The Legacy of the Roman Olympics. A New Conservation Strategy for the Flaminio Stadium

Ugo Carughi, Rosalia Vittorini

The architectural heritage of the 20th century seems to have been increasingly neglected by Italian protection-related legislation, contrary to the trend of sector-related historiography. The result is that architectural buildings which are of exceptional value from an artistic, historical and identity point of view are not protected (Fig. 1).

With regards to the Italian legislation, just as in other countries, the conservation plan must be considered an innovative tool. In Italy, this represents an intermediate step between the declaration of cultural interest and the project of recovery and renovation. In fact, the former is limited to specifying the historical and critical motivations for which the property must be protected; no operational instructions are provided. The latter are deferred until the works are carried out and concern the project that, in the absence of preliminary guidelines, is subject to constraints deriving from individual situations and the discretion of the institutions. Therefore, it would be highly desirable for the conservation plan to be integrated into national protection legislation, as an essential point of reference for a coherent intervention and cultural heritage management policy.

The conservation plan of the Flaminio Stadium – that has not been protected to date and therefore during the preparation of this document – has been considered an important opportunity to envisage a protection strategy aimed at overcoming, at least in part, both the delays and rigidity of Italian sector-related legislation.

The contents submitted to the Special Superintendence for the Architectural Heritage of Rome regarding the constraint proposal include specific references to other works created by Nervi for the 1960 Olympic Games, as well as other stadiums built by the same Valtellina-born engineer. Although these different works were all created by the same person, such juxtapositions were inspired by the concept of "mass-produced assets", which for several decades was dealt with in an international context (UNESCO), but not provided for in national legislation. This is a concept that may prove to be considerably innovative compared to ordinary protection procedures (Fig. 2).

The possibility of identifying common factors among several works, differing in terms of the circumstances under which they were built as well as in their expressive results, can be attributed to the 'series' concept, a mathematical figure consisting of a finite set of elements that can no longer be reproduced. The term 'series' is used in the definition by G. Kubler (1983), who distinguishes it from 'sequence,' a set of elements always open to the inclusion of new elements.

By assigning a place in the series to each work, it is easier to define its historical identity and to assess its artistic importance, compared to carrying out an in-depth study on a work-by-work basis. In a 'series', the qualification of excellence, instead of referring to an individual architectural building, is extended to all the elements it consists of, and it is proportionally amplified, both in terms of perception and collective participation, and on the basis of a coherent method of protection.

Naturally, all the elements in the series must be linked by indisputable circumstances in the various aspects taken into consideration. Thus, a selective approach to critical literature, the extrapolation of recurring or unprecedented matters is deemed of utmost importance. The selection of works must therefore be preceded by a selection that relates to their critical fate.

Fig. 1 Ligini, D. Ortensi, S. Ricci, Olympic Velodrome, Rome (1960)

Fig. 2 Rome, Flaminio Stadium (1959)

Fig. 3 Rome, Flaminio Stadium of 1959 today

Fig. 4 Rome, Flaminio Stadium of 1959 today

In acknowledging a series of structural and figurative insights from other works that have either been built or only designed, the Flaminio Stadium inaugurates certain innovations that will be proposed again in later projects. This leads to an assessment of both its historical and qualitative importance.

The conservation plan should be understood as a methodological survey tool based on multiple plans for analysing the condition of the architectural organism and on the resulting guidelines for the recovery and restoration project, which is carried out using several specific and integrated competences. It provides indications and recommendations for the conservation and/or restoration of the building's original characteristics, based on a specific study of the building, acquired through an analytical study of the architecture, structures, materials and construction techniques, supported by historic and archival documents and by direct observation.

The Conservation Plan for this building can be considered emblematic for research studies on the structural concrete of 20th century architectural heritage. The scientific approach adopted in this type of study reflects the complexity of the conservation, restoration and reuse strategies required for major works of modern architecture (Figs. 3, 4).

The Flaminio Stadium

The Flaminio Stadium was constructed for the 17th Olympic Games hosted in Rome in 1960 and was inaugurated in 1959. The Stadium was designed by engineer Pier Luigi Nervi and architect Antonio Nervi between 1957 and 1958, following the awarding of a competition (1956) to the Ingg. Nervi & Bartoli Society.

The Flaminio Stadium stands on the site of the Torino Stadium (1933) which was formerly the Stadium of the National Fascist Party (1927). The project for the new stadium was forced to respect a number of strong limitations: the requirement to respect the boundaries of the previous stadium; the obligation not to exceed 18–20 metres of height to reduce the impact of the grandstands compared to the stadium's natural setting; the requirement to respect a pre-established budget.

The Flaminio Stadium represents a work of notable value as it fits successfully into the 'morphology' of the urban context, establishing a privileged relationship with the neighbouring Palazzetto dello Sport (Vitellozzi and Nervi) and with the nearby sports facilities located in the area north of Rome, especially the Foro Italico.

The Stadium's grandstand is conceived according to a system of steps invented and patented by Nervi specifically for the Flaminio Stadium. Each step is formed from two prefabricated elements in reinforced concrete: a "U"-shape that collects rainwater and insulates the structure; the underside of this element, exposed in the spaces beneath it, did not require any additional finishing. The second element, supported by the first, forms the steps and seating.

The steps connect the 92 exposed reinforced concrete frames which are set at 5.7 metres in the centre and are also connected by secondary beams; the frames have the same shape in section, but the difference in height and width creates a sinus curve which encloses the field.

A notable cantilever (27 metres) of the large canopy protects the western sector of the grandstand: it is composed of an upper element supported by frames extending above the level of the seating, and a lower portion projecting out from hollow steel struts filled with a concrete mixture. The lower part of the canopy is made of undulated prefabricated elements in ferro-cement, lightened by round openings fitted with wired glass that favours the passage of light. Light fixtures placed in correspondence with these elements provide artificial lighting at night (Fig. 5).

The circulation of spectators (50,000) from the vomitoria to the grandstands and curves is one of the original features of the Stadium. It relies on external walkways, covered by the stands and cantilevered at 3.30 and 6.70 metres above ground level. Public access to the walkways is provided by large 5.30 metres-wide staircases, also conveniently posi-

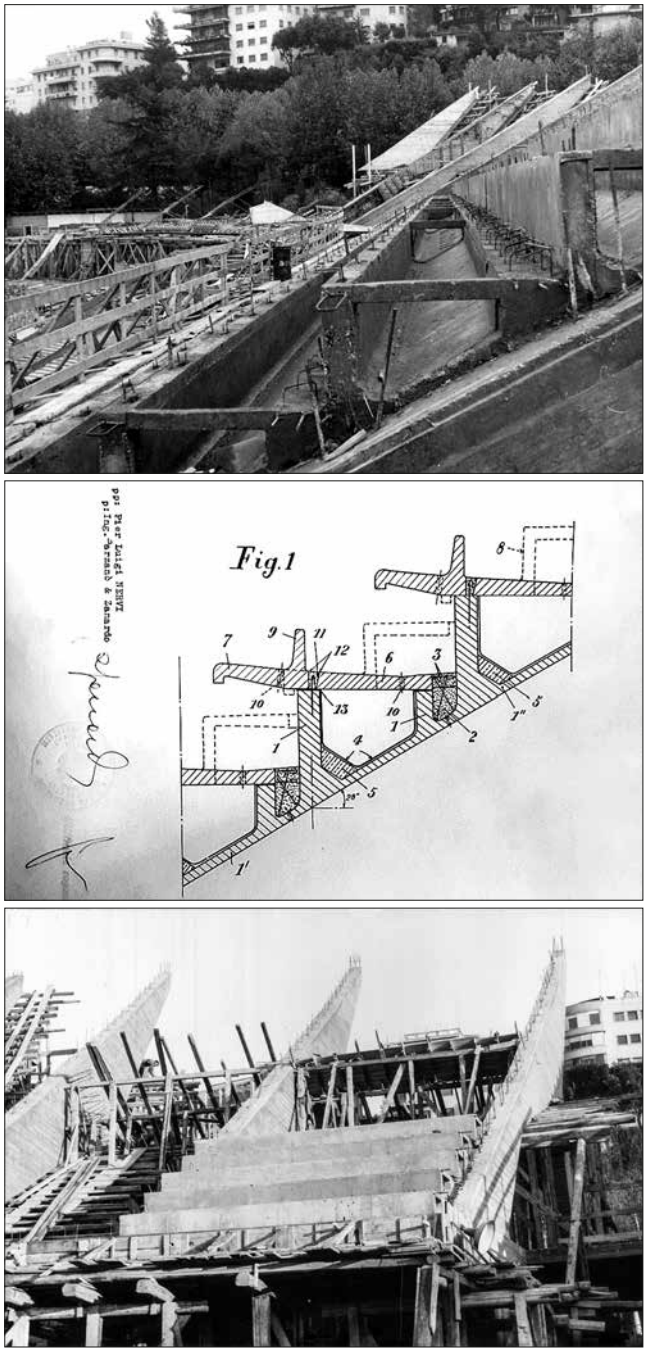
tioned alongside the food courts and toilets serving each sector.

In addition to the football pitch and the grandstands, the Stadium includes four gyms (for gymnastics, boxing, fencing, weightlifting and wrestling) as well as swimming pool and various services: a bar, changing rooms, first aid station (Fig. 6).

To ensure the rapidity of construction (which lasted only 18 months, demolitions included), the traditional construction site was accompanied by an area used exclusively to produce the prefabricated elements (no less than 7,652). Prefabrication ensured perfectly regular pieces that required no additional finishing after the installation. The construction process could count on little or no references to general practice or theory, and was thus essentially based on experience, analogy and, above all, on "constructive imagination". This required precise intuition and forecasting of the various phases of construction, transportation and assembly of the different parts, in order to define and design accurately beforehand.

The Stadium now stands in a part of the city that is enriched by important examples of contemporary architecture: the Auditorium "Parco della Musica" by Renzo Piano, inaugurated in 2002, the MAXXI by Zaha Hadid, inaugurated in 2010, and the Music Bridge designed by Buro Happold and opened in 2011.

The overall setting of the Stadium corresponds to the original design; however, several interventions have partially modified the initial organism. Currently the structure stands for a series of complex issues with many critical levels. The Stadium has been decommissioned since 2011 and is now in a deplorable state.



Figs. 5 a–c Rome, Flaminio Stadium under construction (1959)

Historical aspects

The link between the Palazzetto dello Sport, the Corso Francia Viaduct, the Flaminio Stadium, the Palazzo dello Sport built in the EUR area, and the 1960 Olympic Games has so far been deemed as a historical fact by sector-related literature. These architectural works, in conjunction with TV broadcasting, spread the image of Rome as well as Italian culture and talent worldwide; the fame of Nervi himself reached an intercontinental level. Furthermore, the four Rome-based constructions bear witness to the success of structural architecture between the 1950s and 1960s in Italy.

Executive aspects

Regarding the executive aspects, the four works in Rome have in common the application of the so-called 'Nervi system'. This system is based on two aspects. These two aspects are so innovative that it is very difficult to distinguish the ideational moment from the implementation stage. On the one hand, the organisation of the work was foreseen to be carried out simultaneously on two building sites: the first was to create the in-situ cast structures, while the second was intended for the in-situ construction of pre-fabricated buildings, using only a few formwork structures reused several times; on the other hand, the use of the so-called 'ferro-cement', patented by Nervi in 1944, consisting of a layer of steel mesh, onto which the concrete conglomerate with very fine aggregates was spread, creating a total thickness of 2.5 cm. The elements produced in situ could both be installed by a few workers.

At the Flaminio Stadium, the steps were produced on site, or the front ends of the projecting roof beams were made from 'ferro-cement'. Similar procedures were used in the 13 types of roofing blocks on the domed roof of the Palazzetto dello Sport or for the lowered vault that covers the perimeter gallery, and for the undulating beams of the domed roof of

Figs. 6 a–b Flaminio Stadium, one of four gyms and the swimming pool

the Palazzo dello Sport. In the Corso Francia viaduct the prefabrication was used for the corbels situated on top of the pillars, as well as for the main beams of the superstructure (Fig. 7).

Structural aspects

Both in the Palazzo dello Sport and in the Palazzetto dello Sport, Nervi used the favourable roofing membrane regime. Under the action of uniformly distributed and off-centre loads (for example, the action of the wind), the stress of normal exertion is contained within the thickness of the domed roof. By introducing ribs, Nervi tackled the problem of stability, typical of thin shells, and at the same time ensured the regime of the roof membrane.

Expressive aspects

The separation of the two carriageways on the Corso Francia viaduct makes it lighter and more permeable to sunlight that penetrates along the centre line of the infrastructure, so that it blends appropriately into the surrounding landscape. A similar result has been achieved in a different way at the Flaminio Stadium, where the different sizes of the load-bearing walls are determined by the variability of the stadium profile.

Both at the Palazzetto dello Sport and the Palazzo dello Sport built in the EUR area the idea of absolute space can be perceived, condensed in the fabric of the roof coverings, whose spring line defines a horizon that is both spatial and structural at the same time: a boundary between gravity and lightness, contingency and transcendence, functionality and art. This horizon rests on slanting, slender supports that allow the greatest possible compositional freedom in the spaces below and have a distributional and functional character.

Abstract

Der Fall Nervi ist nur ein Beispiel, um die Architektur des 20. Jahrhunderts eingehender zu betrachten. Unter Nervis umfangreicher Produktion können wir insbesondere die Arbeiten betrachten, die in Rom anlässlich der Olympischen Spiele 1960 ausgeführt wurden: das Stadion Flaminio, den Palazzetto dello Sport, das Viadukt des Corso Francia und den Palazzo dello Sport. Der Konservierungsplan des Flaminio-Stadions ist Teil einer umfassenderen Konservierungsstrategie mit der Bezeichnung „im Netz“ oder „in Serie“, die vom UNESCO-Welterbezentrum seit den 1990er Jahren definiert und verwendet wird und die dank einer Reihe gemeinsamer Charakteristika auf andere Werke von Pier Luigi Nervi ausgedehnt werden kann. Diese reichen von den Methoden der Realisierung über die Ausdruckssprache bis hin zu den historischen Umständen, unter denen einige der wichtigsten Meisterwerke entstanden sind. Damit Werke eine „Serie“ bilden können, müssen sie zu Kategorien gehören, die heutzutage nicht mehr reproduzierbar sind. Auf diese Weise kann eine geschlossene Reihe von Werken definiert werden, die unabhängig von zeitlichen Begrenzungen die wechselseitige Bedeutung bewertet.

So wird das kulturelle Interesse von den räumlichen, strukturellen und ästhetischen Qualitäten der Architektur auf projekthafte, technische und historische Prozesse übertragen, die sie hervorgebracht haben.

Anlässlich des Konservierungsplans wurde das Stadion Flaminio von der zuständigen Oberaufsicht für das Kulturerbe mit dem Erlass vom 27. 09. 2018 Nr. 74 verbunden. Das von dem Ingenieur Pier Luigi Nervi und dem Architekten Antonio Nervi zwischen 1957 und 1958 entworfene Stadion steht an der Stelle einer ehemaligen Anlage, die unter dem Namen Stadio Torino bekannt ist und abgerissen wurde. Der Respekt vor den Abmessungen des ehemaligen Stadions auf dem Grundriss und in der Höhe führte zum Entwurf einer originellen und „organischen“ Konfiguration, die innovative strukturelle Lösungen übernahm und ein beispielloses formales Ergebnis hervorbrachte.

Die Tribüne des Stadions basiert auf einer Abfolge von Sichtbetonrahmen, die durch sekundäre Balken und die Stufen miteinander verbunden sind; die Rahmen haben im Querschnitt die gleiche Form, unterscheiden sich jedoch in der Höhe und erzeugen so eine Sinuskurve, die das Spielfeld umschließt. Ein bemerkenswertes Vordach schützt den West-

sektor der Tribüne. Unter der Tribüne befinden sich außerdem vier Turnhallen und ein Schwimmbad.

Die Besonderheit und Originalität der gewählten Lösungen bestätigen die Fähigkeiten von Pier Luigi und Antonio Nervi als Planer und Bauherr und machen das Flaminio zu einer einzigartigen Konstruktion, die eine höchst wirksame und sehr originelle Verbindung zwischen Form und Struktur und zwischen Architektur und Ingenieurwesen darstellt. Das 2011 außer Betrieb genommene Stadion leidet derzeit unter Vernachlässigung und erheblichen Beeinträchtigungen.

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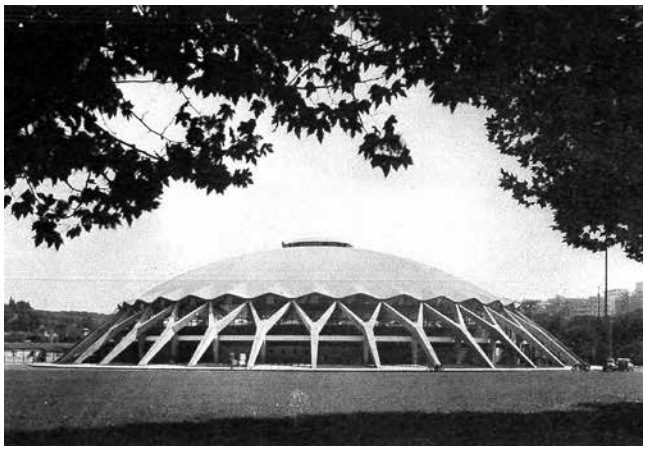

Figs. 7 a–d The Corso Francia Viaduct, the Palazzo dello Sport, the Palazzetto dello Sport, the Flaminio Stadium