

# **A Blockchain Model (BCM) study of the Syntactic and Semantic grid in Urban History and its origin from the Indus Script Pictorial Form**

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**Abstract.** The geographical dimension used pattern of the grid has a long history of the spatial framework in terms of evolution, the semantic position and precision of orientation in the urban grid used today in City occurred by the sequential overlap of hierarchical transformations spanning over time. There are multiple factors of the framework which positions the present shape of the modern Mooltan Planning grid. The grid has spatial syntactic dimensions overlapped with spiritual historical varying from micro-level of Indus script which was intellectually fashioned based on logic and effort for designing anthropomorphic symbols. On the other hand, at the macro level geographical dimension and positioning of the semantic space division; e.g., navigational instinctive system of moving forward or backward, or left and right. Natural fringes which were the Punjab Rivers in this case along with the phonetic signs and their pictorial forms. The study is linked by application of Block-chain model with research gap in light of works from other countries compared with that of Pakistan- Mooltan Planning. The discussion section, elaborated on this Manuscript emphasized the policy discussion to cater to the issues of such interconnections with land use and morphological interventions.

**Keywords:** Indus Script; Pictorial Form; Spatial Syntactic; Dimensions Blockchain Quasi-model; Pseudo-randomly Model.

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## **1. Introduction**

The objective of the research is to develop a methodology for making quasi-block-chain analysis from city Planning heritage especially the fringes of monuments using morphology policy applicable internationally. The author aims to simulate the planning, monuments, and nodes from City. This section covered the overall background and description of the study, narrow down to research objectives of finding the roots for the planning of city Planning, motivation of the topic which is the symbols, importance, and significance of the semantic written

language pattern and impact on the planning of Central Mooltan of Pakistan city Planning. The process is deciphering the linkages between the symbols of Indus Script and its alignment with the fringes and planning bases for the urban plan by applying the Markov model along with the Agent-based Model. One of sequential analysis of emerging, which can be defined as "the whole which is considered as the grid for the urban planning to be greater than the sum of its parts which could refer here as the symbols from the ancient Indus script as a metaphor". In other words, spider pattern grid and winding roads higher-level system properties emerge

from the interactions of lower-level subsystems modeled here as the Indus script symbols. Or, macro-scale state changes emerge from micro-scale agent behaviors of the earlier script. Or, simple behaviors (meaning rules followed by agents) generate complex behaviors (meaning state changes at the whole system level of the semantic space).

## **2. Literature Review**

This section critically describes the use of grid and its roots been simulated Baran, et al., (2008) and Biagi and Cremaschi, (1991) by the symbols and evaluate literature relevant to research problem stated, by Bignami, (2014) described in the territorial and historical framework of city Planning which described Mooltan Planning as a prosperous land of the era from prehistory and he argued that the inspiring heritage of the grid presented as a past leading to new progress of urban planning as a Sustainable Social ground for the grid along with the economic and evolution of the grid could be traced back to the environmental revitalization in Mooltan Planning city grid. This section establishes context, as presented by Hussain et al., (2020) who studied the land covered and comparison with the land use along with the temporal changes and applied the GIS mapping strategies as a case for Mooltan Planning described as a district in Pakistan considering the environment as a precedence for the grid plan and monitoring and assessing the evolution of the grid planning Bokil (2009), Brass (2004), Burton (2000), Burns (1976), Brown (2001). They compared and contrasted the most recent developments in the history of Mooltan Planning from literature and planning trends. In this section we Searched gaps as Faiz (2021) described the building language after concentrating building province on thought leaders' work of civil society and ethnic nationalism and linking the research with relevant theories in Pakistan.

Kepaptsoglou et al., (2020) compared grid as a system to be evidence-based design from Mooltan city Planning, they said that the Grid origin is before gridiron phenomena, the aim here for this paper is to trace the semantic space based on symbols and script features as a prototype and origin of the grid which is been hypothetically argued in the paper for the grid philosophy in Planning. Duany (2000), Childe (1950), Corbusier, (1929), Conzen (2004), Drennan (2010), De Vorsey, Luis. (2012), Fairservis (1971) Fox (2000). This has occurred as early as cave dwellings flanking the Indus Civilization in the region of Mooltan Planning which is the midpoint of Mohen-jo-Daro and Harappa civilization. The City Planning spiderweb grid made more than a few unintentional comebacks, the inherent grid history complexed the traditionally narrated phenomena of the grid, reinforced current modernist trends to materialize the present grid, and re-own the history of the grid plan.

There is a vacuum in the investigation and examination of the function of the grid following the river as a topographical restraint; from the time when the spider grid was used in City Planning. The spider grid facilitated the variety of spacious agricultural and industrial spaces for all the classes or congregational meetings in the historical era as Del-Bo (2014) introduced this approach of the grid as sharing culture and knowledge of the Core as Indus script of City Planning.

The literature review suggests that there is a vacuum in the temporal models as stated by Stanslawski (1994) which deciphered the grid plan up to Mohenjo Daro (2500 B.C.). The analysis of (Gangal et al., 2010) on City Planning (7000 B.C.) for tracing the Indus urbanization consider the prototypes which existed earlier than Multan, thus this research further expands earlier providing evidence for the grid patterns from pre-historic times as the Indus Script


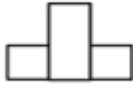

symbols. Annexure 1,2.

The origin of the motivation behind this paper is to retrogressively trace the motives of the prototypical grid form. It is inferred that the spider grid originated before Oglethorpe’s Utopian intelligently grided Savannah’s plan an American planned city, earlier of Hippodamus of Miletus, 498- 408 BC before this era Indus Valley 2600–1900 BC had planned on-grid form, which had precedence of Çatalhöyük 7500 BC to 5700 BC as mature operational grid Pateman (1987), Fait (2021), Ahearn (2021), Martinich (2009) Mair (2021), Pettersson (2016) and Luo et al., (2021).

**3. Experimental Program Simulation Procedure**

The methodology follows a sequence of activities to achieve the desired objectives. At first, the Mooltan planning simulated were designed, and then quasi-block-chain tests were performed on it, Annexure 3 and 4 (Table 1).

**Table 1. Comparative analysis of Mooltan planning**

Language and writing		
		



Writing and language evaluation and its alignment with the grid formation for urban planning is the intellectual creativity of civilization at Multan. This analysis reveals that people who designed the Indus script were intellectually creative and considerable time and effort went into designing the cities from the micro level to macro level, Annexure 2 and 4.

**4. Section title: Symbols from Mooltan**

The micro-level phenomenology for the grid is driven from the human and ergonomic instinctive constraint of nature as a human being anthropologically

direction-finding of forward and backward and right and left navigation orientation. The understanding is applied for the mapping and reading along with the route planner on syntax and axial move, eye connecting tool for grid design, and communication ease. The understanding and simply Mooltan of the grid as a place. The grid universality is marked by its easy to occupy, rent, demarcate, and premises limits. Fox (2000) defined the grid as geography shaping our brain and converting terrain into the territory, the geometric shape patterns are manmade. The human brain is continuously been trained to measure, by images of lines and human vision, when human visits a new place he wants to know his current GPRS and position, according to the two-dimensional mapping derived in the mind, he would unconsciously measure in his surrounding concerning another side of his vision. Therefore, is in the innate human psyche to use the grid from simple signs in Table 2 as a beginning of a settlement.

**Table 2. Analysis of the Written Symbols**

	
Prepared Specimens using Various Materials	

The second instinct of expandability is the primary grid motivation when compared to other towns e.g., circular plan of Baghdad (al- Mansur AD 762-7) and Multan which does not allow orthogonal spread out but rather a winding road pattern or spider pattern grid and serpentine style plot size which wedge shape as the early writing suggested from Mesopotamia. Spaces wrapped around the central bazaar with limit the opportunity for expandability. Brick was a unit for the orthogonal planning and other constructional constraints also defining out the division for grid

planning. Hillier (1996), Gangal (2010), Grant (2001), Gnisci (2011), and Higgins (2009).

#### **4.1. Blockchain Analysis**

In Fig. 3 the Indus script in the above figure presents a logo-syllabic shape, it mainly constitutes a system of graphemes which are single-valued and syllabic scripts, which could be cracked as artificial intelligence. Individual signs may be interpreted one by one as an agent-based model which is a semantic grid study of the semantic module in Multan urban history.

Many of the graphemes may remain eternal mysteries, though its evolution from the Indus script pictorial forms a Semantic sequential for the Geographical Dimensions of Multan Bazar compared with the Spatial Framework of Sufi Shrines could be deciphered in the upcoming research. Multan has undergone a radical transformation and aesthetic growth.

The Mythologies of the Grid, this paper documents the downtown providence plan of Multan, secondly it creates an accurate plan of Mooltan center by modifying an AutoCAD base map interpretive analysis on micro-level with that of the Indus Script. The Collected Lime from Multan Fertilizer is brought to the site and plant of the Sothern University of Punjab. The Lime from Multan Fertilizer, fly ash from Sanawa power plant and pumice from Chaghi (Baluchistan) are taken in proportion by weight and Fly Ash is added and mixed thoroughly using rod and trowel before it hardens.

##### **4.1.1. Fly Ash**

The mixture is then homogeneously poured into the cylindrical mold and then is compacted with the aid of a steel rod and the surface is finished using the trowel. Before pouring the mix into the mold, the walls of the mold are oiled for smooth removal afterward, Gupta

(2021), as shown in Table 3.

The urban morphology for early man depended upon his way of vocation earlier then agriculture native was making tools to symbols, this is the pivotal point in history where he has the tool to construct therefore, he planned dwelling towns according to the symbols based on the river pattern Lambrick, (1973); Hall (2002); Jacobs (1993); Kenoyer (2001); Johnson (2001); Kostof (2009); Levinson (2005); Lynch (1984); Mackay (1938).

These towns were based on well-calculated orientation and the understanding of Homo for geometrical and ergonomically proportional features represents the intellect and precision of urban morphological decisions. Moreover, the 1:2 rectangular proportions for the grid and the 45-degree angle overlapped shift which is parallel to north qualifies Homo as an urban designer for this earliest city. He also understood the spider web pattern and serpentine growth, Annexure 1 to 4.

## **5. Conclusions**

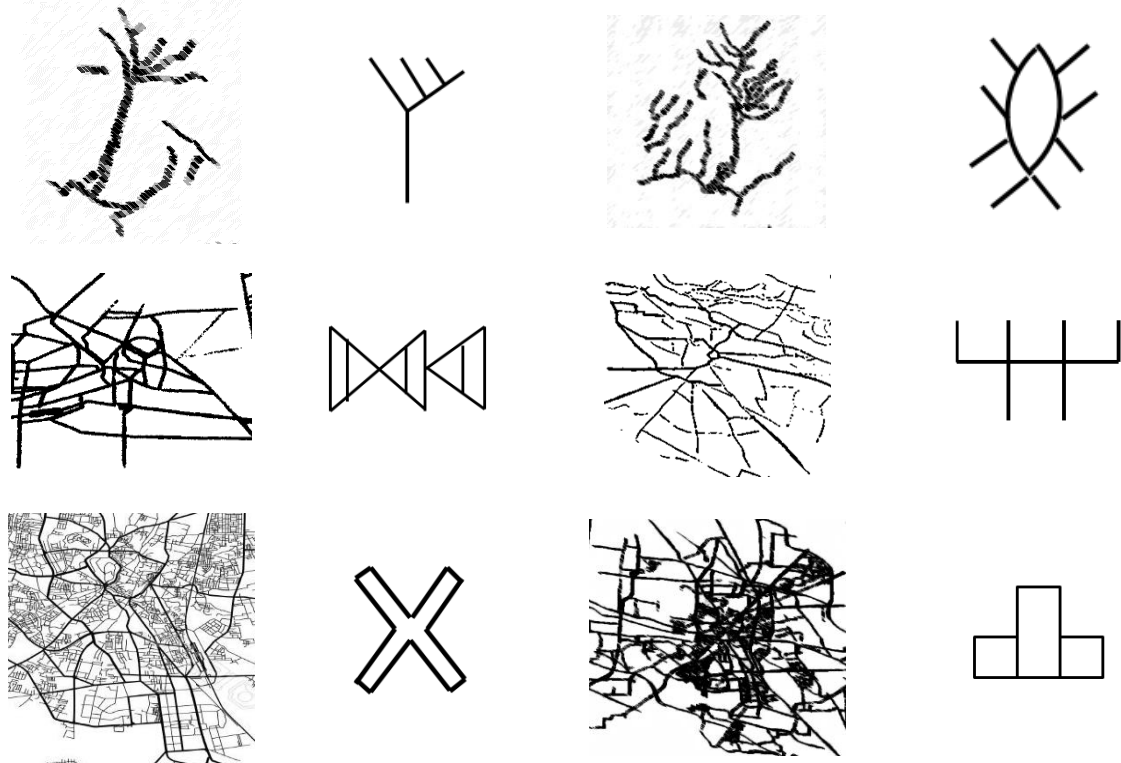
The goal of triggering a historical core of an ancient city: Multan the oldest city of central southerly Asia. A comprehensive territorial condition of human community growth. To study the multilayered site of Multan, technical actions were devised based on the cultural identity.

This section described the statistical techniques applied to the collected grid data sets with the explanation of the construction of hypotheses that the symbols of Indus Script and the river fringe is been used as semantic and syntactic equations for the statistical tool and justification for the grid in this case, quantitative analysis for the map of Multan while for qualitative analysis of the typo-morphology of the phonics and symbols, methodology of the research

based on Markov Model is mentioned. A list of variables of symbols of Indus script is described in this

part of the section.

**Table 3. Model Output Training Data for the Comparative Analysis of Five P-theory**



1. The section covered in-depth interpretation through applying higher-order thinking skill input data in the program sequences of languages: ancient Indus script, then we gave it samples of four non-spoken communication systems: node, street sequences, and an artificial language. The program calculated the level of order present in each language.

Urban planning fringes as the orientation of the language fell in the middle of analysis and the research developed a novel argument which is based on the significance of statistics relations of grid to symbol.

Establish interconnections pattern-analyzing software of space syntax at the micro-level, and GIS running what's known as an SVM (Support Vector Machine) Hidden Markov model, a computational tool used to map system among and within variables.

Testing hypotheses and comparing with the literature of part two. The program was seeded with fragments

of Indus script, it returned with geometrical rules based on patterns of symbol arrangement.

These proved to be moderately ordered, similar to the spider web pattern grid of current Multan in 2022 grid coded language. Theoretically, the argument fills the vacuum between the retrogressive spatial-temporal models by presenting the model for agricultural society at Multan preceded by nomadic settlements.

Morphologically this paper bridged the gap of the grid form which is bee traced to the grid plan. While our research expands further the original prototype by suggesting urban morphologies earlier than Multan.

Case studies of evidence-based grid planed morphologies are presented up to hundred years. We have conducted field surveys to infer urban grid patterns in the vicinity of Multan.

### Acknowledgments

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### Annexure 1. Research on the City Planning from the Material

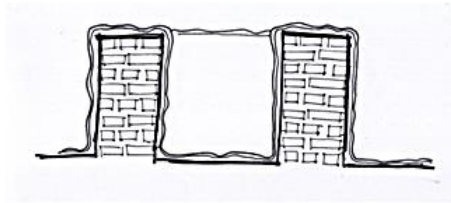


The experiment to have the silt free and salt free clay to prepare the mud slurry 4X4 inch cubes of clay were exposed to water with salt, the clay which absorbs minimum was chosen.

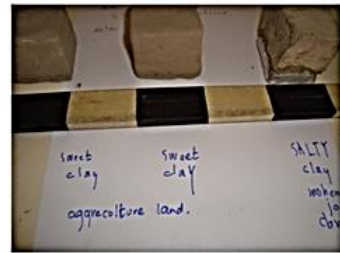
The clay was dissolved in water, then filtered to funnel away any salt content.



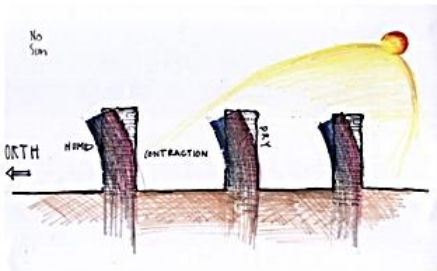
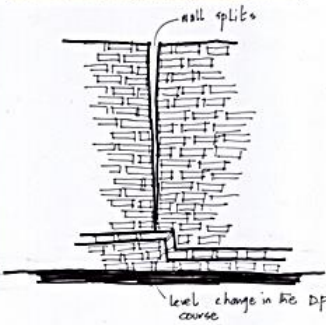
Annexure 2. The City Planning and the Micro-level Block



The successful use of the geo membrane, whose life is almost 100 years, this process is successfully used on the stopa area, where it has been, membrane and thin mud plaster is applied.



When water accumulated into the pores of the bricks, and due to temperature, expands and contracts constantly, that is in the summer night contracts and summer day expands, and in monsoon, water is accumulated then in the winter, when temperature falls at night, below zero, then the crystal is formed inside these pores inside the bricks. The porosity level also varies, some bricks parts are highly porous some are lesser dense. This constant contraction and expansion over the seasons and over the night and day, has made this wall tired and the bricks are completely exhausted, and as a result the bricks crumble in the form of powder.



Decay by salts

What is a "salt"? Chemistry: a product obtained through the reaction between an alkali and an acid.  
Heritage science: a soluble chemical compound that crystallizes on or inside any material.

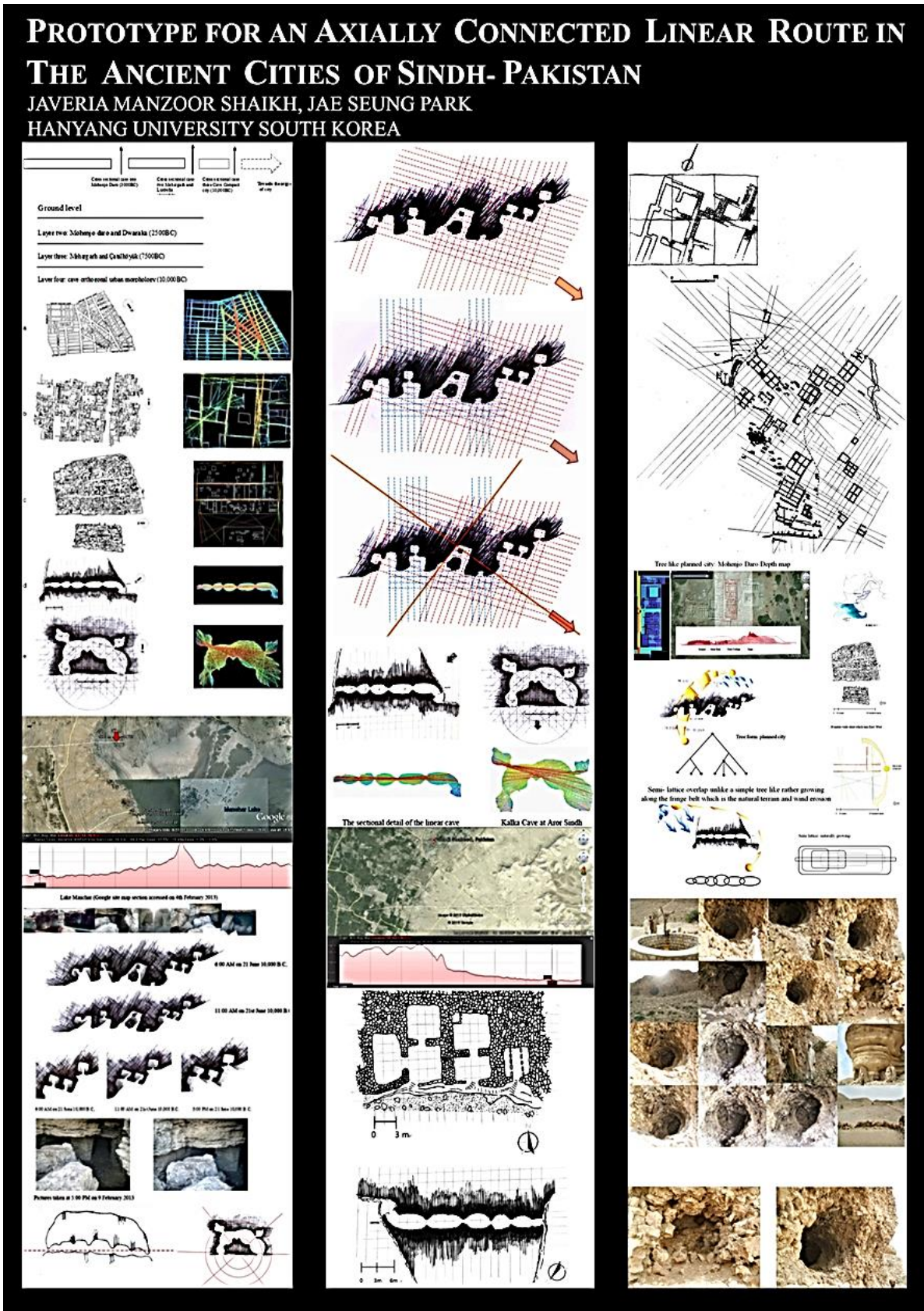
Being soluble, the salt coupled with the presence of water mobilizes salt in solution. When crystallization occurs inside a pore produces a pressure (crystallization Pressure) that presses against the pore walls that can break. When water evaporates, salts crystallize inside the porous of the brick or mortar or in the surface cracks.



Some salts are associated with the mortar type only, and very often these salts are produced as a reaction product with other brick material. Several chemical species come to being, though the more frequent in buildings are the 7 and 6 hydrated forms.



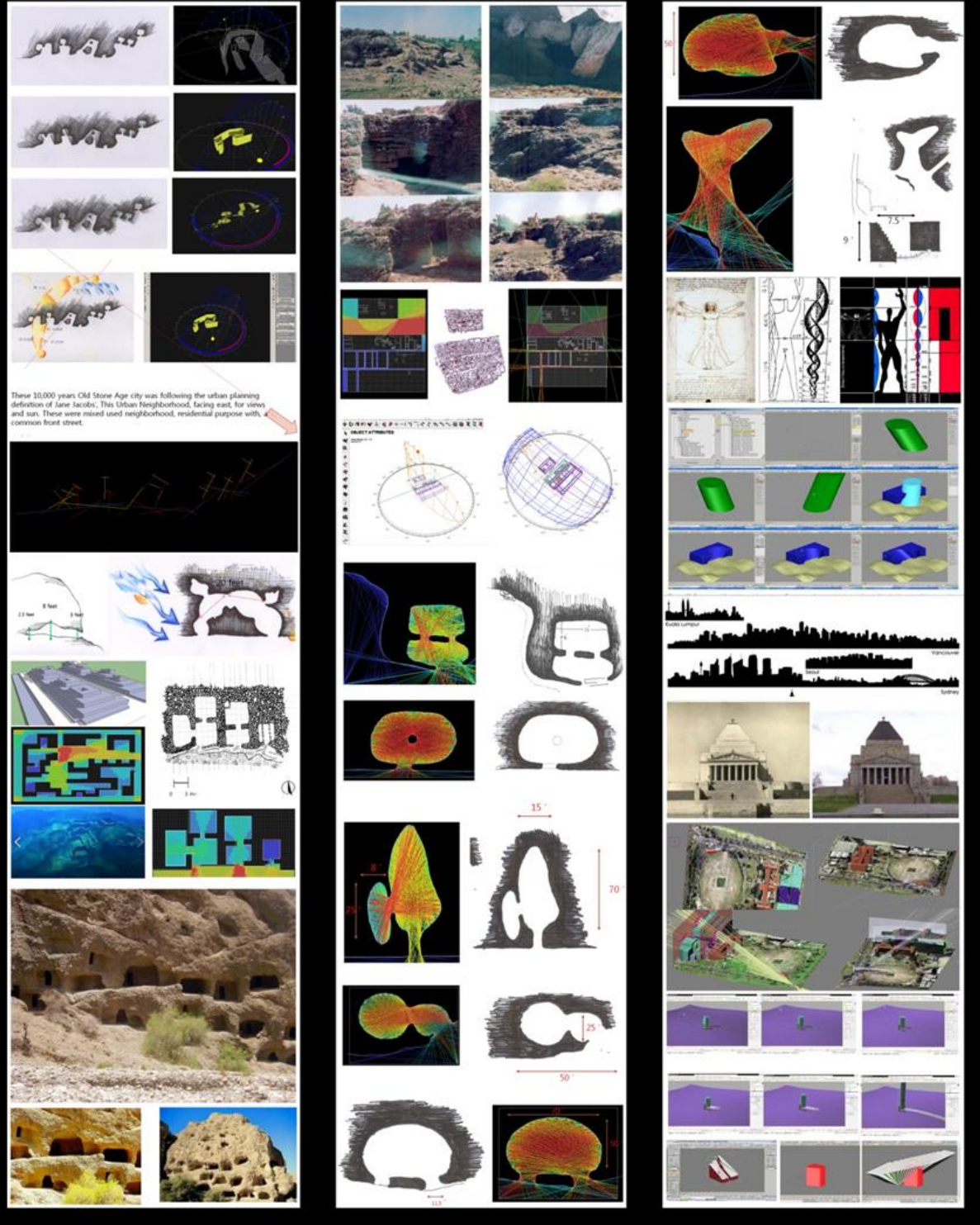
Annexure 3. The Figure for City Planning



Annexure 4. City Planning and its History

# Tracking Back The Progression of The City Framework's Prototypes up to The Ancient Civilization.

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