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Donato Severo

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Polychrome, functional synergy and art integration in the France-USA Memorial Hospital of Saint-Lô, Normandy (1948-1965), Paul Nelson, architect.

By Donato SEVERO

'One third of all Americans is ill-fed, ill-clothed, ill-housed and receives insufficient medical care'. Franklin D. Roosevelt, 1937¹

Connections between architecture, arts and healthcare deeply marked the 20th century, one of tragedy and destruction without equal due to two World Wars. The richness and fruitfulness of these ethical, scientific and cultural connections between architecture and healthcare defined the century. To this day, health remains a political priority in Europe, as well as in the United-States and around the world, and one of the most debated and most controversial issue in our society.

Our health reflects our surroundings, our habitat.

How to assure satisfactory quality of life for our future generations while offering an access to housing, truly respectful of human health and environment?

How to build a balance between humans, their habitat and its surrounding wildlife?

What health and environmental factors established and/or influenced our contemporary condition? How can architecture and arts contribute to our health?

Those reflections call for a renewal of project methodology, towards a new understanding of 'healthcare' and a new balance between material and immaterial, functional value and architecture significance.

The connection between architecture and health affects the clinical sphere and hospitals, but also other facilities in the realm of public spaces. This sector of intervention is increasingly developing in our society. Evolution and obsolescence of architectural solutions, technics and devices in the healthcare field are moving fast. Historical knowledge allows us to reflect on key features, consistencies and fractures as well as failures in this sector whose main problematic is extremely sensitive and complex: Man's health.

The France-USA Memorial Hospital in Saint Lô, Normandy –and Paul Nelson’s work- bring the relation into focus, rich and comprehensive, between architecture, arts and care.

An historical analysis of this architectural object renders the essence of its double nature: testimony of the past and active protagonist of the present.

¹ Citation from Paul Nelson, 'La transformation de l'architecture aux Etats-Unis', in *Arts de France*, n°5, 1946, p.36

A Reconstruction masterpiece

The France-USA Memorial Hospital in Saint-Lô (FIG.1 FIG.2) is known as one of the most relevant projects of French Reconstruction. Belatedly classified as 'Monument Historique'², the construction was envisioned as a combination of structure, shape and function. The project of this hospital is based on human needs, with a constant concern for rationality as well as economical construction and exploitation.

The Memorial Hospital is the first important work crafted by the French-American architect, Paul Nelson³, in cooperation with Roger Gilbert, Marcel Mersier and Charles Sébillote. Nelson's great desire (FIG.3) was to assure the utmost wellbeing of those admitted in the health centre. His humanist approach inspired a series of unprecedented, meaningful and technical architectural innovations. The organisation of the new hospital, based on functionality and modernity; polychromic and artistic inclusion; extended high-quality work, notably the 'claustra' façade; ovoid surgical rooms and technical equipment are testimonies of the major quality and innovation pursued in this project.

Two aspects of the 20th century

The Memorial Hospital exemplifies two distinct and convergent narratives with its innovative and meaningful work. The first is one of modern hospital architecture, as a public health main facility, focused on physical and psychological comfort for the patients as well as for the hospital staff, prevention, space organisation and technical hospital facilities. The second one articulates modern space, arts integration and constructive innovation, inspired by both Parisian artistic and architectural avant-garde and American culture.

Those two 20th century narratives reveal themselves in Nelson's tireless research work and his methodical genius that profoundly and irrevocably marked the history of Reconstruction architecture. Nelson starts the Saint-Lô Hospital project at 53 years old, in 1948.

During the thirties, he conducted numerous studies and researches, particularly about the hospital field⁴. After the Second World War, Nelson enjoyed tremendous prestige: 'Modern architecture prestige, as an intellectual property, combines itself with the more traditional artistic prestige of an architectural formation completed in Paris, and both are fueled by studies linked with the work of Lille hospital complex.'⁵ (FIG.4) Nelson gained this recognition because of his dual commitment in 1940-1944 to culture and science as a counsel of the American federal administration, and political involvement as leader in the *France for ever* movement, a national organisation close to the *France combattante* movement. In America, Nelson dedicated his work to hospital studies, housing, urbanism and other, more detailed issues as the therapeutic effects of colours and standardisation. In the aftermath of the Second World War, his experimental work in 1940-44 makes him the most qualified to upgrade French architects' knowledge of American construction technics⁶.

² The 24th September 2008, after a lengthy procedure, the Minister of Culture and Communication signed the decree n°32, classifying the France-USA Memorial Hospital of Saint-Lô as a historical monument.

³ Chicago 1895 – Marseille 1979

⁴ In 1948, Nelson, Beaux-Arts 1927 graduate, only built the Parisian Maison Brooks (1928), and the film set of 'What a widow!' (1929). Between 1930 and 1938, he studies eight different projects, unrealised: Audio-visual Room in 1930, in Bronxville; Maison de Santé – Type minimum pour climat tempéré, 1930-32; Cité hospitalière 1932-33, in Lille; Pavillon chirurgical, 1934, Ismailia; National centre CBS in 1936, in New York; Suspended House in 1936-38; Palais de la Découverte, 1938, in Paris, with Oscar Nitzchke and Frantz Jourdain; Theatre W.G.N., 1937-38, in Chicago, with Fernand Léger. After 1948, fourteen other projects and major creations will follow.

⁵ Gérard Monnier, *L'architecture en France, une histoire critique*. 1918-1950, op.cit, p.334

⁶ Ibidem

After Nelson's death, Anatole Kopp writes an essential article⁷ which reveals with clarity Nelson's work themes: social concerns, intransigent values, logic and rationality in the method, all of which contributed to bring architecture out of the Beaux-Arts pseudo-artistic subjectivism. Nelson built only a few projects, but his work, with its rational methods and capacity to dialogue with other disciplines and other sources of knowledge, is the start of a true revolution which gave 20th century architecture its cultural value.

The Memorial Hospital is the result of Nelson's architectural studies in the thirties and his further research on the 'control of the form' in the forties. Nelson puts human needs at the centre of all: 'the whole man, gut, sex, head, dreams included'⁸; he is also a utopian who causes us to reflect on the notions of well-being, colours therapeutic effects, the role of health centre in our society and its future, the 'useless space', the 'art to move from one volume to another, one form to another'⁹, and the concept of flexible envelopment.

The French-American architect knew how to bring life to a space. Nelson articulates:

[...] an architecture that frees the individual of the empiric sensation that life is imposed, by offering alternatives and allowing flexibility to his constructions, and to his future transformations; an architecture that stimulates human sensibility by using contrast in its volumes and forms.¹⁰

He will add, later:

And I think that is the foundation of all art: the art of living in the sense of enjoying, perceiving differences and appreciating those differences.¹¹

In making the Memorial Hospital, Nelson established several innovations, now considered as significant technical and architectural fixtures. The surgical ovoid rooms (FIG.5), the lightening and the claustra façade are perfect examples. Those innovations are subjects to an architectural, constructive and technical detailed analysis, supported by archives, documents and other research materials.

Analytic approach and control form

The French-American architect conceives a building not only as a system of basic objects grouped together but more as a system of functions: programming, distribution, circulation; thermic, acoustic; static (supported or supporting), flexibility. An analytic approach allows a repartition of those different functions, following objects special elements. Nelson's innovation touches on the general conception of the modern hospital, synthesised in the concept of *hôpital pour la vie*, hospital for life – a hospital intended equally for the sick and the healthy. It also influences on the improvement and creation of several architectural, technical and functional facilities.

This kind of typology is the result of shaping, of using functionalism and plastic constructive work in the modern space. The French-American architect uses modernism as a renewal and a call to reason. He never, however, overlooks aesthetic and space structure.

Nelson described the hospital – using a tree as an analogy: the trunk represents vertical circulations; branches are the various floors; roots, the ground floor and basements. The construction plan is made so different medical services form a whole. The upstairs care services where patients are hospitalised are linked to the diagnostic and treatment services (radiology,

⁷ Anatole Kopp, 'About Paul Nelson', in *L'Architecture aujourd'hui*, N°205, Octobre 1979, p.9

⁸ Jean Hélion, 'Terme de vie, terme d'espace', in *Cahiers d'Arts*, Paris, Decembre 1935, p. 269

⁹ Paul Nelson, 'Un américain à Paris, interview de Paul Nelson' gathered by Charles Galpérine, in *Nôtre République*, February the 3rd, 1967.

¹⁰ 'La Maison suspendue, Recherche de Paul Nelson' published by *L'Architecture vivante*, Paris, Editions Morancé, 1937, n.p.

¹¹ Paul Nelson, 'Un américain à Paris, interview de Paul Nelson', op.cit.

laboratory, pharmacy, etc.). The radiology centre, where social and preventive medicine consultants are located, is directly connected to the medical services.

The claustra façade

The South façade measures 107 metres in length, 32 meters in height and is constituted of 6 180 claustra panels. In order to better benefit sunshine and daylight, the room's south wall is entirely made of glass panel – composed by 60 x 60cm elements –allowing the patient to be in permanent connection with outdoor surrounding (FIG. 6). The idea of psychological conditioning is applied to the construction. The patient, even laid down, can enjoy the calm and relaxing landscape, which distracts him from his suffering. He can benefit from the light's bright ambience. The metallic grid dimensions avoid any aggressive external intrusion that may ruin intimacy or sense of security.

The claustra façade system allows unrestricted ways to establish natural lightning.

As Nelson explained:

[...] to have everything open or everything closed, to adopt any solution, to fill those squares with transparent, translucent or opaque materials that is to find the unique mosaic corresponding to the lightning needs or corresponding to the residents liking.¹²

The colours of the metallic grid were chosen by Fernand Leger: the west side, close to the nurses' quarters, is blue; the remoted east bloc is red; the ground floor, a continuous element with a different function than the hospital buildings, lemon yellow. The fixed or push-out claustras are made with moulded aluminium and retainers to maintain them open, half-open or closed. (FIG.7) Claustras' chassis are nested in one another around a U-shaped iron framework. This creates a streamlined form turned to the outside, projected forward. Its projection creates different perceptions and a different scenery depending on the viewpoint. At the foot of the façade, a walk in the park offers kinetic sequences, like the dimension Nelson discusses in the commentary on Pierre Chareau's Dr Dalsace House. In 1933¹³, Nelson wrote a published article wherein he mentioned:

Today's man knows about space and moreover, about moving in the space. Simple plans and sections won't satisfy architectural expectations but the fourth dimension, where time intervenes, can. It is necessary to create spaces crossable in a relative timeframe. We need to feel the fourth dimension.¹⁴

For Nelson, the fourth dimension is the contrast between *dynamism and static*: 'In architecture, the framework is static and carries what is or what should be eternal, immobile. Dynamism is completely independent from it, and is expressed by vertical and horizontal distribution, by thin and mobile partitions walls...'¹⁵. Later, Nelson will state about the Saint-Lô hospital façade: 'These outside columns are great modulation, music's great *tempo*, and behind it, we find flute and violin playing, free forms, that is.'¹⁶

The claustra façade is a great example of synergetic redistribution of functions: the envelope is in synergy with the carrier and other sub-systems of lightning, isolation, ventilation etc. It is not basic functionalism where the object is specialised only 'function by function'.

Modern polychrome

¹² Paul Nelson, 'Un américain à Paris, interview de Paul Nelson' gathered by Charles Galpérine, in *Nôtre République*, February the 3rd, 1967, n°250, p.5

¹³ Paul Nelson, 'La maison de la rue Saint-Guillaume', in *L'Architecture d'aujourd'hui*, Paris 1933, n°3-4, p.36.

¹⁴ Ibidem

¹⁵ Ibidem

¹⁶ 'Un américain à Paris, interview de Paul Nelson', op.cit., p.5

One of the most remarkable features of the France-USA Memorial Hospital of Saint-Lô is undoubtedly the use of polychrome. Saint-Lô Hospital breaks away from traditionally flat and morose health centre colours. Each building is distinguishable by its colour, its volume and all are combined in an artistic whole. (FIG.8)

The use of colours as a therapeutic tool originates from ancient Egypt and Greece and is deeply rooted in Chinese and Indian medicine. It is also a core part of ayurvedic medicine. In Europe and in the United-States, the interest around a therapeutic use of colours developed itself during the second half of 19th century.

In 1878, Dr Edwin Babbitt published 'Light and colour principle', a writing wherein he advises different ways to use colours in healing. In 1933, 'The Spectro Chrometry Encyclopaedia' by Dinshah Ghadiali, an Indian scientist, is the foundation of most of the modern researches. Around the same time, a form of colour therapy, known as 'Syntonics', is developed in the United-States, by Dr Harry Riley Spitler who discovers the possibility to create deep psychologic and physiognomic changes by modifying the light's colour. Since then, the interest in colour therapy has gradually grown. In the Modern movement, its use is continuously debated between those who prefer a 'pure, white' architecture, purists, and those who claim the use of polychrome as an essential modern aspect¹⁷. On this matter, Barbara Klinkhammer criticized the superficial historiographic approach:

Henri-Russell Hitchcock has identified three distinct uses of colour, since the beginning of the Modern movement: white omnipresence at first; then an increased interest in colours onto architectural buildings; finally, in 1930, the restricted use of raw materials colours only. This vision is too simplistic. The use of colour has in reality known two different schools of thoughts: it is true that purist proponents were dominant. Yet, architects coming from the art world quickly adopted a polychrome modernity, where colour supported artistic expression, actually anti-decorative, and was the tool of spatial expression and three-dimensional purism.¹⁸

It is also the case of Paul Nelson who, as Van Doesburg, Taut, Le Corbusier etc., is looking to connect artistic avant-garde researches, particularly cubism, and architecture.

Saint-Lô Memorial Hospital is not a simple transition from paint to architecture, under the influence of cubism. The polychrome project of Saint-Lô is defined by three major characteristics. Firstly, the application of polychrome is systematic onto largescale buildings. Secondly, the colour is part of and at service of the treatment. The therapeutic use of colour, the 'built-in colour therapy', is – for Nelson – an integral element in the modern hospital conceptualisation. The Memorial Hospital is the first hospital in Europe that welcomes polychrome. (FIG. 9) Lastly, the polychrome is a kind of synthesis between the spatialization approach of Léger and the search of *an architecture that touches human' sensitivity* of Nelson. The collaboration between the artist and the architect produce a continuity of researches and joint projects that are the direct expression of an art synthesis.

The polychrome internal

¹⁷Furthermore, in 1925, Fernand Léger to Le Corbusier will argue against the generalised architectural purism: '[...] by imposing art purism to workers, we destroy fantasy, life's charm: to do them good, we make them unhappy; this doesn't make sense.' . F.Léger, 'L'esthétique de la machine', in *Fonctions de la peinture*, Paris Gonthier, 1965.

¹⁸ Klinkhammer, Barbara, (Associate professor, University of Tennessee, Knoxville, USA): 'White Modernism? One of the major misunderstandings in the reception of the Modern Movement', in *The Reception of Architecture of the Modern Movement: Image, Usage, Heritage*, Jean- Yves Andrieux and Fabienne Chevalier, University of Saint Etienne 2005, p.245

To realise the polychromic composition of the France-USA Memorial Hospital of Saint-Lô, Nelson relied on the enthusiastic collaboration of his close friend, Fernand Léger. From this results an enjoyable and joyful polychrome. The polychrome project of Fernand Léger, who worked on the Saint-Lô project from 1953 to 1955, right before his death, is applied to collective spaces, care services, several bedroom or corridors walls, depending on the space's function.

The colours tones are warm and cheerful – lemon yellow, bright red, Veronese green, charron blue - creating an exceptional atmosphere of life inside the health centre.

The wall behind the headboard in the patients' rooms is bright red, while other walls are often in a lighter colour. The rooms' floors are painted in vibrant colours. We can found colours on doors, hallway walls, on the aluminium framework of the South façade immense canopies. To further enrich this joyful polychrome, Fernand Léger creates at the hospital gate, under a peristyle, a 40m² mosaic. (FIG. 10) The pattern evokes the years 1939 to 1945, crucial in regards to France and the United-States' history. Bridgman wrote about it:

This piece is the only work of decoration in the hospital. We could search hours for a superficial detail, a decorative appliqué, a moulding or a useless plinth, in vain. This hospital would be the most austere health centre if its sizing and its colours didn't make it a 'euphoria-inducing' space. This characteristic is to the architect's merit, who took risks.¹⁹

The polychrome, as defined by Nelson, is an element that is fully part of the therapy: its purpose is not to decorate but to create a relaxing atmosphere, full of hope, that the patient can instinctively feel without having to analyse it or forcefully adapt to it.

Transient and authentic

The Hospital by its very nature is subject to continuous transformations: equipment miniaturisation, profitability, acceleration of procedures and treatments, future discoveries, all of which can complicate the building's conservation.

The Memorial Hospital has two main qualities: it is, simultaneously, one of the most significant modern work of 20th century architecture and also one of today's high-performing medical structures. This double purpose creates complex situations, concerning the site heritage over time, and the implications of modifying, restoring, and keeping the building authenticity. Modifications, alterations, metamorphoses endured by a large number of 20th century's edifices attest to the vulnerability of those works. This observation is directly linked to the evolution of our conception of durability, now different from when those earlier 20th century's constructions were made.

The idea of a 'transient, fugitive and contingent" (Baudelaire) modernity and the short timeframe conception have impregnated architectural creation since the end of the 20th century. 20th century architecture, via continuous experiments of new construction technics and new materials, favoured technical innovation more than durability and resistance to the test of time. Hence, to assure the sustainability of the perishable is the paradox of modern construction conservation. The conservation issue is directly linked to the edifice sustainability. To consider buildings as consumption goods to use and to throw away and to replace with new, more advanced versions, is understanding life as a short cycle. On the contrary, conceptualising the building as an extension of the site, part of the geographic context, takes into consideration a longer life cycle. The Memorial Hospital protective measures offer a new perspective, allows for consideration of and planning for the conservation and restoration of some of Nelson masterpiece's meaningful elements.

Humanism

¹⁹ R.F. Bridgman, 'Description de l'Hôpital Mémorial', in *Techniques Hospitalières*, n°131 et 132, august-september 1956, p.75

Architecture historiography has allowed understanding Nelson's personality and architecture slightly better. The architect's work is increasingly recognised as one of the most sophisticated modern results of research and as a major contribution to care and well-being in architecture. Of course, different issues remain to be addressed. If effectiveness and hygiene are two main objectives in modern health, the search of humanism in architecture is the main aim of the Memorial Hospital of Saint-Lô project.

Humanisation is, perhaps, Paul Nelson most significant theoretical and practical addition to 20th century history, a century of conflicts, and unprecedented violence. Amidst these tragic stories, the Memorial Hospital of Saint-Lô- beacon of light, rationality, and generosity- is the representation of humanism of the 20th century architecture.