**18th-Century Air Conditioning and Purifying: Homage to Carl B. Wadström and George Kubler**

**Alessandra Ponte and Georges Teyssot**

The paper presents a compelling early example of mechanical air conditioning for the dwellings of Europeans in a colony in West Africa at the end of the 18th century. The scheme was published by the Swedish engineer and abolitionist Carl B. Wadström in *An Essay on Colonization* (1794–1795), a well-informed compendium of the strategies and politics of colonization implemented by European powers. Wadström’s ingenious air-conditioned house appeared in a 1944 article by the eminent art historian George Kubler under the title “The Machine for Living in 18th-Century West Africa.”

**Keywords:** hygiene, colony, comfort, air

**Information, *In*-formation, *n*-formations**

**Aaron Sprecher**

The nature of information has experienced a significant mutation over the past century. The advent of the information sciences and their incorporation into every domain of research has led us to reconfigure our perception of nature and human production. This reconfiguration epitomizes the current convergence of knowledge exemplified in digital architectural research. The architectural environment is now thoroughly infused with digital tools that are the direct products of both information theory and scientific investigation. A study of the various aspects of information leads us to consider these tools as composites of both reductionism and emergencism. The former considers reality in terms of universal laws that regulate nature, while the latter claims that in complex systems, new and entirely unexpected laws may emerge. In this regard, the coupling of inductive and deductive propositions – best demonstrated by the concepts of algorithmic complexity and abstracted networks – represents an essential feature in the construction of comprehensive evolutionary models, where evolution represents a combinatorial set of intensive information.

**Keywords:** Information Theory, Cybernetic Architecture, Computational Design, Experimental Architecture

**From Collective Form to Combinatory Behavior**

**Chandler Ahrens**

Architectural innovation can be accelerated by combining different types of elements. Of the many different combinations architecture can incorporate, this article focuses solely on the interaction between geometric elements. Several important architects and theorists whose design proposals and texts have contributed to the discussion of combination strategies will be studied to clarify different methods of geometric combination: Fumihiko Maki’s strategies of aggregation through a collection of elements; Stan Allen’s elaboration of aggregation strategy, where elements can be removed or added without affecting the overall collection; Robert Venturi’s strategies of juxtaposition and superimposition; and Thom Mayne's expansion of juxtaposition and superposition by employing Boolean operations strategies in conjunction with aggregation strategies. These references provide valuable resources for teaching strategies of combination to architecture students. Combination, in this pedagogical context, is defined as two or more geometric elements or sets of elements that interact through adjacency, aggregation, superposition, or subtraction, with the new combined assembly having the potential to be distinct from the original elements. This article examines the pedagogical implications of two computational approaches of incorporating combinatory methods: image-based and object-based. Combinatorics helps guide students in designing the relationships between different elements so that the resulting system generates systems that emerge from relationships rather than element composition. A key benefit is that the system can produce results extending beyond students’ preconceptions. Students can then analyze and learn from the results of their experiments, following a learning-through-making approach. An important aspect of this approach is using computation to design the relationships of elements, with computation becoming a design partner enabling students to rapidly iterate and understand the implications of the relationships they have designed. Computation accelerates the evolution of the design process and reveals the complex

interactions of combinatory behavior.

**Keywords:** parametric modelling, digital fabrication, drawing/model hybrids, combinatorics