

# Quantitative & Qualitative Generative and Instrument

## Apparatus

### *Introduction*

In this paper I start my discussion on left over sketches , drawings and illustrations in which each drives a consistent notion in subject matter . I collected four essays in total with subjects as such ; Gaming , Object oriented transit , object oriented land/lot , and project mapping. Each article would expand the subject around feasibility of essence in theories , design practice , and form of imagination. In other words these Illustrations drive a critical thinking in architecture semantic and form finding.

### *Generative Component*

#### *Quantitative*

What it has been driven from fundamental studies such as mathematics , physics , chemistry and literature are the general notion of these two importance; quantitative and qualitative subjects. Planning and place making are two initial components in design in which fundamentals shaped . From two courses in master of architecture at two universities these subjects have been taught and studied in format of writings . In the first study the notion of tools in architecture practice been developed by relying to the first one in generative components. I would include part of these writings in this essay as subject of this paper to be considered as one title; creation of an apparatus. The first essay is on stereo-plotter tools in architecture and the second one is the generative component creating a canopy structure.



**Energy consumption and urban texture**

© 2010 Cambridge University Press. Downloaded from  
 Cambridge Core University Library on 01 Oct 2014  
 at University of Cambridge. This subject to the Cambridge Core  
 Terms of Use, available at <http://www.cambridge.org/core/terms>.  
 http://dx.doi.org/10.1017/S0001924114000000

John Hertz, 1; Alan Burt, 2; Alan Burt, 3; Alan Burt, 4

The effects of urban texture on building energy consumption has been experimented through this research. According to Senseable city lab research the analysis of digital elevation models (DEMs)—raster models of cities which have proven to be very effective in the urban context has become a base study model for the initial steps towards form generation. What has been done through their research is, introducing different algorithms, including the calculation of the urban surface-to-volume ratio and the identification of all building areas that are within 6 m from a facade (passive areas). An established computer model to calculate energy consumption in buildings, the LT model, is coupled with the analysis of DEMs, providing energy simulations over extensive urban areas. Results for the three case study cities of London, Toulouse and Berlin are presented and discussed. What has been done so far in this research is taking their methodology to create an energy efficient geometry by considering its surface to volume ratio relationship.

**Koch Snowflake**

The initial idea is changed to another variation of Fractal system due to the nature of the project's context

**T-square (fractal)**

*and means in architecture*  
*Qualitative*

## **Photogrammetry**

•What is it? The commonly used definition:

*The science or art of obtaining reliable measurements and information by means of photographs.*

•Photogrammetry is most commonly associated with aerial photography for the purpose of making maps, but is also used for a wide variety of measurement tasks, including architectural and archaeological plans, volume calculations, forensic science and high precision measurement in industrial manufacturing and structural monitoring, plus many others.

•Derived from three Greek words :

–photos-meaning *light*

–gramma-meaning *something drawn or written*

–metron-meaning *to measure*

•Original meaning was *to measure graphically using light.*

## **Controllable Interface (Stereo-plotter)**

The relations between man and his environment are subject to continual and restless change. To depict carefully and precisely this relationship by means of tools which have been exploited and evolved during time. The objective of creating such a tool is providing an interface between our inner environments versus outer environment. As is generally the case, we understand best the spirit of a place or time when we are about to abandon it or when we can compare what we are leaving with what we hope to find next. The stereo plotters are employed in extracting, analysing, and recording spatial information from aerial photographs. Since the onset of photogrammetric mapping, four major generations of stereo plotters have evolved. When using the first three generations, the operator inserts diapositive of two successive aerial photo exposures into machine. The most

recent generation allows the operator to compile mapping from a spatial image on a graphic screen.

Mechanical stereo plotters those are obsolete now. They exploited two systems of viewing and tracing mechanism. Mapping line work was produced when a copier manually guided a tracing table over the surface of the map sheet. Analog stereoplotters (1960, to 1970) relied on projecting a low intensity light source through a series of lenses and prism, forming an optical train. Optic and mechanical constructions are on both cameras. Analytical stereoplotters used a mathematical image ray projection based on the collinearity equation model. The mechanical component of the instrument consists of a precise computer-controlled stereocomparator. Since the photo stages must move only in the x and y image directions, the measurement system can be built to produce a highly accurate and precise image measurement. Digital stereoplotters. The latest generation of stereoplotters is the digital (or softcopy) stereoplotter. These instruments will display a digital image on a workstation screen in place of a film or glass diapositive. The instruments operate as an analytical stereoplotter except that the digital image will be viewed and measured. The accuracy of digital stereoplotters is governed by the pixel size of the digital image. The pixel size directly influences the resolution of the photo coordinate measurement. A digital stereoplotter can be classified according to the photo coordinate observation error at image scale. Then it should be comparable to an analytical stereoplotter having the same observation error.

Architecture design was one of many disciplines whose history was directly and permanently affected by printed images. From the beginning of the early modern period, the diffusion of architectural patterns and motifs has been determined first and foremost by the direct transmission of visual models, not by the indirect means of verbal description. At the same time mechanically reproduced illustrations gradually replaced those copied by hand. This change of format had in its turn irreversible effects for the transmission and transmissibility in space and time of architectural models, as the quality of copies was vastly improved and quantity increased. The life of culture is limited in time just as is the life of an individual. Since this is true of all organic existence, everything depends on what is accomplished within the allotted span. In Giedion methodology, generation-to generation, year-to-year, instant-to-instant, are in danger of losing their equilibrium. There is no static equilibrium between man and environment, between inner and outer reality.

Our period demands a type of man who can restore the lost equilibrium between inner and outer reality. This equilibrium never static but, like reality itself, involved in continuous change. The specialised approach has to be integrated with a universal outlook. Inventions and discoveries must be integrated with their social implications.

