Tarek Naga
Director of Naga Studio Architecture
Naga moves between the Middle East and the United States. He is working on the rebuilding and extension of the Marina del Rey international hotel in California and the Sharm Desert Safari Gate, a facility linked with the exploration of the Sinai Desert. Since the early 1990s, many of Naga’s projects, be they private residences, public facilities or private installations, have conveyed a sensitive and complex architecture, combining instability and precision, force and flexibility. Naga’s architecture is intended as something open and available to all its varied forms of potential, be they topological or architectonic, symbolic or metaphorical.

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Architect’s Statement

"[...] form is essentially extended, inseparable as it is from the extensity of the becoming which has materialised it in the course of its flow. Every form thus occupies space as it occupies time."  

Henri Bergson

Henri Bergson’s statement sums up two fundamental principles that inform the basic tenets of my experimentation in architecture: A State of Becoming and the Flow. I believe that architecture must be placed within a broader philosophical milieu. Architects can no longer afford to lag behind and linger in the post-industrial, post-classical mechanistic models. The Bergsonian attitude towards philosophy that it “cannot and must not accept the relation established by pure intellectualism between the theory of knowledge and the theory of the known, between metaphysics and science” provides an appropriate philosophical model for the contemporary discourse in architecture.

Deleuze and Guattari, invoking similar disposition, consider Nous and Physis, (metaphysics and physics), the two facets of the plane of immanence of concepts – the planomenon. Within the process of conceptualisation in architecture, a planomenon of Nous and Physis is a necessary plateau for the transformation of the current paradigm.

In an architecture-of-becoming, architectonic and topological manifestations follow different behavioural patterns in response to the forces and flows inherent within – metaphorically or typologically. They both have internal codes of behaviour, “esoteric attributes,” and external codes of influence, “exoteric attributes.” Their rules of engagement are interdependent: a topological continuum may “gravitationally” cause the unfoldment, twisting, or bending of planes or volumes. Conversely, the flow within emergent architectonics may rupture, warp, or deform a continuous membrane.

Fixity and stasis may occur only at a thresholding instance (a point of suspension) where flows are moving in opposing vectors: a subversive counter-state to the point of inflection in a topological continuum. Would Deleuze’s concept of inflection (a state of ambiguity and weightlessness) allow for an instance of meta-stasis, a reversal of vectorial purpose and desire, at a point of intersection?

A point of turbulence: architectonic volumes (imploding or exploding) that intersect with topological conditions, effectively become turbulences in the flow of continuous surfaces.

Within this philosophical paradigm, morphological concepts (topological or architectonic) cannot be adequately generated within the framework of Cartesian coordinates. An alternative spatio-temporal coordinate system suitable for simultane-
ous unfoldment of space and time. becomes an inevitable evolutionary step. We are currently developing a coordinate system, Tetra-Vectors, that employs the four vectors of a tetrahedral system as basic vectorial coordinates (Vt1, Vt2, Vt3, Vtn). In this system, spatio-temporal Vt values are imputed to each of the four vectors. Thus each point in space falls within a particular tetra-quadrant. The fourth vector carries an intrinsic potential (q) value for that point to vibrate, to become activated into motion (i.e. Vt1, Vt2, Vt3, Vtn (Vt1, Vt2, Vt3, Vtn+X)). Within those Vt vectors, a planomemon of architectonic fragments or topological continuums is imbued with a projective becoming. Thus, an inherent instability and fragile equilibrium permeates the behaviour of space.

This architecture aspires to creating space that is simultaneously emergent and convergent, imploding and exploding. A space that is physically and metaphysically charged with the desire to transform, transmute, and trandfold itself.

1 Henri Bergson, Creative Evolution
2 Ibid
3 Deleuze & Guattari, What is Philosophy?
4 Gilles Deleuze, The Fold
5 Ibid

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House of Emergent Suspensions

Three states of suspension, defining aspects of the client's life, constitute and define the morphologies and spatial behaviour of the house: first, as a film-maker (suspensions of disbelief); secondly, as a satellite engineer (non-gravitational suspensions); thirdly, as a water polo player (physical suspension in water).

Metaphorically, the suspensions are the Primordial, Ontological and Cosmological conditions. Their spaces emerge around an "Axis of Ascent" in an upward trajectory. Thus, gazing onto celestial bodies originates at a symbolic primordial point of "emergence from water."

The domestic spaces are arching along an "Axis of Descent," overlapping, but not intersecting, with the Axis of Ascent. It is a descending arc connecting the sleeping quarters with the living area pointing towards the lower plateau of the land.

A vessel membrane contains and carries the house components. It is suspended on the hillside to provoke a sense of instability on one side, while it is cradled by the continuous contours, on the other, to evoke a sense of comfort and stability.
Principal of Studio X Kayya
Originally from Burma, Chu is an architect and a theorician from Los Angeles engaged in the development of a new metaphysics of architecture based on computation. His architectural studio X Kayya specialises in the research, development and practice of a new form of genetic architecture. He is currently a senior design faculty at SCI Arc, Los Angeles, and holds a visiting adjunct position at the Graduate School of Architecture, Planning and Preservation at Columbia University, New York. He has taught and lectured at various universities all over the world and has also participated in numerous conferences and exhibitions.

Architect's Statement
X Phyllum is part of an ongoing series of projects initiated since 1997 in the attempt to develop a computation-based genetic theory of architecture.

The end of the second millennium will eventually come to be acknowledged as the evolutionary time of convergence. A convergence, due, in great measure, to the emergence and subsequent complicity of computation and bio-genetics in the 20th century, that will gradually transform the global community into a demiurgic economy, which, so far, has been driven and constrained by normative capitalism. There are indications that a brave new world is already in the making, which I have elsewhere referred to as the Hyperzoic Era full of promise and uncertainty. Undoubtedly, it will prove to be much more incredulous and treacherous than anything we have seen in the history of planetary evolution.

If the Cambrian Period marks the sudden explosion in both the range and complexity of multicelled animals whose descendants fill the world today, the emergence of the Hyperzoic Era will announce the profusion of a new type of life, the artificial life of abstract machines and architecture where a new type of bionic economy of the manosphere will develop and coincide with the biosphere. Such a condition will transform the behavioural logic of normative capitalism, from one based on the production of static commodities into a demiurgic economy that engenders the artificial life of global intelligent systems. This is the sphere of virtuality where the global matrix of evolutionary computational systems will produce and populate the planet with diverse forms of artificial life and beings.

It is within this context of an evolutionary cosmology that the project X Phyllum takes its impetus to model a new form of proto-bionic architecture. Its mode of becoming is based on the autogenetic logic of the L-system (Lindenmayer System), which is one of the simplest types of recursive branching systems. The axiomatic infrastructure that governs its output requires a set of mathematical functions in order to determine its morphological outcome as a viable expression of architecture.

In addition to implementing self-reproducing and self-organising mechanisms, X Phyllum is also an attempt at conceptualising a computational theory of architecture based on the classical model of computation, the Universal Turing Machine as inaugurated by Alan Turing in a seminal paper on computable numbers published in 1936. The new paradigm of evolutionary cosmology ultimately would require quantum computation as its infrastructure, which, at the present, however, is still in its embryonic state of research and development. Nonetheless, X Phyllum is an index marking the formation of a species of bionic architecture based on an algorithmic conception of the world.
As an autogenetic system, X Phylum is a computational monad that is a logical counterpart to Leibniz's notion of the metaphysical monad. It is a singularity, or an incomplete totality, whose morphology is generated by an internal principle and brought to a provisional closure in order to qualify itself as a form of proto-species. Leibnizian monads are modal entities that can be characterised as metaphysical species. A re-conceptualisation of monads from the standpoint of computation necessitates a re-definition and generalisation of the biological concept of the term "species" so that it is adequate enough to encompass a wider categorical frame of reference.

One fundamental difference between the notion of species and typology is that, species requires morphogenetic processes for the development and evolution of individuated wholes or singularities, whereas, typology is predicated on a static classification of typographic arrangements derived from the conjunction of iconography and utilitarian programs informed by cultural values. Within such a generalised notion of species, a self-organising system, a robot, or a dynamic logical infrastructure would be considered new types of species as well.

Diachronic formations of epigenetic processes which evolve into "epistemic species," or, hyperstructures that reside within some domain of virtual configurations. The universe of virtuality therefore is a dynamic constellation composed of ever shifting spheres of indiscernibles, forces, information and virtual particles that unceasingly self-reproduces and self-synthesises into ever more complex matrices of monadic self-organisations.

The internal movements of computational monads are propelled by the dynamics of self-generating mechanisms whose abstract desires, such as compulsions, innate propensities or tendencies, are already implicit within the configuration space of axioms. The unfolding of a computational monad generates a logical depth which measures the time-complexity necessary to generate and produce a species. Even though it is essentially a diachronic procedure, the process does not exhaust the surplus of information that enters into the non-linear modulation of generative sequences.

The emergence of a monad is an event derived from algorithmic formation. Yet, there are unaccountable intrusions or virtuous implications that manage to enter into these non-linear processes which resist any simplistic appropriation of quantitative analysis or prediction, even within the context of a strictly deterministic procedure. Events that determine the constitution of monads are truly complex in that they are emergent effects generated by massive complicity of causal relations that inevitably comes into collisions and interactions with virtual particles that accompany and surround a given set of axiomatic explications.

Diachrony, as a phylogenetic procedure, is not without synchronic interventions by virtual particles and implications derived from conditions that are within as well as outside of a given set of axiomatic formation. Therefore, they contain a surplus of the unknowable and the indeterminate due to the fact that algorithmic strings with a high level of complexity are imbued with varying degrees of randomness with regard to their internal composition. Finally, computation is a physical and logical phenomenon and therefore it is circumscribed by Godel's Theory of Incompleteness and Undecidability pertaining to the logic and limits of the computable.
Andrew Gollifer
Principal of Gollifer Associates Architects
Gollifer established his London based practice to provide a base for exploring experimental solutions to a variety of architectural problems. His career began working on designing water research stations, hospital day care units and low cost housing units. This experience has provided Gollifer with an understanding of pertinent environmental and developmental issues that need to be taken into account in "virtual design." Ethics, social change with the evolving work-live space, and the ecological consequences of building are questions this young architect has considered. One of his most recent projects, the National Glass Centre Sunderland, demonstrates how effective incorporating unconventional systems can be, which in this case is the wind catch, an air cooling system used in medieval Middle Eastern buildings.

Architect’s Statement

The history of architecture shows an unending struggle to admit daylight though the heavy obstacles imposed by gravity.

Le Corbusier

The architecture of the National Glass Centre emerges from the land rather than being imposed upon it like an object. From the point of arrival at the top of the site, the building is almost unseen and this gives the place a sense of mystery. All that is visible are the canopies, the ventilation towers and chimneys of the factory which become sculptural objects in an artificial landscape. As one walks toward the edge of the roof, glass introduces itself in the surface of the plateau and as one reaches the far edge of the plateau, the surface is entirely glass.

The glass in the roof lets light into the broad plan of the building. It also allows visitors to experience glass in a particularly intense way – walking upon it. What is normally an unused or at least uninhabited area of a building thus becomes fully accessible and this leads to a new building form. Ove Arup Facade Engineering developed the solution for this roof – there are earlier examples of glass used in a similar way in public areas such as Stansted Airport and the French Expo Pavilion in Seville but these were on a smaller scale.

The entrance gradually descends through a cutting in the plane of the roof to the upper foyer. It’s an unusual way to enter a public building – the European tradition being a grand flight of steps upwards – but this both solved the problem of accessibility and allowed a naturally inviting descent.

Once in the upper foyer, the building starts to reveal itself. Past the entrance to the gallery spaces the foyer opens up to the River Wear with a double height space containing the restaurant and shop. At the end of the foyer the stainless steel clad seminar pod punctures the end elevation and looks back toward the city. The other end is open and allows views out to the North Sea.

The lower foyer sits in a close relationship to the River Wear. The river was the most interesting part of the site and we felt that the building should address it in a simple and straightforward way. But the foyer also allows discrete views into the layers of working activities within the centre of the building.
Steel – the material which really created the possibility of glass in this kind of scale – forms the grillage of the roof which tapers from deep beams spanning the factory space to the cantilever over the front facade. It is also an essential part of the character of the building, with its expressed industrial language, and gives an energy to the spaces beneath the calm roof plane. Techniker Engineers designed the structure. Very little of the structure is hidden and much of the workings and processes are on view. In some cases, such as the front facade, elements are dissected and pulled apart.

One aspect of the project that tends to get little attention is the innovative environmental engineering. Battle McCarthy Engineers produced a scheme which took full advantage of the enormous heat that glassmaking produces, and used that energy to heat the other public areas of the building. As it would have been undesirable to site a plant room in the normal location, on the roof, a different way of introducing fresh air was devised – via an underground tube which also takes advantage of the earth’s natural cooling to provide pre-cooled air in summer. Ventilation is by natural means via wind towers on the roof and beneath the front facade – rather than by energy consuming mechanical ventilation. This reduces overall running costs and sets up an environmental solution which offsets the concerns that would normally be the case in a building with substantial areas of glass – concerns of heat and energy loss.

In 1994 the Tyne and Wear Development Corporation held an open competition for the design of the National Glass Centre. The competition was won by Gollifer Associates: a young London based architectural practice. Full funding for the scheme was agreed with major contributions from the European Regional Development Fund and the Arts Council National Lottery Fund. The project started on site in January 1997 and was completed in little over a year by Kvaerner Construction Ltd. The budget for the construction was approximately £7 million – which given the high level of services and innovative use of glass, makes the remaining shell of the building extremely economic.