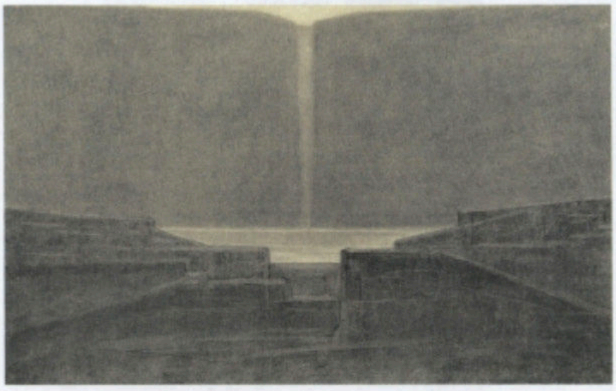
Geometry and Analogy

Le Corbusier's Baghdad Veils

Peter Carl & Irena Murray

Le Corbusier, *Taureau IX*, 1954

Le Corbusier was part of the last generation for whom the contemporary reinterpretation of myth was still significant. One cannot imagine present-day Parisian artists and architects embracing bull-symbolism as it was by Pablo Picasso, André Masson, Michel Leiris, André Gide, Le Corbusier and the surrealist journal *Minotaure*. Similarly, Dionysus, Prometheus and Orpheus have been displaced from their central roles in the arts. This might be regarded as the dying phase of European Romanticism's turbulent efforts to recover *Gemeinschaft* (community) from the advancing secular and technological *Gesellschaft* (society), in Ferdinand Tönnies' famous formulation.[1] Romantic artists and thinkers experimented with various combinations of religious reform, god substitutes (the absolute, the sublime), alternative dispensations (freemasonry, theosophy), mysticism, the problem of origins (in which the creator-god and Indian studies figured prominently), eschatology (as destiny or progress), alchemy, esoterism, psychologism and more generally the notion of art as a synthesis of the secular and sacred.[2] The demise of this body of thought was presaged at the turn of the century by the rather tawdry renderings of such popularisers as Helena Blavatsky, Aleister Crowley, George Gurdjieff, Édouard Schuré and Eliphas Levi.[3] Between 1915 and 1923, Marcel Duchamp subsumed most of what was in play in the ironic tour de force of *The Bride Stripped Bare by her Bachelors, Even*. The demise was assured when the Nazi and Fascist regimes managed to transform many of its important themes into attributes which could be enforced by thugs, thereby precipitating a general aversion to, even fear of, anything to do with hierarchy or myth. The games with African, Iberian and Polynesian 'art' of Picasso, the surrealists and somewhat later by Le Corbusier (his 'bestiary') gave way to professional scholarship, such as structuralist anthropology and the classical studies of Vernant and his colleagues.



Adolphe Appia, *Dessin de Rythmique*, from *Adolphe Appia*, 1929
Courtesy Eric Parry

Accordingly, one wonders why Le Corbusier chose to develop his *Poème de l'angle droit* between 1947 and 1953. This gnostic text, bereft of irony and apparently written only for initiates, reprises many of the Romantic approaches to meaning and representation. In it, the autobiographical artist-architect becomes pregnant with, and gives birth to, architecture-creatures, emulating his bull-figure disposed across two horizons (one literal, the other spiritual), evidently derived from Phanes of the *Orphic Rhapsodies*.[4] The *Poème* (itself a generic Romantic term for the fulfilment of meaning) is concerned with the context for architecture, understood as a group of themes which mostly involve the coincidence of opposites mediated by the harmonic structure of Le Corbusier's Modulor and set within the cycles of water: clouds, rain, rivers (of history) and the metamorphic tidal sea, which also provides the horizon for all struggle (day) and creativity (night) – 'the waters flow / the sun illuminates ... the fluids are everywhere' (*Poème* F3). The *Poème* depicts, therefore, a species of alchemical vessel at a cosmic scale, not unlike Hieronymus Bosch's *grisaille* world within a glassy firmament on the outer panels of the so-called *Garden of Earthly Delights* (*c* 1500). Similarly, Le Corbusier's drawings and lithographs (called 'icons' and set within an 'Iconostasis' in the *Poème*) share the emblematic style of alchemical and esoteric imagery, where the figures, like his building types, represent themes which conjugate in the picture frame or architectural plan. So a painting or architectural plan is another 'alchemical vessel', re-enacting the whole in miniature – a microcosmic arena of conflict or reciprocity of opposites which, like his diagram of the right angle with which the *Poème* concludes, is meant to be suffused with the geometrical and moral pun on *droiture* (right-angle, uprightness, rectitude).

Aside from summarising themes with which he had worked throughout his career, Le Corbusier's *Poème* is also in the lineage of seventeenth-century works by figures like Athanasius Kircher or Robert Fludd, for whom a visual 'model' of the world's differences afforded the most eloquent testimony to its unity (in the Christian creator-god).[5] These were exercises in analogy, conducted with emblems obeying principles inherited from the Empedoclean four temperaments, the neo-Platonic hierarchy of the *harmonium mundi* and Christian salvation (supplemented in Kircher's case by research into logic machines and even a metaphor machine). Metaphor was a fundamental principle of order, communication and study in the seventeenth century; and it is not altogether ironic that late scholastic research on language and the structure of meaning spawned the Cartesian method of understanding oriented to the certainty of 'facts'.[6] Of course, the antipathy of this method to metaphor marked enlightenment science and technology. The Romantic response comprised efforts to rescue analogy as a means to recover the coherence of reality (since one could make little sense of ethics from a purely logical starting-point). For Le Corbusier, the conflict between the humanities and sciences was represented in a famous diagram of the architect and engineer interacting across celestial cycles, as if it represented a cosmic principle.

Within the ancient, medieval and renaissance dispensation of the four temperaments, the pharmacist and painter could speak of an ore or herb in the same terms, and the curative or other properties were still present in the meaning of a colour derived from this material.[7] When the artist must regard colours in terms of sensations or ideas within the so-called 'fine arts', the media of representation also become conceptual, today exemplified by the use of the term 'materiality' to recover a more substantial (analogical) milieu than emotional responses and chemical composition, wavelengths or elasticity coefficients. It is therefore perhaps understandable that Le Corbusier (as well as many other artists of his generation) should have wanted to find an analogical 'alchemical vessel' between the artist's atelier and the scientist's laboratory. However, all of his analogical work transforms reality into emblems suitable for the adept's manipulations – and is this not fundamentally similar to the manner in which the laboratory of science purifies reality for technological production? The answer is both yes (out of this sort

of reduction to an internally coherent system arise the instrumental utopias), and no (Le Corbusier's 'icons' are not a simplistic code of the kind, tree = column, but are situational, rooted in typical conflicts and reciprocities).

This yes and no helps to account for why Le Corbusier's cities are so vacuous while his buildings are so rich. But the fundamental question remains: if analogy and metaphor are so important to ethical and cultural orientation, what is the status of architecture in the context of the form-and-space of technological capitalism? The modernist concept of 'space' requires its fragments to be held together by concepts, while asking them to be apprehended in experience. 'Space' accepts everything, but requires any particular thing to account for itself at all levels. Analogy becomes an infinite field, and architecture becomes the medium in which to hold the references together by reverting to the primitive arrangements of matter and light first discovered by Adolphe Appia.[8] As if music had decided to restrict itself to drums alone, the new architecture coupled an attack on ornament with the promotion of geometry, efficiency and an ethos of austerity.

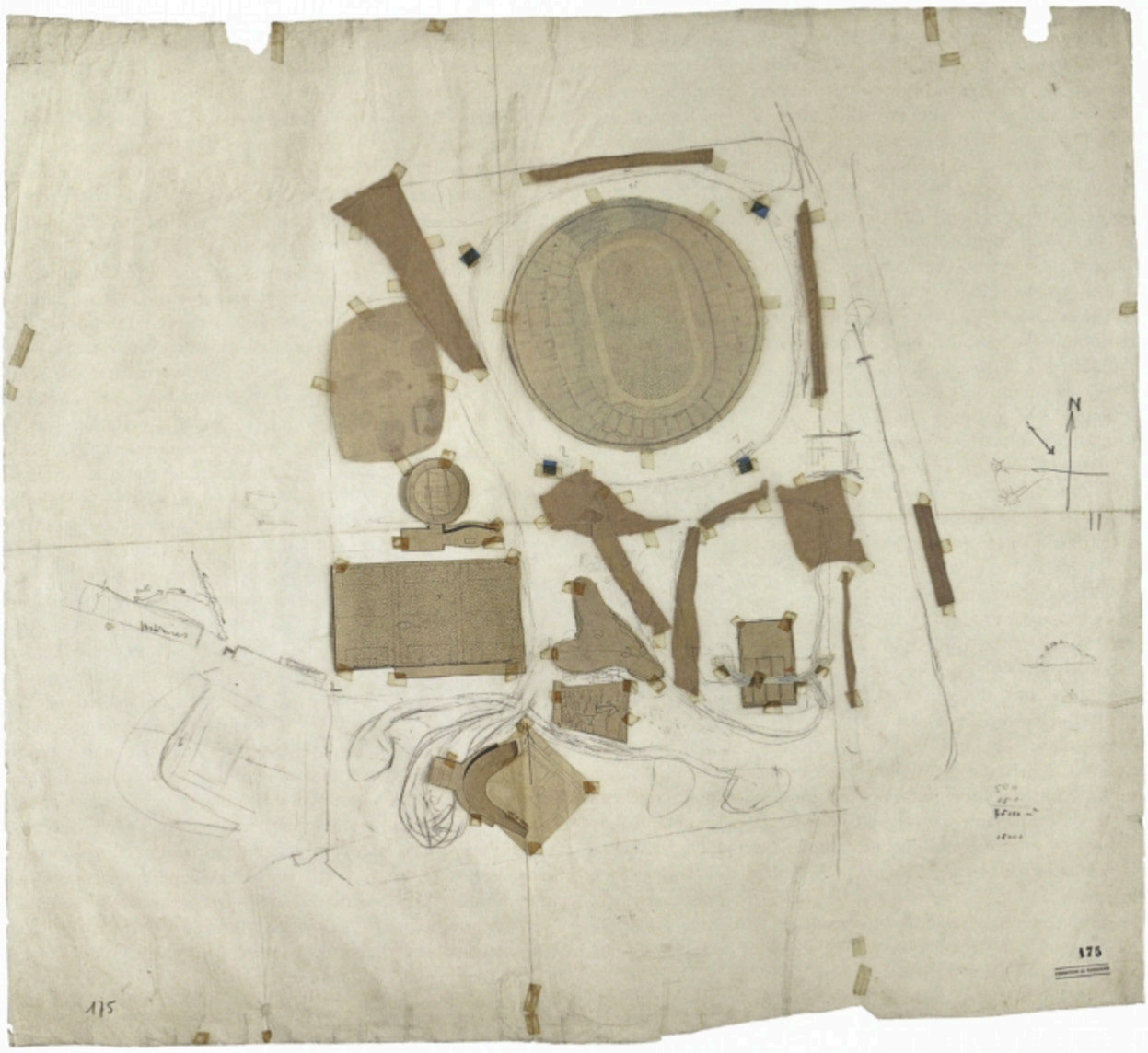
The somewhat desperate character of trying to make sense of the infinite analogical field of fragments through explicit forms of ordering is best exemplified by Wassily Kandinsky's attempt to found lyric painting in a psycho-physics of perception in his *Point and Line to Plane* (1926). The artist-magus is the only basis for communication, in Kandinsky's case assisted by theosophy and the 'vibrating soul' which he found in 'music' (and particularly in Arnold Schoenberg before he turned to 12-tone composition). Under these conditions, the artist (or architect) is hardly the Romantic spiritualist challenging industrialisation, bureaucratisation, etc, but is, rather, the equivalent of the Cartesian *res cogitans*, making sense of the infinite (or, more precisely, indefinite) *res extensa* by recourse to mathematical and geometrical logic. The claims for spiritual intensity and liberation are less virtues than they are symptoms of a collapse of the analogical mediating order, since apparently nothing is trusted between the artist-Zarathustra and the grand conceptual generalisations of society, science, art, space and the market in an eschatology of open-ended possibilities, like that of technology.

Central to this phenomenon in architecture is the understanding of geometry – a term whose promiscuous use for everything from beauty (freedom) to engineering (necessity) attempts to dignify vague understanding with rigour. The Bauhaus simply required that all its production obey the primary solids or their two-dimensional equivalents, from Oskar Schlemmer's dancers to Herbert Bayer's typography. This approach rested on the artist as Cartesian Zarathustra, but had the merit of being so simplistic in its elementarism that sleeping, dining, etc could carry on virtually unchanged except in the appearance (on which depended the spiritual liberation). Since the generally agreed failure of postmodernist efforts to revive analogy (mostly iconography), geometry has become associated with architectural autonomy, in the sense not of Aldo Rossi (typological stability in the context of historical change) but of Peter Eisenman (as the intrinsic order of architecture), augmented by the abstract machine of Michel Foucault, the imitation of natural form and the techniques of scripted digital design. This approach too generally rehearses the principles of the artist-architect as Cartesian Zarathustra (George L Legendre is an exception), largely because the post-structuralist apparatus does not alter the primary assumptions.

Le Corbusier's own interest in Zarathustra is well documented.[9] There is no shortage of messianic promise in his acerbic texts; one suspects his giving and receiving hand (*Poème* F3) would welcome the opportunity to reorganise cities in all of France (*La maison des hommes*, 1942, with François de Pierrefeu) and his conception of urban dwelling precisely replicates the cultural topography sketched above – the individual dwelling is a 'temple' ('Introduction', *L'Œuvre Complète*, *1938–46*) and the next level of involvement is the vast pattern-space of the blocks *à redent*, a statistical distribution of privacies. Yet if we restrict our attention to buildings or groups of buildings we discover that geometry for Le Corbusier is a multivalent spatial metaphor that enables him to create the paradigmatic *coincidentia oppositorum* that animates the 'alchemical vessel' of his architecture. This is a milieu tending towards dissolution or dispersion into random fragments, at the same time as it tends toward precise and significant reciprocities and relationships; and it will become *l'espace indicible* in his later writings. The opposites happen together 'before our very eyes', as he put it in the presence of his archetypal example of the phenomenon: a view from the north Brittany shore of the rock-formations (which suggested *menhirs* to him – architectural origins, nature transformed into culture). An ambiguous tidal margin, a 'land of dreams' (*Une maison – un palais*, 1928), it is at the same time 'the place of all measure' (*Précisions*, 1930). It is an archaic experience, accounting for its similarity to the world within Bosch's spherical firmament.

Image of the Brittany coast, from Le Corbusier, *Une maison – un palais*, 1928

There are roughly four layers to Le Corbusier's geometric play. A geometric figure, by virtue of participation in 'golden' ratios, offers a paradigmatic sequence of relations (implicitly recovering neo-Platonic harmonic hierarchies but displaced from Pythagorean harmonics to a logarithmic visual cone he called 'visual acoustics'). Secondly, this is given dimensional significance through correlation with a putative human standard (reinterpreting Vitruvian man via a London bobby). Thirdly, a geometric armature contains within it the potential for figuration according to standard ornamental procedures (his buildings are effectively enlarged portions of ornament) and as deployed in his paintings (for which the cubist two-dimensional/three-dimensional fluctuation is essential). The basic role of ornament is to mediate between primordial natural conditions and human history.[10] Finally, certain geometric armatures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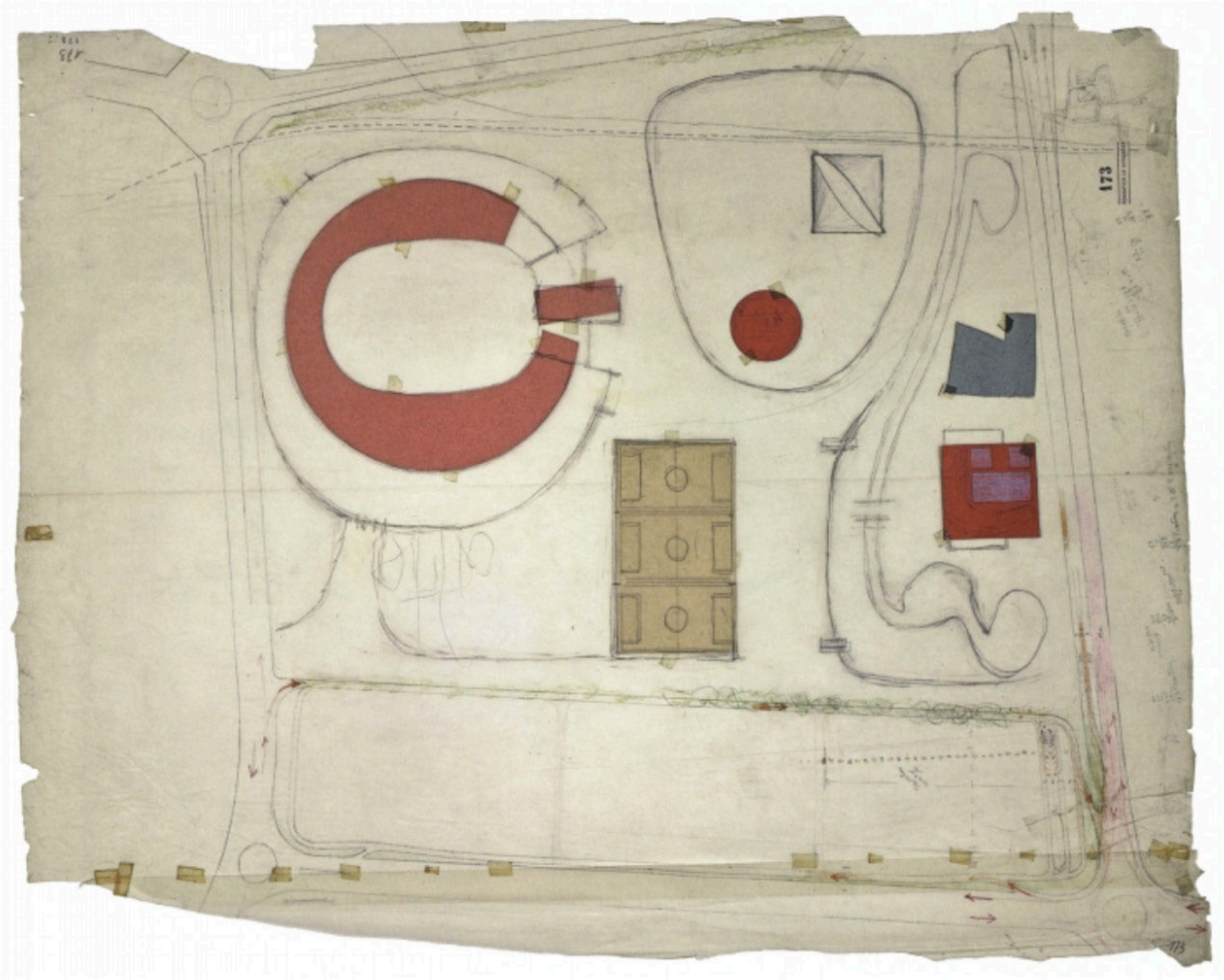
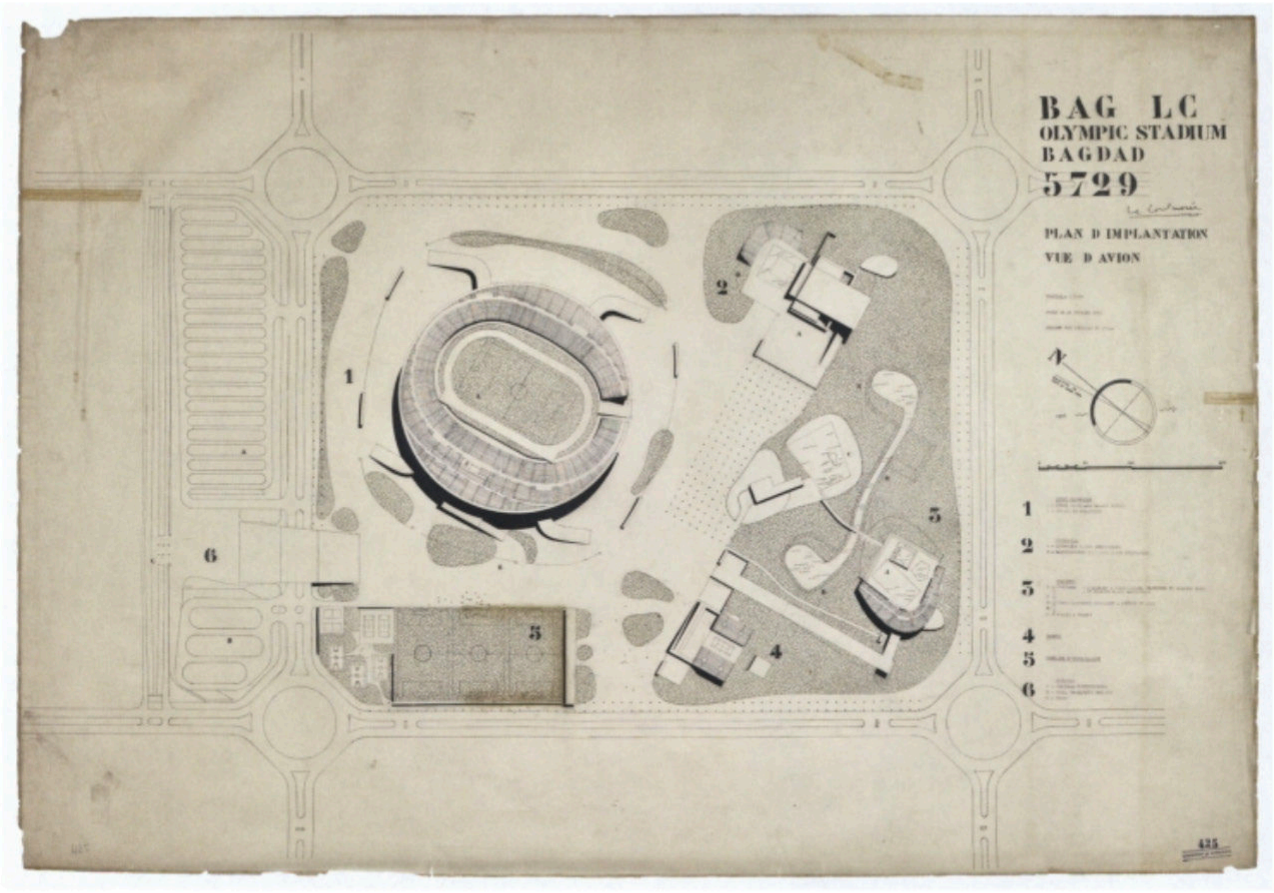
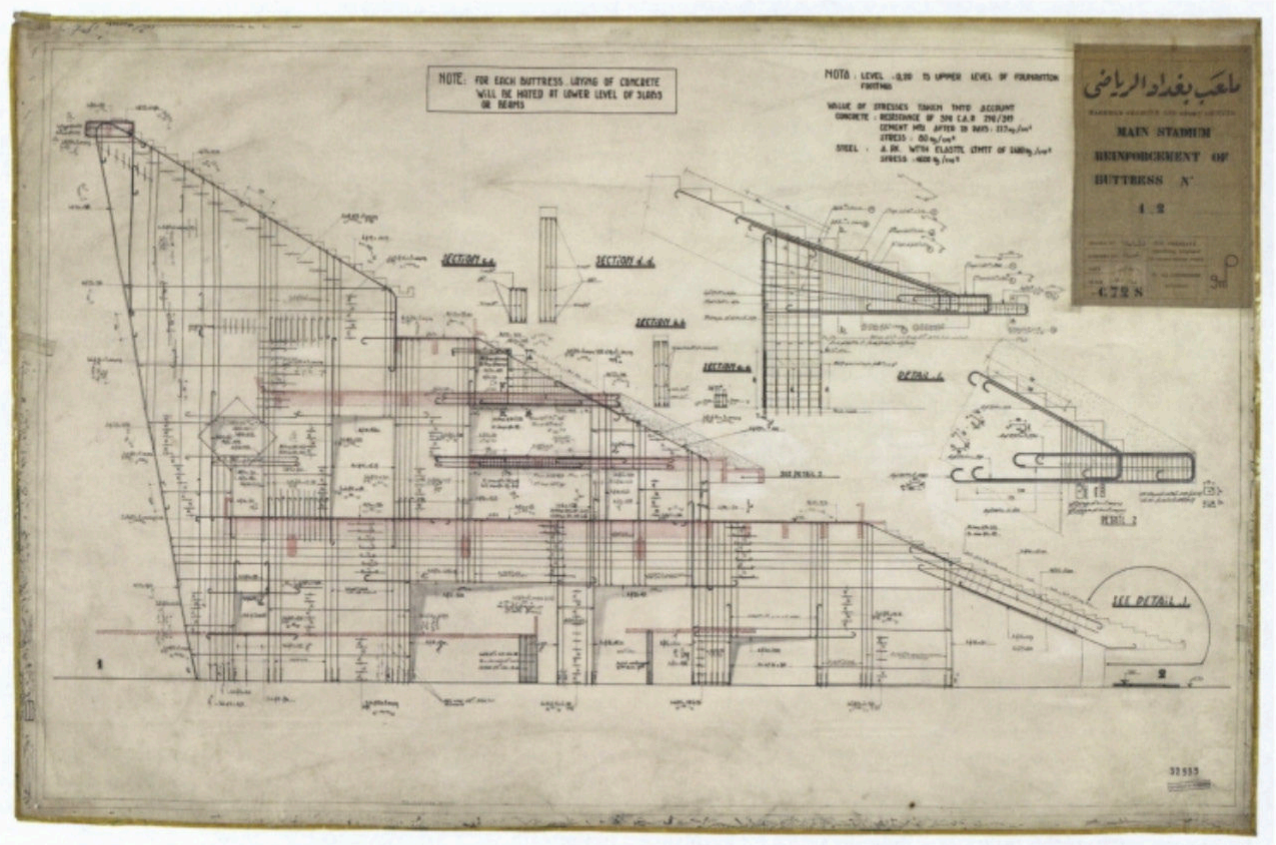


Office of Le Corbusier,
collage site studies for the 1958 scheme



Office of Le Corbusier, site plan of the 1961 scheme,
drawn by José Oubrerie and Alain Taves



Office of Georges Présenté,
veil 1–2, elevation showing reinforcement, 1964

contain 'arguments' that can be deployed architecturally to locate key settings, walls, columns, *promenades architecturales*, etc – for example the double square with slipped third square (mediation of the *coincidentia oppositorum*) that constructs the Modulor and underlies the plan of the chapel at Ronchamp.

This is neither a casual nor an arbitrary accumulation of references; and they don't come for free – the designer must respect them all. The secular–sacred cliché to which proportion had descended by the late nineteenth century provoked Le Corbusier to rethink the phenomenon, apparently seeking to recover its original Greek meaning of *analogia*. However, with the exception of the mostly aesthetic (and very conventional) *tracés régulateurs* of the facades, it is a discipline largely hidden from direct experience of the buildings. These are experienced as situational sequences, but the elaborate balancing of forces is mostly an affair of plan drawings; and when an element of geometry in such a drawing becomes a wall, it becomes a very different phenomenon. One must think of his geometric armatures as embodying the conditions of relatedness, an arena of orderly conflicts, that Le Corbusier thought necessary for the kind of ordering offered by architecture, and therefore for culturally oriented dwelling ('the marriage of lines' versus the 'tangled web' in which other people live, *Poème* E4). It is not an instrumental procedure so much as a graphic dance (done after the basic planning) that mediates between the infinity of referential fragments and the primordial conditions of earth and sky. It is receptive to his typical situations (or emblems in the painting) and it is capable of re-enacting the simultaneity of dissolution and constitution (*l'espace indicible*) in his epiphany of architectural origins on the Brittany foreshore.

This is even more true for his late buildings than for such finely tuned arrangements as the Pavillon Suisse foyer (1930). The emphasis upon weight, rawness and violence in the late works may correspond to postwar intuitions similar to Jean Dubuffet's contemporary advocacy of *Art Brut* – the transformation of two world wars and reconstruction into aggressive capitalist growth makes sophistication indecent, or at least ineffective; orientation depends upon a shift of register to more fundamental phenomena. Subtlety need not be abandoned (the interior of Ronchamp), but the bass-viol is more appropriate than the violin. So much seems to be the 'message' of the *Poème Electronique*, orchestrated to the strident music of Edgard Varèse inside the Phillips Pavilion, and contemporary with Le Corbusier's first scheme for Baghdad (he also wanted to broadcast Varèse to the valleys below the chapel at Ronchamp); but few of his projects interpret this principle so radically as that for Baghdad.

In 1955 Iraq was allied with Great Britain and the United States under King Faisal II and wealthy with what Le Corbusier called 'black gold' (a term he perhaps borrowed from Hergé, whose *Tintin au pays de l'or noir* was published just five years earlier). In a now familiar scenario, western architects were courted for projects intended to enhance the city's international status – Walter Gropius, Arthur Erickson, Frank Lloyd Wright, Alvar Aalto, Josep Lluís Sert and Giò Ponti were all working on a range of institutional buildings. Le Corbusier was invited to submit designs for a permanent recreational facility for Baghdad that would serve as the basis for a (failed) bid for the 1960 summer Olympics. However, it was not until 1957 that the commission was confirmed and Le Corbusier made a trip to Baghdad to discuss the brief and to see the site. At this stage, both were still defined only in general terms. In the meantime, Iannis Xenakis was put in charge of the project and Georges Présenté was secured for all engineering services. During the months while the programme and site were being clarified, the office conducted a wide study of international precedents for both design and construction.

On 13 July 1958 Le Corbusier's scheme was accepted by the Ministry of Development in Baghdad. The next day, however, the monarchy was overthrown, King Faisal and many of his family executed, and the republic proclaimed. This does not seem to have had an effect on the development of the scheme; the royal box was simply renamed the presidential box. Accordingly, in April 1959 Le Corbusier made a second journey to Baghdad, carrying with him 120 construction drawings. To his continuing frustration, the Baghdad authorities moved the complex to a slightly larger, less congested site across the Tigris in December 1959. The new scheme was a relatively straightforward modification of the first, resulting in the definitive plan of 1961. Among the more than 950 drawings for the Baghdad project in the Fondation Le Corbusier archives is a complete set of construction drawings for this scheme, produced by Présenté's office. However, financial difficulties ensued and on 9 September 1964 the Steering Committee of the Planning Board in Baghdad decided to 'postpone implementation of the Baghdad Stadium at the present time and till further modification'. A year later Le Corbusier died while swimming off Cap Martin, and this effectively finished the project, although a stadium to a different design was constructed on the second site by F D K Amaral in 1967. Présenté and the Iraqi architect Alex Mesny constructed the gymnasium in 1981 using drawings from the Le Corbusier office; it is still named after Saddam Hussein.

Although the office worked on the scheme for nine years, the Baghdad Stadium never appeared in any of Le Corbusier's architectural publications, save for one mention in Claudius Petit's *Le Corbusier lui-même* (1970) as a 'centre sportif à Bagdad avec Georges Présenté'.[11] Nor does it appear frequently in his sketchbooks, which at the time were dominated by the Capitol Park at Chandigarh and his many other projects in design or construction in India, France, Germany and Japan. There are preserved notes and sketches from Le Corbusier to members of the team, and a series of Magnum photos taken by René Burri in 1959 show elements of the design on the office walls, but the clear implication is that once the general argument had been established (captured in a tiny coloured diagram preserved in the collection of the Canadian Centre for Architecture), the great reservoir of Corbusian themes was left to experimentation by the team.

The hand of Iannis Xenakis is certainly evident in some of the early drawings exploring the sorts of rhythmic configurations which dominate the planning. However, internal memos from Le Corbusier to the office in April 1961 divided the final resolution of the scheme as follows: Guillermo Jullian was responsible for the stadium, which determined the spatiality of the other buildings; José Oubrerie was responsible for the pools, the tennis-court and the restaurant; and Alain Taves was responsible for the gymnasium (whose design was the basis for construction 20 years later).

Georges Présenté, nominally the engineer on the project, is one of the very few figures outside Le Corbusier's office named as a collaborator. He was the principal of the Paris office of an engineering firm based in Ohio, USA. Not only was he capable of working between the French of Le Corbusier's office and the English

required in Baghdad (like Chandigarh, a legacy of British colonial rule), he seems to have had good relations with the Baghdad authorities and took a personal interest in the project. The austerity of the spatial order of the architecture also required intimate collaboration with the engineer; and even the concrete reinforcement drawings from Présenté's office – in ink and ink wash – are quite beautiful (although Oubrerie thought he took the life from the buildings). According to the dates on his drawings, there appear to have been three periods of intense study – in 1961, 1962 and 1964. With few exceptions, the final drawings are from Présenté's office.

The final phases of the project developed through the customary exchange between architect and engineer, but the process of finding the scheme was more unorthodox. A range of techniques were deployed that moved from freehand sketches, to coloured drawings and collages, to models made from office scraps, to more finished architectural drawings. Such 'primitive' techniques allowed the team to work directly with the iconographic space (the 1958 plan appears to have invoked the head of the woman with a long ponytail, as seen at the top of the painting *Taureau IX*, 1954, making the circular tennis court her mouth, the gymnasium her eye and the kayak race pool her ponytail), as such representations were already two-dimensional drawings/models of the three-dimensional configuration. However, the 1961 project marks a transition away from the comparatively explicit iconography of Ronchamp and Chandigarh back to more aniconic architectural ordering. For these purposes the collage techniques embodied the spatiality of the proposition as a whole.

From the road, a visitor to the Baghdad project would have seen a huge orchard of palm trees placed centrally within an archipelago of large concrete arenas (all the facilities but the gymnasium were to be open air and therefore, as Le Corbusier remarked, 'inexpensive'), bounded on all four sides by more palms. The elements of the Baghdad scheme are disposed according to a style of planning that lay between a building and a city and which Le Corbusier classified in *The Modulor* as 'subjective, intellectual'. The earth is treated as a species of painting, or bas-relief, with depressions and hills interacting with a field of fragments comprising the architecture, trees, water, low walls, benches and so forth (because the ground-water is so near the surface at Baghdad – Le Corbusier's site sketch recalls traditional irrigation methods – the water for aquatic sports is contained within elevated banks). In *The Modulor* he illustrates the principle with the Mundaneum (1929) and the Museum of Unlimited Growth (1933), and these schemes, like that of Baghdad, are governed by the elaborate geometrical armatures he also used for his paintings. The most recent and comprehensive precedent for this was the plateau into which the government buildings of Chandigarh were set. The point was to make the earth a theme through the play of shifting horizons made within implicit rooms. At Baghdad, the innovation was to scale the buildings to the landscape, an opportunity provoked by the necessarily large sports facilities.

From the very beginning of the project, Le Corbusier gathered notes for planting, both aromatic and for shade. As well as bounding the perimeter with palms, the central grove of nearly 200 palms would have created a dense rhythm of tree trunks within the shadow of its substantial canopy. These trees run east–west through the centre of the scheme, marking one-half the interval in the geometric armature between the original double square and the square shifted according to the golden ratio. Trees had long been highly significant to Le Corbusier, but usually he disposed them in the manner of an English landscape garden. Rarely were they planted in a rectangular array, like the columns of a gigantic building, as they were at Baghdad (also in the 1958 scheme).[12] The trees are, with the *voiles* of the several stadia, part of the architectural order of rhythms which establish the context for the open arenas for athletic contests. A rhythmic order as context for figural elements had, of course, been central to his architecture since the Purist period, but the proposition that was once the Dom-i-no column field in the Citrohan cave (eg, Villa Stein-et-Monzie, Garches, 1926) is inverted at Baghdad, with figural elements cut out of a field made up of giant cross-walls.

Load-bearing cross-walls in French construction are called *voiles* (literally 'veils'). The term was used in Le Corbusier's office for the buttresses supporting the concrete seating for all athletic contests. Indeed, with a few exceptions, the entire scheme comes down to arranging the stands with other facilities embedded in these *voiles*. The buttresses are massive concrete planes, the tallest 12 storeys high. Their thickness adjusted according to height, the *voiles* do not frame space but occupy it at a close rhythm (radially for the stadium and swimming pools). Large perforations, some allowing the penetrations of rooms (for athletes, press, etc) are then subtracted from the mass of *voiles*. The result is a spatial translucence achieved against the opacity of the massive walls, attracting the commonplace reading of *voile*. The most obvious precedent is the portico to the Palace of the Assembly, Chandigarh, completed in 1955, the year he received the commission for the Baghdad Stadium. The remarkable spatial effects generated by this portico are not visible in photographs; but as one moves past or through it, the openings between the piers play with those making the eyes and nostrils of the bull's head, creating relationships with the background architecture, implicit places, at several scales and often made from the shadows. A dynamic, shifting order is conjured from one whose explicit presence is a sober row of regularly spaced piers.

Rhythmic orders are a feature of Le Corbusier's late works, particularly at La Tourette (1960), where Xenakis was also involved and whose *ondulatoires* were specified throughout the Baghdad project. Probably without realising it, the office had returned to the stark earth-light of Adolphe Appia's 'Rhythmic Space' studies (from the collaboration with Jacques Dalcroze at Hellerau). Le Corbusier customarily developed a hierarchy of mediation from the landscape through clusters of buildings to architectural physiognomy (as at Chandigarh), but at Baghdad a single giant order is boiled down to a violent declaration of rhythmic earth and voids, shadow and light, oriented to the points of the compass (in fact ten degrees west of north). A certain amount of mediation is achieved at Baghdad, since the one-storey administration building and restaurant are echoed in the secondary articulation of the athletic arenas (changing-rooms, reception spaces, etc); but the primary order, centred on the 200m × 80m grid of palm trees, transforms the large primary forms (in plan) into a ubiquitous rhythm (in elevation). The proposition corresponds to the *coincidentia oppositorum* so important to the 'alchemical vessel' evoked in the *Poème* as well as to his late graphic and painting style, which tended toward two-dimensional figures in bold colours.

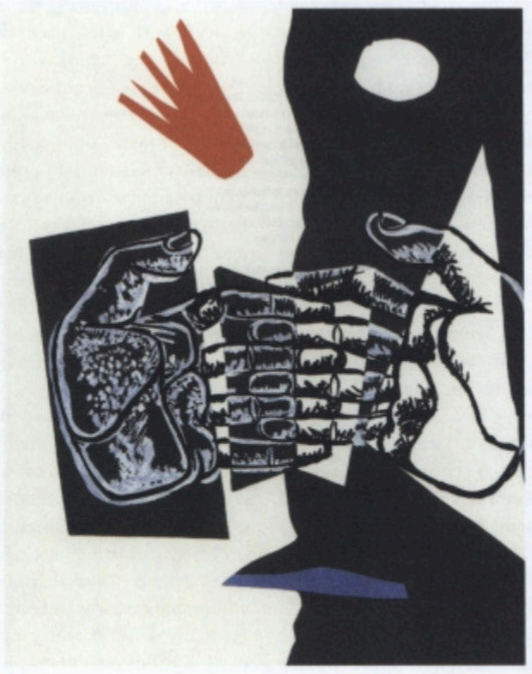
Insert: Recreation of Le Corbusier's silhouette study of veil 1–2

Le Corbusier's reasons for finding this remarkable configuration appropriate for

a sports park depend less on the Olympics than on its role as a permanent institution in the capital city of Baghdad devoted to athletic contests. The main stadium is not only the nucleus of the site plan but also the seed of its meaning; and the paradigms for this are, firstly, the Roman Coliseum (the 1958 stadium imitated the Coliseum, with vomitories instead of the four ramps of the 1961 scheme), and secondly, his extraordinary 1937 proposal for a stadium of national significance (100,000 people) mentioned in a letter to André Malraux (1959), in respect of Baghdad. In *Vers une architecture* (1923) the Coliseum is made to stand for the values of ancient Roman architecture that he prefers over the sentimental classicism of previous generations: Roman administration, primary geometrical solids, straightforward intentions, 'the spirit of order'. Later in *Vers une architecture* he uses the Coliseum as a vehicle for understanding the precision and passion of Michelangelo's St Peter's. In both cases, Le Corbusier reads the Coliseum as an object from the exterior, where motifs of power and directness dominate, as opposed to the subtle 'spiritual mechanics' he finds in the interior of the church of Santa Maria in Cosmedin. When he transposes half the Coliseum onto the north transept of St Peter's, he suggests, beyond the similar dimensions, a sacred reading.[13] Something ostensibly political but also more primitive, even tribal, animates his presentation of the Coliseum in *La Ville Radieuse* (1935): 'vast in its unity, overwhelming in its simplicity. Inside it, the crowd as a whole, a living, thrilling group – at one.'

Most of us incline to the public, not the crowd, and this somewhat ecstatic sentiment was reframed in the letter to Malraux as 'bread and circuses'. The 1937 stadium was an uncommissioned experimental design (with a substantial contribution from Pierre Jeanneret) intended to be a receptacle of modern culture, a sort of architectural symbol, like many of these experiments (for example, the Museum of Infinite Growth). Le Corbusier's drawing of the interior of the 1937 stadium shows an assembly of people ranked in squads – perhaps athletes at a ceremony or, more ominously given Le Corbusier's penchant for central leadership, 'thrilling' assemblies like those of the Nazis or the Fascists. The Baghdad stadium too was meant for festivals, for which a prominent gap in the annulus of seating was provided. Stadia were regularly included in Corbusian urban plans, of which only the one at Firminy was constructed (1965). For Le Corbusier, a stadium could be an important civic 'room', a setting in which modern mass culture appeared to itself 'at one'.

A stadium is obviously for a sporting contest, *agon* in Ancient Greek. However, the term *agon* also referred to any form of conflict or to ritual sacrifice. Democracy was achieved in the *polis* when authority was taken from particular individuals or groups and placed in sites common-to-all. These were all agonic, institutionalising conflict – political debate, legal contests, the games, tragic drama, worship – to make up the heart of civic architecture. Agonic motifs characterise Le Corbusier's religious and political settings and pervade his representational order generally. The honing of forms through conflict was one aspect of Purist architecture. In *Vers une architecture* he called the architectural plan a battle, and 40 years later he spoke of the altar as a 'site of bloody sacrifice'. The *coincidentia oppositorum* (originally Pythagorean) is the primary analogical vehicle for this motif, and received its own section (A5) in the *Poème*, whose icon depicted the 'reconciliation of the left and right hands' laid across a doorway which opens in a black *voile* between the sun and moon. The *Poème* begins with his famous diagram of the cycle of the sun, 'brutally' dividing the day into dark and light – a declaration that our temporal order is a cycle of opposites. For Le Corbusier, the conflict of opposites always evokes the cosmic conditions. This is also seen in the diagram of the reciprocity of engineer and architect, reworked over 20 years, the three-dimensional form of which appears in the profile of the Baghdad Stadium, as well as in the hyperbolic paraboloid at Chandigarh, which shelters the assembly's political debate, or *agon*.



Icon A5, coincidence of opposites, from Le Corbusier, *Poème de l'angle droit*, 1953
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Like many of his contemporaries, Le Corbusier regarded athletics, and athletes, as metaphors for the new requirements of modern life – fit, agile and perfected through competition. A semi-symbolic running man first appeared in his paintings in the late 1920s and found itself at the inside top of the enamelled door to the Palace of Assembly at Chandigarh. Moreover, the terrace-gardens of his early housing schemes were often imagined to be theatres of athletic training (usually by the male of the family), occasionally of dance (as in the movie made at the Villa Church, 1927). The roof of the Unité d'habitation at Marseilles, 1952, was a lyrical Appian landscape of theatres and pools, a school, a gymnasium and, bounding it all, a running-track that marked the horizon.

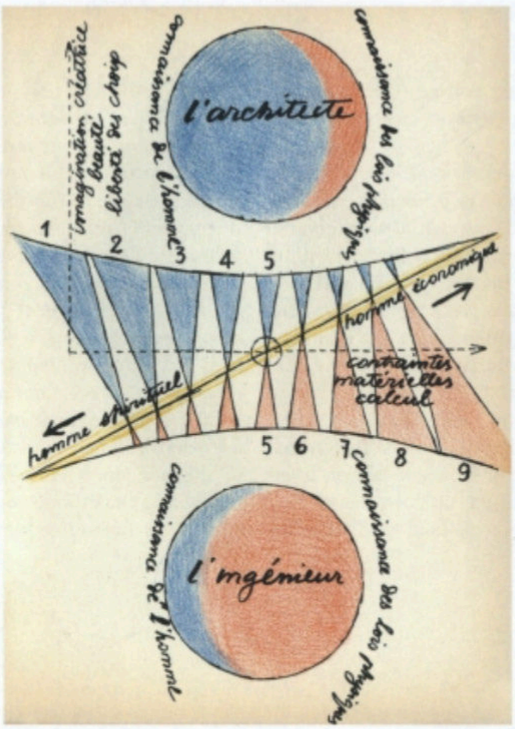
The horizon is a constant motif in Le Corbusier's architecture, painting and drawings, giving the ultimate conditions of dwelling, the vertical meeting of earth and sky. In Baghdad the arenas form an escarpment framing the action, oriented to the four quarters, with the tiers of spectators making a rhythm of horizons, as in a Greek theatre. Also like Greek theatres and stadia, the 1937 stadium was embedded into a hill (as was his stadium at Firminy), with entry to its luminous interior gained by ascending great ramps that became tunnels to mid-level, from where spectators were distributed to their seats. The Baghdad Stadium preserves the reference to earth in the dark undercroft beneath the seating, reinterpreted as the dense rhythm of *voiles*; and here too each seat was reached by way of four ramps arriving at mid-level. The interior playing surface is raised by about a storey, and this height is carried through

the 'facade' in the expansive presidential canopy, enhancing the perception of an underground. The arena for conflict is therefore a clearing in the earth, open to the sky, attained by passing through telluric darkness.

In Le Corbusier's Purist buildings one ascends from a shadowy, ambiguous realm to a luminous setting, most famously at the Villa Savoye. However, there is a cave-like, chthonic quality to all of Le Corbusier's late agonic settings, religious or political, such as the interior of the chapels at Ronchamp and La Tourette or the main hall in the Palace of the Assembly. The Baghdad arenas are an outdoor version of this principle, contradictory as this might sound, given the solar intensity in Baghdad. To mitigate summer heat, it was decided to hold the athletic contests after 4.00pm (hence the prominent light-poles). The principle depends partially on explicit darkness, but more on the meaning; and this arises firstly from the temporal order and secondly from the nature of the contests and their symbolic role.

In the *Poème*, Le Corbusier derives spatial rhythms from temporal ones – the 'dance' of the earth and moon around the sun, creating the cycles of night and day, becomes golden-section geometry inscribed on a stone which in turn becomes the pebble that embodies the features of his head. A harmonic rhythm of opposites mediates between celestial cycles and human history. The radial *voiles* of the Baghdad stadium would have responded to the movement of 'our Lord' the sun like a sun-dial of constantly changing shadows. The triangular shape of the *voiles* can also be seen to recall the central sun-dial of Jai Singh II's Jantar Mantar in Delhi (1724), of which Le Corbusier enthused (Sketchbook E18, 1951), 'They point the way: reconciling men with the cosmos, the precise adaptation of forms and organisms to the sun, to the rain, to the air, etc – this buries Vignola'. Indeed the composition of the Baghdad site bears considerable similarities to the disposition of observatories at the Jantar Mantar and the embodiment of celestial rhythms provides the context for the dramatic temporality of the athletic contests.

The *Poème* itself associates daytime with frustrating struggle against those who always say 'No!' (*Poème* D3) whilst night is associated with creativity (the Iconostasis depicts a descent along its central spine from sunlight to darkness and his symbol of the *angle droit*). However, raw struggle is not the conflict of opposites from which insight arises. For Le Corbusier, athletes enjoy a special status like that of the 'amazons' of the *Poème*, who 'are young / never age' (E2). An athletic contest is like a dramatic performance (*agon*). This is most evident in the design and placement of the gymnasium at Baghdad, which is derived from a type of theatre that Le Corbusier called the *Boîte à Miracles* (the Box of Miracles). First suggested in a scheme for the Museum at Ahmedabad in the early 1950s, indoor and outdoor theatres (or, at Baghdad, gymnasia) face each other across an endwall which could be slid sideways, like a huge door (reminiscent of the theatre at Hellerau). However, whilst the indoor theatre is an austere dark box ('mere shelter with no distractions ... concentrated on the action', *Œuvre Complète, 1946–52*), the exterior theatre is made of seating in an arc addressing a square island within a square pond. This remarkable arrangement (another 'alchemical vessel' setting its *agon* within 'cosmic' waters) was initially proposed for the Baghdad scheme, but was later reduced to pavement patterns. The principle (without the sliding wall) seems to have been discovered in the early schemes for Ronchamp, where the east wall divided the cave-like interior chapel from the exterior chapel focused on the agonic 'bloody sacrifice' of the altar and bounded by an arc-horizon of seating (not executed). The tendency is to think of the outdoor theatre as dependent on the *boîte*, but the reverse seems to be the case.

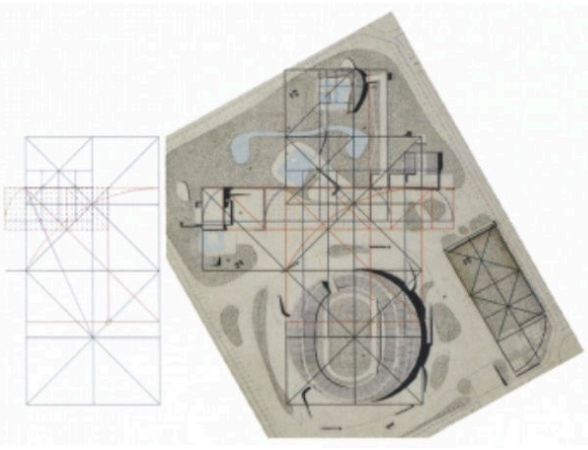


Le Corbusier, diagram of the engineer and the architect, from *Maison des hommes*, 1942

Moreover, the Baghdad gymnasium's *coincidentia oppositorum* of interior/exterior, rectilinear/curvilinear, dark/light athletic performances is mounted at the head of the scheme across the great division between the gridded shadow canopy of trees and its other half open to the sky (in the central interval between the original square and its golden-section extension). Traversing the gymnasium from the tangle of ramps and entrails to the south (struggle, daylight), one passes through the four major *voiles* (entering beneath an oculus which makes seating for the upper-level bar) to arrive at the interior *agon* (framed by two sets of four minor *voiles*), from where one then passes to the primary arena, outdoors, to the north (creativity, shadow).

This trajectory is re-enacted across the overall site. The southeastern quadrant is made up of the free-form water events and skewed pools (except for the diving pool, whose orthogonal status seems to honour the aerial acrobatics) as well as the recreational pool by the restaurant, all set within their mounds. The central east–west horizon is marked by the gymnasium *boîte* and the grid of palms. From this extend only the exterior gymnasium to the north (with the lone body of water north of the horizon of palms) and the tennis court to the south (which occupied the centre of the 1958 scheme). Le Corbusier was not an avid tennis player; rather he seems to have regarded tennis as the paradigmatic form of all the other contests. In the 1961 scheme, the tennis court was therefore made a pendant to the equally paradigmatic exterior gymnasium (and reversed across their expected placements with respect to the palm horizon). The northern half of the site is dominated by the great stadium (the administrative building and practice pitches are associated with the Baghdad street orientation, apparently outside – perhaps preparatory for – the main argument of the site). The break in

the annulus of stadium seating to admit the apparatus for festivals mimics the break in the horizon or oculus (both square and round) surrounding his symbol of the *angle droit* in the *Poème* (G3) and, appropriately enough, there is in the Le Corbusier archives a seating plan of the stadium by Taves showing a prominent cross in its middle (also indicating that the ten-degree deviation from true north was ignored for symbolic purposes). In other words, the south and north halves of the site appear to derive their meaning from the top (A3: daytime, water, hills, broken four-quarters, struggle) and bottom (G3: night, the restorative cross-in-circle/square of the *angle droit*, creativity) of the *Poème*'s Iconostasis.



Reconstruction of the geometric armature for the Baghdad stadium project as an iconographic topography

The *angle droit* cross is the quintessential *coincidentia oppositorum*, and the obvious implication is that the *agon* of the athletic contest or tragic drama is to be affiliated with that of architectural creation (Le Corbusier's at least) and, in general, with the creation or transfiguration of meaning within the horizon bounding the proportional field (the analogical 'alchemical vessel'). He invokes a special temporality, the time-out-of-time of ritual, ceremony, dramatic performance (or philosophical reflection) that, unlike history, can be re-enacted and therefore always recalls the fundamental or original conditions;[14] and he embodies this in the (Appian) earth and moving shadows created by the celestial cycles. In his 'Last Testament' he calls attention to the 'half hour of silence in heaven' after the seventh seal is broken, in *Revelations* 8.1. Le Corbusier is neither a philosopher nor a theologian (François Mathey, director of the commission for Ronchamp, called him a 'Christian but 5,000 years before Christ'); he 'thinks' analogically through architectural making, and primarily through architectural drawing.

The central question here is not Le Corbusier; rather, it is what his themes illuminate about architecture. History and cities are messy affairs, providing the institutional contexts for the heroic moments of insight to which Le Corbusier appeals. By regarding almost every building as a species of temple, he is obliged to ask himself what is at stake in the situation he is asked to house; and this is inevitably non-historical, non-contingent, impersonal, understood in terms of the extremes of opposites and as primordial – even savage – as the north coast of Brittany. He seeks universal conditions of dwelling (hence the absence of any concession to near eastern iconography in Baghdad). However, these are not consigned to abstract geometric form but are rather set within the conflicts, relations and analogies for which his 'marriage of lines' acts as a memory theatre, a receptacle of possibilities and obligations. True, his analogies are as much regulated as made alive and he designs a city as if it were a building. However, the simultaneity of violent dissolution and precise harmonies in *l'espace indicible* presents itself with rich enough articulation for imaginative dwelling that one's everyday dealings are also always made to acknowledge the claim of the horizon. Architecture's responsibility to provide orientation within the infinite analogies is fulfilled by making evident the conditions for our freedom.

The material for this essay was originally assembled for an exhibition in the Victoria & Albert Museum architecture gallery in collaboration with the RIBA library, 'The Olympic Stadium Project: Le Corbusier and Baghdad', 9 October 2008 – 29 March 2009. The authors wish to acknowledge the contributions of the V&A exhibition staff, the Fondation Le Corbusier, the Canadian Centre for Architecture, Niall Hobhouse and Mike Taylor.

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2. Ernst Benz, *The Mystical Sources of German Romantic Philosophy* (London: Pickwick, 1983); Georges Gusdorf, *Le Romantisme I, II* (Paris: Payot & Rivages, 1993); Peter Schnyder et al, *Métamorphoses du mythe: Réécritures anciennes et modernes des mythes antiques* (Paris: Orizons, 2008).
3. Maurice Tuchman (ed), *The Spiritual in Art: Abstract Painting, 1890–1985* (Los Angeles, CA: LACMA, 1986); Jean Pierrot, *The Decadent Imagination, 1880–1900* (Chicago, IL: University of Chicago Press, 1981).
4. Martin L West, *The Orphic Poems* (Oxford: Oxford University Press, 1983); William Keith Chambers Guthrie, *Orpheus and Greek Religion* (Princeton, NJ: Princeton University Press, 1952).
5. Joscelyn Godwin, *Athanasius Kircher's Theatre of the World* (London: Thames and Hudson, 2009) and his *Robert Fludd* (London: Thames and Hudson, 1979); Ernesto Grassi, *Rhetoric as Philosophy, the Humanist Tradition* (Philadelphia, PA: Penn State Press, 1980); Marc Fumaroli, *L'Âge de l'Éloquence* (Geneva: Droz, 1980).
6. Roger Ariew, *Descartes Among the Scholastics* (Leiden: Brill, 2011), develops themes first mooted by Etienne Gilson.
7. Spike Bucklow, *The Alchemy of Paint* (London: Marion Boyars, 2009).
8. Richard Beacham, et al, *Adolphe Appia ou le renouveau de l'esthétique théâtrale* (Lausanne: Editions Payot, 1992); Richard Beacham, *Adolphe Appia: Artist and Visionary of the Modern Theatre* (London: Routledge, 1994).
9. Paul Venable Turner, *The Education of Le Corbusier: A Study of the Development of Le Corbusier's Thought* (New York: Garland, 1977).
10. Peter Carl, 'Ornament and Time', *AA Files* 22 and 23, 1991–92.
11. Indeed, it has only recently attracted the attention of scholarship, which has concentrated on the complex history of the project – see most recently Mina Marefat's entry in Jean-Louis Cohen, *Le Corbusier: An Atlas of Modern Landscapes* (London: Thames and Hudson, 2013), p 385. The other theme of interest is Baghdad's role in commissioning western architects, and the project featured in the recent travelling exhibition, 'City of Mirages: Baghdad, 1952–1982'. The present essay seeks to understand Le Corbusier's design intentions.
12. Mary Mcleod reminds us that such an array first appeared in Le Corbusier's Rio University scheme, 1936, which is presented in the *Œuvre Complète 1934–38* (pp 42–45) in which appears the 1937 stadium project (pp 90–97), and so a likely import. His sketches emphasise the attributes of shade and rhythm adduced here for Baghdad, suggesting that climate was one stimulus to repeat the arrangement.
13. The famous medieval *Mirabilis Urbis Romae* reckoned the Coliseum was a temple of the sun, which may have influenced Le Corbusier here.
14. Hans-Georg Gadamer, *Truth and Method* (London: Sheed and Ward, 1979).