expound on the characteristics of the reconstruction process after World War II in France, and the urban and architectural forms that were put in place.

With the entire French territory hit by urban destruction, reconstruction was fully state-funded. For this purpose, the French government set up a specific ministry called MRU (Ministère de la reconstruction et de l'urbanisme) that implemented the same policy throughout the national territory. Restoring destroyed cities to their original state was not considered an option. The ambition was to take advantage of the opportunity to develop modern, functional, healthy and orderly, but also aesthetic cities, where history would be highlighted by urban planning. Thus, most of the ancient monuments were preserved and isolated, and new roads designed to render them visible.

In large cities, urban planning was rethought following the rules of classical French aesthetics and the imperatives of modernity: adaptation to the automobile, health, sunshine, equipment. The street network and the plot plan were completely redesigned. The MRU set up a system of evaluation of destroyed properties to enable a compensation equivalent (but not identical) to the disappeared housing.

This new urban modernity was not as radical as that advocated by the avant-garde of the CIAM. The urban design and the architecture that finally emerged were the outcome of compromises. A number of traditional features were retained, such as sloping roofs or the continuity of building elevations along streets. But there were also some experiments aimed at inventing new urban forms, which increased with time. French post-war reconstruction therefore appears as an urban laboratory, prefiguring the massive construction of housing in the 1960s and 1970s.

Even today, worldwide, many cities need rebuilding as a result of war destruction. The lesson that can be learned from the French reconstruction is its capacity to compromise in order to combine tradition and innovation. It allowed the victims to preserve the memory of the past and to adapt to a completely renovated living environment.

Our examples will be mainly the cities of Le Havre and Caen, which represent two different aspects of this reconstruction. But we will also draw on the reconstruction of Orléans, Saint-Malo, Saint-Lô and Lisieux, to illustrate the variety of solutions imagined in the fifties

[1] « La réédification du capital immobilier français démoli par faits de guerre n'est qu'un aspect incomplet du problème [...] il y a un autre aspect sur lequel nous ne cesserons d'insister, parce qu'il englobe et dépasse le précédent [...] c'est la mise à jour de la France, avec ses cinquante années de retard, et sa reconstruction effective pour les cinquante ou cent années à venir. » Henry Bernard, *Hommes et mondes*, n. 7, 1947.

In France, debates concerning the aesthetics, hygiene and functionality of cities emerged at the beginning of the 20th century. However, several decades later, these deliberations had not yet been put into practice. On the eve of World War II, cities were in crisis; they were dirty, overcrowded and sunless. Urban planners realized that war destruction was an opportunity to modernize these cities. According to the architect Henry Bernard: "The rebuilding of French real estate capital demolished by war is only an incomplete aspect of the problem [...] there is another aspect on which we will continue to insist, because it encompasses and goes beyond the previous [...] it is the update of France, with its fifty years of delay, and its effective reconstruction for fifty or a hundred years to come."^[1]

The destruction began in June 1940, at the time of the German invasion. The cities near the German border were badly hit, as were those of the valleys of the Seine and the Loire. During the war, allied bombings targeted the railway stations of major cities. They also targeted strategic sites such as major ports or the fortified sites of the Atlantic Wall. The Liberation brought with it further destruction in Normandy, Provence, Alsace, in the Rhone Valley and the north. By the end of hostilities, in 1945, the entire national territory had been damaged.

All successive French governments from 1940 onwards regarded reconstruction as a great national cause. Reconstruction was a necessity for all those affected and was of vital importance to the country's economy as the destruction was concentrated in big cities and the richest regions. With the creation of the Vichy Government following the June 1940 defeat, its head, Maréchal Pétain, set up an anti-democratic and authoritarian government. Although submissive to the German occupation, it tried to demonstrate to the French that the sovereignty of France was intact. Thus, the government began to think about reconstruction and created administrative and regulatory frameworks for it. In November 1944, after the first elections following the Liberation, the new democratic government resumed, without major changes, the administrative and regulatory structures of the previous regime, and launched the effective reconstruction.

The Organization of the Reconstruction

The Provisional Government organized the solidarity of all the French in the face of war damage. The State thus financed all damages: movable, immovable, industrial, agricultural and urban. The Ministry of Reconstruction and Urbanism (MRU) was responsible for the entire reconstruction process. It distributed the funds, selected the architects by means of a list of approval, and imposed its architectural and urban doctrine. This administration included local services to enforce state policy around destruction and carried out the preliminary operations of demining and clearing the ruins. It also took care of the temporary rehousing of the victims, by buying or building prefabricated temporary houses.

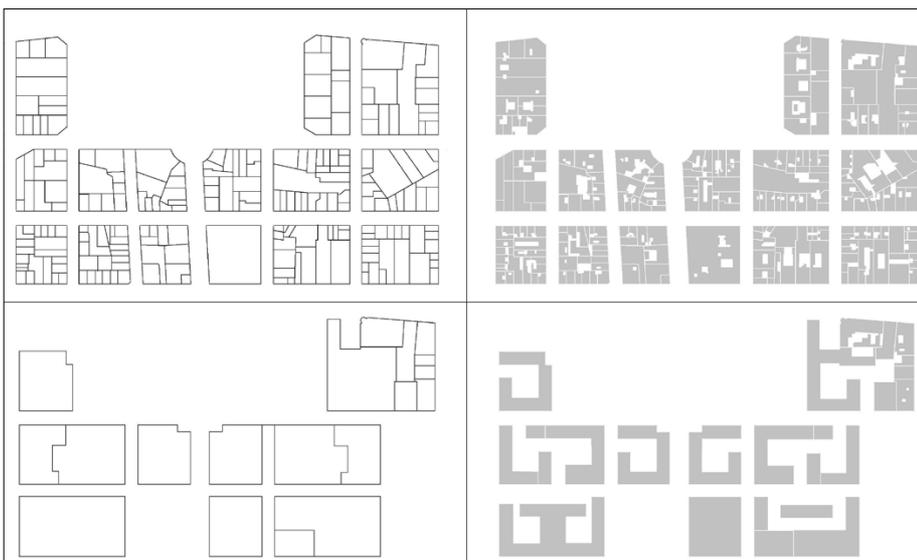
Each building affected was the subject of an evaluation dossier intended to serve as a basis for financing its reconstruction. An architect evaluated this cost using a complex scale, controlled by the MRU. The result was a debt for war damage, due by the State to the disaster victim, who was required by the legislation to join a reconstruction cooperative. These organizations grouped together several hundred disaster victims, and were responsible for managing the rebuilding.

Cooperatives chose the architects, defined the program according to the available claim of war damage, followed the construction site in the name of the victims, received State money to pay the architects and the building companies, and assured the transmission of title deeds. The State thus ensured that the claim was used to rebuild demolished dwellings and that the new buildings were in keeping with its principles of comfort and modernity.

In each disaster-stricken town, the ministry appointed an urban planner, whose role was not to design the whole city with all its buildings, but rather to draw up a master plan and determine some architectural, aesthetic and functional codes. The urban planners also completely redesigned the road networks with wider and more regular streets. They usually planned new routes in order to improve traffic flow and keep nuisances out of transit traffic, and they divided the city into functional zones. There was at least one dense commercial core area surrounded by a residential-only area. One or more industrial zones were planned, away from housing areas and close to communication routes.



Caen before the war and after the Reconstruction (urban planner: Marc Brillaud de Laujardière): the streets are widened and redrawn according to a more orthogonal and regular pattern.



Le Havre: parcel plan (right) and building (left) before the war (above) and after reconstruction (bottom). In this town, reparation is radical: most plots cover the entire block.

These improvements also applied to parts of the city that had not been destroyed. New destructions could thus be planned, for example, to build new roads. Nonetheless, the State did not fund planned improvements outside the bombed areas. Consequently, these were only carried out much later and with difficulty. Some were never complete

ed, while in the war damaged areas the transformations were applied as provided for in the plan.

Due to the new street layout, the reparcelling of the land preceded the construction of buildings. The reconstruction cooperatives conducted this complex process from their disaster victim dossiers.

In each town, an Architecte en Chef supervised architectural reconstruction projects. His role was to control the conformity of his colleagues' projects with the master plan codes and to ensure the homogeneity of the city. He thus determined the aesthetic guidelines: the visual principles, the materials and the volume of the urban ensemble.

Caen: the pavilions between Place de la Résistance and Avenue du Six-Juin (architect: Marc Brillaud de Laujardière)



Urban Aesthetics

The State wanted an urban aesthetic inspired by the national classical tradition, based on the culture disseminated by the École des Beaux-Arts in Paris. The urban achievements of French architects in the Age of Enlightenment were the reference: the royal squares of Paris, the plan of Washington by L'Enfant, the great crossings of Tours or Orléans under Louis XV, the front of the quays in Bordeaux, etc. Other

models included the reconstruction of Rennes after the fire of 1720 by Jacques V Gabriel, and, outside France, that of Lisbon after the earthquake of 1755. The Reconstruction program was not simply about rebuilding cities but, more importantly, about improving them through regularizing roads and buildings, rethinking facilities and services and ensuring architectural unity.

The intention of reconstructed cities, both in the 1950s as in the 18th century, was to portray the image of a state that was both strong and fair, and that harmoniously distributed functions and social categories in the urban space. The desired values were readability, clarity and harmony. The space design was hierarchical, with boulevards, squares or walks forming the aesthetic and functional framework of the city. Noble and ambitious architecture marked the urban thresholds (passage from one zone to another, bridgehead, entrance into the center). In Blois for example, a semi-circular plaza inspired by the Place des Victoires in Paris demarcated the opening of the bridge over the Loire. In Caen, two residential pavilions narrowing the space defined the passage between the Place de la Resistance and the Avenue du Six-Juin, in the manner of the urban compositions of the 18th century.

The reconstitution of a city's personality implied respect for its inherited monuments. The historic monuments were the ornament of the new city; the architects located the streets so as to enhance these buildings, and to make them more visible in the cityscape. In Orléans, the Ministry of Reconstruction rebuilt an exact replica of the Rue Royale, built around 1760 by Jean Huppeau. Two parallel lanes, added on both sides, allowed the accommodation of sufficient traffic flow. In Caen, the churches of Saint-Jean and Saint-Pierre and the castle were major elements in the layout of the reconstruction plan. Largely unobstructed, these three monuments structure the urban space and punctuate the silhouette of the city.



Caen: Saint Peter's Church faces the architecture of the Reconstruction

Highlighting the physical site could also help establish the new character of a city. For example, Saint-Lô was built on a rocky outcropping. The urban planner, André Hilt, accentuated this geographical particularity by clearing the cliffs that surrounded the historical center of

the city. He transformed the upper town, which was difficult to access, into an administrative and residential area while laying out the active and commercial city around the base of the rock.

Finally, the chief architects carefully selected the building material of the façades, which gave the city its face. The preference was for local and traditional materials, which could link with the preserved monuments. The Architectes en Chef of Dunkerque, Lisieux and Beauvais chose brick. The one in Caen decided on calcareous stone. In Saint-Malo, the Architecte en Chef opted for granite, while shale carried the day in Saint-Lô.

Lisieux: brick buildings (architect: Robert Camelot)



Saint-Malo: detail of a granite façade (architect: Louis Arretche)



Urban Research

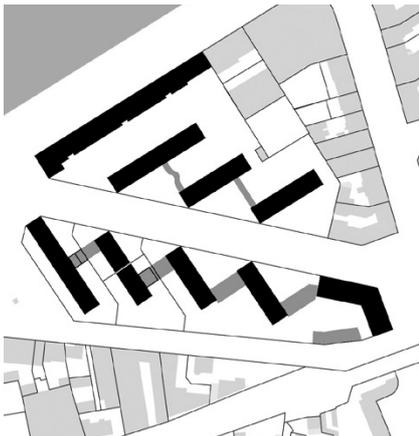
Respect for the past and traditional models was not contradictory to the search for new solutions. The great master of French architecture back then, Auguste Perret, was the proof. He had invented a new language, based on the most modern material of the time, reinforced concrete, but he had not forgotten the classical tradition. His architecture used columns, cornices or vertical windows, following the traditional rules of constructive harmony and architectural coherence. The Ministry of Reconstruction was therefore convinced of the need to launch research sites to open avenues toward the future.

It therefore conducted experiments on urban planning in small towns. Le Corbusier was thus named urban planner of Saint-Dié (20,000 inhabitants). He conceived a radical plan where the city was transformed into a huge park. He planned to group administrative functions in a high-rise building, with dwellings concentrated in Unités d'Habitation. Low buildings, planned in an area separate from the dwellings and on the other side of the river, housed the shops.

When presented in New York, this urban project aroused much interest, but the local population violently rejected it, thus the Ministry decided to appoint another, more traditional planner. In Sotteville-les-Rouen, in the suburbs of Rouen, Marcel Lods imagined a similar formula, with the realization of large housing bars in the middle of a large field. He planned two Zone Vertes but only one was partially completed. Here again, the reluctance of the population to accept these new formulas explains this failure.

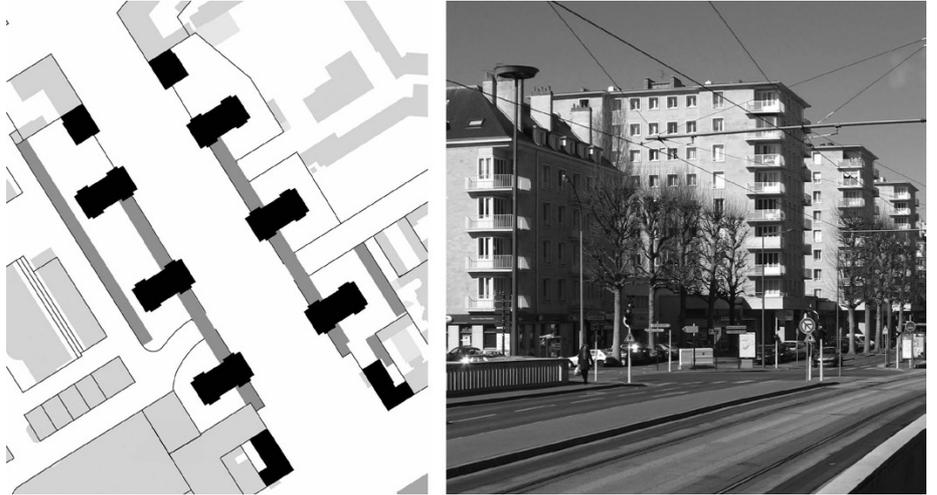
Elsewhere, experimentation was more limited. Although less radical and smaller, these experiments were based on the same principles as Le Corbusier. The goal was to place the buildings away from the street, to disconnect housing from shops, to give air, light and sun to all the apartments and to lay out the site in a collective and public way, like a big garden.

In Caen, along the rue Saint-Michel, the architect inserted the housing at an angle to the street and created small triangular squares. Single-story commercial buildings connect them, and the buildings are arranged around small gardens. Urban innovation combines here with a very traditionally inspired architecture. In the same city, the group of Tours Marine concentrates the dwellings in towers of nine levels. Single-story commercial buildings also connect the towers. The composition forms a monumental avenue, which magnifies this major route of the reconstruction plan.



The ensemble of housing and shops on rue Saint-Michel in Caen

The ensemble of housing and shops of Tours Marine in Caen



Architectural Research: Crustaceans versus Vertebrates

The research also focused on construction techniques. The goal was to build faster and cheaper, but without forgetting quality and architectural aesthetics. There were two main tendencies: heavy bearing wall and light frame construction. They were summarized in an ironic way in the architectural press by the formula “crustaceans and vertebrates.”

The heavy architecture with carrying wall. Orleans: Pol Abraham architect, construction process Mopin & Cie.



On the crustacean side, the walls were thick and heavy. The justification for this technique was that concrete was a cheap and available material. The difficulty was finding an exterior appearance of good visual quality. The most notable technique is that of the architect Pol Abraham, who developed a permanent formwork to mold the wall. Prefabricated plates formed the outer and inner faces of the wall. Combined with prefabricated window frames, both faces were raised to the height of one story and then filled with concrete. The system also made it possible to do so without scaffolding.



The load-bearing architecture with prefabricated infill elements. Le Havre: Auguste Perret architect.

On the vertebrate side, Perret was the principal representative of this tendency toward a light architecture where the load-bearing elements were limited to a few elements, such as columns, beams, and floor slabs. Builders erected the load-bearing structure first before inserting prefabricated infill elements. The result was an architecture where the different elements of the wall were clearly identified, and where multiple reliefs animated the surfaces.

Both currents simultaneously reflected on the prefabrication of building elements, and the evolution of this research eventually led to heavy prefabrication becoming the main construction system in the 1960s. This system mobilized prefabricated room-size modules requiring powerful means of transport and lifting.

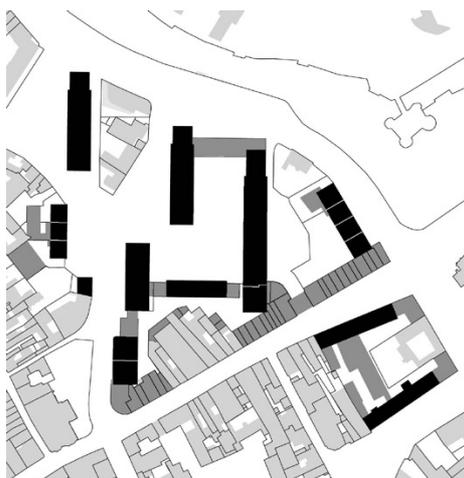
The Modernist Turn of 1950

Starting in 1950, the Ministry of Reconstruction created new, much more radical, guidelines covering the entire city. The minister was Eugène Claudius-Petit, admirer of Le Corbusier. Deeply convinced of the need to invent cities much more in step with the times, he proposed more advantageous financing formulas that were conditioned on respect for new urban rules. The objectives were the same as in previous experiments, but they now applied to large ensembles in which modernity had to be visually much more assertive.

The Ministry of Reconstruction now demanded the building of very large housing ensembles in order to lower costs and speed up reconstruction. It encouraged the search for new constructive solutions such as prefabrication. It required the disassociation between buildings and streets in order to let air and light penetrate into the houses, and to finish with narrow and closed streets. Finally, it sought to express this new impetus through modern and rational architectural forms.

This new orientation appeared at a time when the reconstruction was already well underway, so that in some cities modern logics were in direct contact with traditional systems. In Caudebec-en-Caux, half of the city is organized in traditional closed blocks, with houses that have high tile roofs. However, after 1954, the Architecte en Chef concentrated half of the remaining dwellings to be rebuilt in a single large curved building winding through the city. In Caen, a single architect, Henry Delacroix, designed the quarter of Quatrans, with 400 dwellings on five blocks. He drew a series of parallel bars, dominated by an 11-story tower. The ground was entirely collective and public, alternating squares and gardens, without any private or closed plots. The accumulation of all these experiences kept cities away from the unity originally hoped for but architects avoided chaos by seeking solutions to maintain the link between all these logics. For example, the use of a traditional building material was able to make the connection with the reconstruction of the first phase and further with the historic city.

Caen: a bar of the quarter of Quatrans and the tower of 11 levels seen from the castle. The district is established independently of historic monuments or spared blocks.



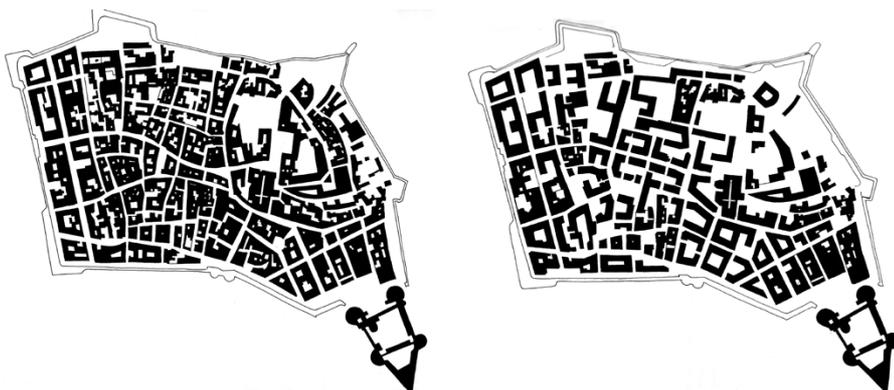
Le Havre, Saint-Malo, Royan

The centralization of financial means and aesthetic and urban policy within a single ministry could have standardized the reconstructed cities. Nonetheless, this was not the case, and identical procedures had quite different results. Three examples will illustrate this diversity: Le Havre, Royan and Saint-Malo.

Le Havre is a fairly recent town with few historic monuments. Before the war, the building was essentially modern, dating from the 19th century. An industrial and port city, it was turned toward the open sea, and constituted the largest transatlantic port of France. In 1944, Auguste Perret's former students lobbied the Ministry of Reconstruction for their teacher to obtain the reconstruction of a large French city. He was indeed considered the greatest living master of French architecture. His notoriety was based on his ability to invent modernity by becoming part of the great classical tradition. Therefore, Perret was named Architecte en Chef of Le Havre.

The pupils of the Perret workshop made some proposals to radically redesign the urban form. For his part, Perret imagined a city elevated on an artificial slab. These proposals were not retained. The old city layout finally inspired the reconstruction plan, with the streets simply being widened and regularized. Perret arranged a very hierarchical system on this street structure. Three major avenues – rue de Paris, avenue Foch, boulevard François 1er – surrounded the city center, articulated by three squares marked by monumental ensembles: the Place de l'Hôtel de Ville, the Porte Océane, and the Front de Mer Sud. With these towers emerging from the silhouette of the city, Perret took advantage of the concentration of housing to animate the urban landscape. The paths, squares and gardens were arranged following a scholarly game of expansion and contraction of space and views. For architecture, he imposed rules based on a frame of 6.24 meters, as well as rooftop terraces. This framework allowed the development of an architectural language specific to Perret, based on the development of reinforced concrete, treated as a noble material, and on the load-bearing structure.

Saint-Malo was the opposite of Le Havre. It was a very old city, with narrow and winding streets, surrounded by a continuous wall. The town planner Marc Brillaud de Laujardière, designed a new roadway, regularized and enlarged, but he retained Saint Malo's flexible and complicated character, very different from the orthogonal checkerboard of Le Havre. Assisted by the mayor of the city Guy Lachambre, the Architecte en Chef Louis Arretche set up architectural rules to reconstruct the old urban silhouette of the city within its ramparts. The ministry agreed to finance the extra cost of high slate roofs and of the granite for the facades. From afar, one seems to be seeing the city of corsairs protected by the medieval wall, but as you approach, the modernity of the design of the façades is clearly visible. The permeability of the blocks, where central space is entirely public, also compensated for reconstructing the network of narrow and tortuous roads.



Saint-Malo before the war and after reconstruction

The third example is the city of Royan, a recent seaside resort, entirely dedicated to leisure and holidays. The seafront, an amphitheater facing the beach, was the most important building. First, the Architecte en Chef Claude Ferret imagined a great classical composition, with a triumphal avenue perpendicular to the beach. However, he later modified the planned architectural forms in a much more modernist sense. Brazilian architecture, with its sensual curves and sun protection devices, inspired the final design. For the seafront, he drew a large continuous curve with a portico supporting an accessible terrace at its center. At ground level, a covered gallery allowed pedestrians to walk along the shops sheltered from the sun. The rest of the city presents several remarkable buildings in the same playful and sculptural spirit: the covered market, the Notre-Dame church, the casino, the convention center, and several villas.

Royan: the seafront (architect: Claude Ferret).



Conclusion

French Reconstruction after 1944 had a strong modernizing ambition. It was to prepare cities for the next 50 years. Despite the centralization of the process, the French State made the reconstruction an exceptional laboratory on the modern city. It promoted many experimental projects, both urban and architectural, on functional, financial, social and artistic issues. Even if the State pushed aside the current of radical modernity, it allowed the expression of many other architectural trends, more in step with the social and cultural reality of the country. The new cities of the reconstruction were never radically different from those they replaced. Chosen solutions were adapted to the character, history and functions of the city. The result is a reasonable compromise between modernity and tradition, which considers objective facts such as geography, climate or economic activities, but also immaterial meanings such as harmony, memory, or the Genius Loci. Sixty years after their completion, this ability to make the link with the cultural universe of the inhabitants is the most interesting lesson of the reconstruction of French cities after World War II.