

**Comparative computer analysis and interpretation of cognitive clusters based on
mythological, historical, linguistic, archeological, religious and worldview data
(the genesis of knowledge)**

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Summary

The article proposes the concept of clustered modeling of rock art for knowledge relationship (studying, interpretation and learning) between “teacher” (nature) and “pupil” (a prehistoric man). The proposed concept allows to expand the role and influence of rock art on the formation and development of Mythology, Religion and Magic. It allows to present the rock art in the form of clusters of knowledge (natural philosophy and metaphysics), tied to the territories. We identified three main types of the Armenian rock art clusters: a simple cluster, a mega cluster and a hyper cluster.

A simple rock art cluster is a set of petroglyphs around a small lake, which is usually located on the slopes of volcanic mountains, on tops (craters). On Geghama range near Lake Sevan scientists discovered petroglyphs/pictographs in the vicinity of a volcano, where there is a small lake Akna/Aknalich (Arm. – “eye”). The frozen volcano mount Azhdahak is located on Geghama range. A lake with many petroglyphs and ancient stone monuments (vishapakars) is located on the crater of the volcano. A mega rock cluster is a set of simple clusters located around a large lake or a sea (e.g. Lake Sevan, Lake Van and Lake Urmia, around the Black Sea and the Caspian Sea in the Caucasus).

A hyper rock art cluster is a collection of mega rock art clusters - petroglyphs located around the Mountains of Ararat and the Caucasus Mountains.

In the rock art clusters we identified a visual database of encoded explicit and tacit knowledge represented in Mythology, Religion and Magic. It is easier to study explicit and

tacit knowledge through visual language – the language of rock art and rock art clusters (knowledge clusters) than verbal language of Myth, Religion and Magic.

We suggest four types of processes for creating new knowledge for studying Myths, Religion and Magic of ancient Greeks and Armenians, whose ancestors spoke the same language.

There are 600 volcanoes and 565 mineral deposits on the territory of Modern Armenia. The Biblical Genesis Flood and Noah's Ark narrative refers to the Araratian Mountains. Antediluvian man learned from nature, observed the results of action of the elements, accumulated knowledge and experience to control the forces of **water, air, fire and earth**. Thus, Nature, along with its forces, was the main teacher of man. Comparative analysis of historical, mythological and religious data within the scope of the genesis of knowledge shows that the most significant contribution is giving humankind fire by Prometheus.

In light of the above, we suggest the conception of computer cluster modelling of knowledge and the method of interpreting the major worldview, religious, mythological and linguistic motifs in comparative study with cognitive motifs of rock art. The conception enables to present complexes of petroglyphs as a system of cognitive clusters (repository of explicit and tacit knowledge) on the basis of which the major archetypes of worldview, mythological, religious and linguistic motifs are formed. Three major cluster types of petroglyphs are identified: **a simple cluster, a mega cluster and a hyper cluster** [Vahanyan G., Vahanyan V. 2013; Vahanyan G. 2014; Vahanyan G. 2015].

The role and significance of *rock art, encoded visual knowledge base* of prehistoric man originated in a competitive environment with the forces of nature are displayed through cluster conception [Anati 2014].

Nowadays a considerable part of this knowledge refers to a tacit class that isn't decoded or encoded being represented as mythological and religious motifs.

It is easier to perceive a thought that is depicted through accessible, vivid and simple visual language of petroglyphs than verbal language - the language of myth. It makes a deep impression, an intellectual tension and becomes an element of cognitive abilities of ancient man. Thoughts, ideas, skills, knowledge and experience depicted in petroglyphs became elements of cognitive abilities of ancient man [Vahanyan, Stepanyan 2005]. The model of the spiral of knowledge [Sanchez 1996, Nonaka 2006], transformed into a cluster spiral of petroglyphs, became a source for myths of the ancient Greeks and Armenians whose ancestors spoke the same language [Ivanov 1983; Gamkelidze, Ivanov 1990, 1995].

The authors reveal the essence, content and meaning of cluster conception of the genesis of knowledge. A **simple cluster** is a set of petroglyphs/pictographs around a small lake usually located on the top of a volcanic mountain (on its crater). A **mega cluster** of petroglyphs/pictographs is a set of simple clusters around a large lake (e.g. Van, Urmia, Sevan, etc.). On Geghama range near Lake Sevan scientists discovered petroglyphs/pictographs in the vicinity of a volcano, where there is a small lake Akna/Aknalich (Arm.- eye). A **hyper cluster** of petroglyphs/pictographs is a set of mega clusters (e.g. surrounding Mountains Masis and Sis, Ara, Aragats, Nemrud, etc.). The source of the four biblical rivers is located in a hyper cluster. According to the song the Birth of Vahagn [Khorenatsi 1990] the first man Vahagn (embodying the four elements of nature) was born on Lake Van.

The authors put forward and prove the following hypothesis: the occurrence of all cluster types in interconnection indicate a very early paradigm of **Nature-Teacher-Human** knowledge transformation. The location of all cluster types on a particular territory witnesses early origin of speech, linguistic thinking and communication of local people. A table of world graphic symbolism and ornamentation is formed based on mythological, linguistic and religious motifs. The results of the analysis of a number of various cross and swastika forms in the clusters of petroglyphs/pictographs prove that the Araratian mountains are the homeland of origin, formulation and development of archetypes of cross and swastika, octagonal star

and circle. According to Herodotus and Greek mythology, **Cadmus** (east) is the creator of the Phoenician and Greek alphabets. According to the History of Armenia [Хоренацци 1990], **Cadmus** is the grandchild of legendary Hayk - the founder of the first **House of God** (the temple of knowledge) near Lake Van. The final result of the interaction of the four forces of nature is described in the song the Birth of Vahagn. The bride of Vahagn **Astghik** (literally “a little star”) is a prototype of Astarte, Ishtar. **Vahagn** is a prototype of solar divinity, thundered, liberator of humanity, dragon-slayer, Heracles.

The morphemes “**Va**” (Vahagn) and “**As**” (Astghik) are transformed into “**Vas**” **with its symbol- octagonal star** (compare “**Vaspurakan**”, “**Swastika**”, “**Vostok**” /east/, “**Vosxod**” /sunrise/, “**Voskresen’ye**” /Sunday/, “**Vosem**” /eight/). In Scandinavian myths **Va** and **As** are associated with the ancient gods – **Vans** from **Vanaland** and **Ases** from **Asaland**. “**Van**” (One, Wan, One) embodies the source of life, water of life (water, wasser). **Van**, **Tatvan**, **Mikhravan**, **Tornavan**, **Yerevan**, **Nakhijevan** (Nakhchivan) and **Zarehavan** are the largest cities on the territory of ancient Vaspurakan region. Strabo refers to **Basoropeda** region, which is identified with **Vaspurakan**. A number of researchers think that Eden – the biblical garden of paradise is most probably located between Lake **Van** and Lake Urmia. The sources of the four sacred rivers are located in Eden. **Vaspurakan** embodies “**vas**” (water of life) and “**purak**” - literally “garden”, “park”, “pond” (see **Basoropeda**).

The capital of the ancient Kingdom of Mitanni (about 1500 B.C.) was located in **Vashshukkani** (**Vassokkane** or **Vaspurakan**). The population of Mitanni spoke in a language that had spread in Asia Minor, as well as under the reign of the kingdom of Urartu near Lake Van¹. “**Vostok**” (east) is the source of life, light, sunrise. “East” is translated into Armenian as “under the sun” or “under the **vault**”; it embodies the place of the birth of the first man – the

¹ The history of ancient civilizations 2014, <http://cicilka.ru/mesopotamia/mitanni.html>

teacher of the mankind (Vahagn). “**Vas**” is a cognitive unity consisting of two parts, elements – “**va**” (masculine energy- **Vahagn**) and “**as**” (feminine energy- **Astghik**).

Thus, in the structure of cognitive clustering rock art functions are the functions of metaknowledge of spiral knowledge, which has preserved explicit knowledge; tacit knowledge source the main motifs in mythology, religion and magic implemented in different linguistic structures. **Therefore, science, mythology and religion are elements of a single whole splitted through time and space.** Decoding of tacit (hidden) knowledge will benefit to unification and synthesis of explicit and tacit knowledge to form a complete and unified image of the world. The territories of the Caucasus and the Araratian mountains are observed as a reference point (cognitive center of the system of generalized coordinates) - megauniversity, geological laboratory of the four main forces of nature along with the museum of rock art. The fundamental frames of knowledge are presented in the table of Cadmus; the frames are identified with the Caucasus and the Armenian mountains.

Table of Cadmus

N	Key knowledge	Location	Teacher/Creator
1.	Creation of a man from clay, combined with water	Caucasus	Prometheus/Creator/Teacher
2.	Discovery of fire	Caucasus	Prometheus/God
3.	Building of the Noah’s Ark and its voyage	Araratian mountains	Noah, chosen by God
4.	Birth of the first man	Lake Van/Araratian mountains	Nature and its four forces, elements,

			Vahagn
5.	The principles of natural philosophy and metaphysics	Araratian mountains	Nature and its four forces, elements, Vahagn
6.	Paradise garden (Eden)	Vaspurakan/Lake Van	One true God
7.	The Golden Fleece	Colchis/Caucasus	Greek Argonauts
8.	Building the House of God (the temple of knowledge)	Near Lake Van	Legendary Hayk
9.	Creation of the Phoenician and Greek alphabets	House of God	Cadmus, grandson of Hayk
10.	Clusters of petroglyphs/pictographs	Araratian mountains	Disciples of Vahagn
11.	Names: Europe, Asia, Vostok (east), Cilicia, Phoenicia, Armenia, Anatolia	Araratian mountains	Disciples of Vahagn / descendants of Hayk
12.	Invention of time tables, Zodiac Signs	Araratian mountains	Disciples of Vahagn/Hayk
13.	Pictograph systems, hieroglyphs and ideograms	Araratian mountains	Disciples of Vahagn/Hayk

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