



**Basic forms and types of social communications
seven Andean cultures of Peru**
(the period from 35–40 million years BC to 700 AD)

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Annotation

The aim of the study was to identify, describe and classify the main forms and types of social communication of seven ancient Peruvian cultures (Paleolithic, lithic, Chavin (8 thousand BC – 3.5 thousand BC), Karal, Chavin (1.2 thousand BC – 400 BC), Nazca and Vicus), which existed in the period from 35 to 40 million years BC to 700 AD

Four methods were involved in the study. A holistic approach to the analysis of the history of social communications helped us to analyze all phenomena, processes and objects of the world as parts of the Whole. The method of quantum chronos transmitted the analysis of communication processes and texts, archeological finds that were distributed using various communication channels at least 75 years before the moment of their (communication processes and texts) analysis. Thanks to the method of social engineering analysis, we identified a model for studying the forms and types of social communications of the cultures of ancient Peru, created another model for the analysis of the mentioned forms and types, and verified the effectiveness of the created model. The theory of cumulative culture added an opportunity to consider the forms and types of social communications of the peoples of seven ancient Andean cultures in a convergent plan.

The methodology provided for the selection of seven Andean cultures in the history of the development of Peru, which left behind significant artifacts for analysis, from the point of view of archaeologists. Then a detailed description of the forms of social communication that hypothetically

functioned in each of the analyzed seven cultures. Codification and classification of forms and identification of types of social communication of the cultures analyzed by us continued our analysis process. We completed the procedure during the discussion of the results, applied the listed methods of analysis and highlighted the specific features of each species.

The results of the research made it possible to state the fact of the convergence of the spiritual-energetic and material-technological components of seven Andean cultures that functioned during the Paleolithic period (35–40 years BC to 700 AD) on the territory that belongs to Peru today.

Introduction

Studies of the main research areas in the history of social communications in Peru have not been carried out until now. We found several works (Cappellini, 2004; Cruz, 2007; Ruiz, 2022), in which the author reflected the results of studies of the functioning of the Peruvian mass media (press, radio, television, and electronic resources that either duplicated printed publications or offered their original news content). None of the researchers carried out an analysis of the study of the history of social communications in Peru, which determined the relevance of our research. The absence of works in which the authors published the results of the study of the history of social communications in Peru stimulated our interest in finding not only sources whose authors published the results of the study of the problem we analysed. We were driven by interest in identifying the main directions of the mentioned research in Peru.

Taking into account the historical excursion regarding the research issues of the main directions of the study of the history of social communications in Peru (the period from 35-40 million years BC to 700 AD), we formulated the object of our exploration as the study of the history of social communications in Peru, the subject is the main areas of study of the history of social communications in Peru of the mentioned seven historical periods, such as primitive Peruvians of the Paleolithic era, the lithic period, the Chavin (8 thousand BC - 3.5 thousand BC), Karal, Chavin (1.2 thousand BC – 400 BC), Nazca and Wikus.

The purpose of the further analysis was to identify, describe and classify the main forms and types of social communication of seven ancient Peruvian cultures (the Paleolithic era, the lithic period, Chavin (8 thousand BC - 3.5 thousand BC), Karal, Chavin (1.2 thousand BC - 400 BC), Nazca and Vicus.), which existed in the period from 35 to 40 million years BC. to 700 AD. At the same time, we include in the concept of "social communications" not only information about various types of mass media (print, television, radio, documentary (from – documentaries), and network), but also all those types of communication that allow information exchange for the regulation of social actions, social interactions and social relations in Peru.

Research methods and techniques

The main method of our research was a holistic approach (interdisciplinary idea, according to the terminology of M. Sevnick (2004)) to the analysis of the history of social communications (Jackman, 2014; Jackman, 2000; Holism, 2024; Sevnick, 2004; Holizm (holism), 2002; Kholod, , 2023), the quantum chronos method (Krutov, 2021; Kholod, 2020) and SI analysis (Kholod, 2012).

The method of holism, or a holistic approach, or an interdisciplinary idea involves the analysis of all phenomena, processes and objects of the world as parts of the Whole (Greek - ὅλος) (Holism, 2024). According to the proposal of J. Smuts, the author of the term "holism", the

concept should be interpreted as "the highest synthetic activity in the universe that orders, organizes, regulates and explains all structural groupings and syntheses in it" (Smuts, 1926). Followers of J. Smuts interpreted the term "holism" differently in some ways, namely as "an interdisciplinary idea that systems have properties as a whole, apart from the properties of their component parts" (Sevnick, 2004; Jackman, 2014).

It is worth noting that J. Smuts himself interpreted the term "holism" quite vaguely.

"Smuts criticized authors who emphasized the Darwinian concepts of natural selection and genetic variation to support a chance view of natural processes in the universe. Smuts perceived evolution as a process of creative and intentional correction of nature. Thus, holism is described as the tendency of a whole system to respond creatively to environmental stressors, a process in which the parts naturally work together to bring the whole to more advanced states" (Holism, 2024).

J. Smuts' interpretation of the term "holism" has at least three aspects: the first aspect related to the idea that "every thing that can be measured scientifically, physically or psychologically, really has a nature as a whole beyond its parts" (Holism, 2024). The second aspect made it possible to interpret holism as the cause of evolution (it should be taken into account that Darwinism at the time of writing the book "Holism and Evolution" (Smuts, 1926) was the dominant concept in Europe and the world). The researcher believed that "evolution is neither accidental nor caused by the actions of some transcendent power such as God" (Holism, 2024). Note that the creative process, according to J. Smuts' proposal, "was an integral element of all physical systems of parts and excluded indirect, transcendent forces" (Brush, 1984). According to the third aspect, J. Smuts used holism to explain the "concrete (non-transcendent) nature of the universe as a whole" because "a holistic view of the universe explains its processes and their evolution more effectively than a reductive view" (Smuts, 1926).

Taking into account the criticism (Brush, 1984; Jörgenfelt, Partington, 2019) and approval (Morgan, 1927) of the ideas of holism in the interpretation of J. Smuts (Smuts, 1926), we are inclined to apply his proposal of holism as an interdisciplinary idea that "every thing that can be measured scientifically, whether physical or psychological, truly has a nature as a whole beyond its parts" (Holism, 2024). We will also add that we stand on the metaphysical positions of monism (Monism, 2024), which is characterized by the concept of "unity". Within monism, we rely on its variety, namely, double-aspect monism (or two-aspect theory), which assumes the proposition that "the mental and the physical are two aspects or views of the same substance" (Double- aspect_ theory, 2024). According to the position of two-aspect monism, we conduct the study of the history of social communications in Peru as a process that involves the unity of physical and mental (in our case, spiritual) aspects. In other words, all mental (spiritual) processes that occur in the history of Peruvian culture (broader – Andean civilization) are stimulated and motivated by the physical conditions of their existence, and vice versa: all physical processes accompanying the existence of Peruvians (broader – Andean civilizations) are explained by mental (spiritual) system of the Peruvian (Andean) peoples.

While studying the main areas of research in the history of social communications in Peru, we applied the method of quantum chronos (Krutov, 2021; Kholod, 2020), the essence of which will be expressed in a few words. According to the proposal of O. Kholod, the quantum chronos method, or the QC method, provides

"the analysis of communication processes and texts (including journalistic ones), made public (spread with the help of nodal communication, rock icons or drawings, geoglyphs,

voice messages of heralds, with the help of publications in the press, on the radio or television, hypertexts on the Internet) less than 75 years to the moment of their (communication processes and texts) analysis, which is due to the average age of a person who lives in peacetime and is familiar with the episteme (knowledge system of a certain historical era)" (Kholod, 2020).

The application of the QC method is possible if three conditions are taken into account.

Condition 1: when interpreting the principles and concepts of quantum mechanics, we transfer not the details of the wave corpuscular structure of the world, but only the functioning tendencies of the principles of uncertainty, complementarity (complementarity) and the concept of "superposition" into the system of the macro world.

Condition 2: "The analyzed communication processes and texts must be perceived by a modern reader who is only theoretically familiar with the episteme within which the communication processes took place and the text was created" (Kholod, 2020).

Condition 3: "The analysis of the communication process and the perception of texts must be experimental and take into account the principles and concepts of quantum theory - the uncertainty principle of V. Heisenberg and the principle of complementarity of N. Bohr, as well as the concept of superposition" (Kholod, 2020).

We used the QC method to study the main areas of research in the history of social communications in Peru from three positions.

First, as a presumption, or "an assumption that without evidence is considered true until its falsity is indisputably proven" (Presumption, 2024). Studying the texts of different authors who wrote their works in different historical eras, we relied on the age of 75 years or the age of a person's life. If the author in his work considered social communications that functioned less than 75 years before our analysis, we qualified such social communications as "synchronous". In the case when the social communication processes analyzed by the authors were carried out more than 75 years after the moment of our analysis, we classified such social communication as "diachronic".

Secondly, during the analysis of social communications of a certain historical period of the development of society in Peru, we considered the features of such development taking into account the theoretical knowledge. In other words, we took into account the episteme, or knowledge system of a certain historical era.

Thirdly, we considered the analysis of the implementation of the social communication process in Peru to be experimental, which allowed us to take into account the principles and concepts of quantum theory - the principle of uncertainty, the principle of complementarity and the meaning of the concept of "superposition".

The uncertainty principle in quantum mechanics means that

"in principle, it is impossible to simultaneously measure with arbitrary precision a pair of quantities that describe a quantum object, for example, coordinates and momentum. This statement is true not only for the measurement but also for the theoretical construction of the quantum state of the system...; it is impossible to build such a quantum state in which the system would simultaneously be characterized by exact values of coordinate and momentum" (Принцип невизначеності, 2024).

In our study of the main areas of research in the history of social communications in Peru, we implemented the uncertainty principle as such, which allowed us to assert the fundamental impossibility of simultaneously accurately measuring two quantities, namely: "social influence

on the journalistic product from the episteme" and "subjective influence from publishers, authors of texts and audience".

"Social influence on the journalistic product from the side of the episteme" we consider as something that can be measured thanks to official historical concepts or information officially approved and published in the form of encyclopedias, scientific monographs, reference books, etc. Let's call this influence "the magnitude of auctoritas societatis (from the Latin "influence of society") and formalize it with the letters AS." "Instead, we will call the quantity "subjective influence on the part of publishers, authors of texts and the audience" (we will conditionally denote it as "quantity B") "influence of the subject", or lat. "auctoritas rei" and formalized with the letters AR. "Auctoritas rei" is interpreted as such a value that expresses not the epistemic position of society, which is officially accepted, but, on the contrary, the position that is inherent to the subject, for example, a member of society - an average person (publisher, author of journalistic material, reader, listener or viewer, web user). Formalizing the quantum uncertainty principle for social communications (especially journalism) in Peru through letter symbols, we can write it as an inequality (see entry 1 below).

$$AS \neq AR \quad (1)$$

Entry 1 will read: "Social influence (AS) is not equal (\neq) to subject influence (AR)".

Since both types of influence are recorded simultaneously, we state that they cannot be measured equally precisely. Another symbolic entry could be as follows (see entry 2 below):

$$\neg(AS = AR) \quad (2)$$

We read entry 2 as follows: "Equation (=) between social influence (AS) and subject influence (AR) is impossible (\neg).

The principle of complementarity in quantum mechanics

"each physical quantity, together with its canonical conjugate, forms a pair of complementary quantities, while in any state of the quantum system, only one of them can have a certain value, or both of them do not have a certain value" (Принцип доповнюваності, 2024).

The principle of complementarity in physics states the fact "according to which a complete knowledge of phenomena of atomic dimensions requires a description of the properties of both waves and particles" (Britannica, T. Editors of Encyclopaedia, 2024). At one point in the experiment, N. Bohr could record light waves at the atomic level, but could not record the position of an electron. At another point in the experiment, the physicist managed to fix the position of the electron at the atomic level, but the light wave was elusive. So, after repeated experiments, the researcher concluded that it is impossible to accurately record the characteristics of the wave and the electron at the same time since they cannot act in parallel at the same moment. Only the combination of electron and wave behaviour characteristics can be considered a complete characteristic, which is impossible at the subatomic level. From this, the principle of complementarity was formulated, which predicted that adequate fixation of the characteristics of the electron position and wavelength is possible only by supplementing the characteristics of the first with the characteristics of the second, and vice versa. The principle of complementarity (complementarity)

"means that phenomena at the atomic and subatomic scale are not strictly similar to large-scale particles or waves (such as billiard balls and water waves). Such characteristics of particles and waves in the same large-scale phenomenon are incompatible rather than complementary. Knowledge of a small-scale phenomenon, however, is essentially incomplete until both aspects are known" (Britannica, T. Editors of Encyclopaedia, 2024).

Since the principle of complementarity also applies to "other related (conjugate) pairs of observable quantities, such as energy and time" (Britannica, T. Editors of Encyclopaedia, 2024), in the study described below, the principle of complementarity allowed us to record the impossibility of achieving an adequate description the relationship of two phenomena. On the one hand, we described the time (historical era, period) of the development of social communications in Peru, on the other hand, we could only predict the energy contained in the publications of local newspapers and magazines. Conventionally, we call such energy "word energy", units of measurement which do not yet exist. At the same time, if it is hypothetically possible to measure the simultaneous action (influence) of the two mentioned factors (the first-factor "time" as an episteme, or a system of knowledge of a certain historical era, and the second factor "the energy of a word" printed in a newspaper or magazine, recorded in a digital code or broadcast signal), we would solve many problems of researching the history of social communications (and not only in Peru).

In further research, we turned to the concept of "superposition", which is actively used in quantum mechanics.

"The general superposition principle of quantum mechanics applies to states [that are theoretically possible without mutual interference or contradiction]... of any single dynamical system. This requires us to assume that there are such specific relationships between these states that whenever a system is definitely in one state, we can assume that it is partially in each of two or more other states. The initial state should be considered as the result of a kind of superposition of two or more new states in a way that cannot be imagined based on classical ideas. Any state can be seen as the result of the superposition of two or more other states, and indeed in an infinite number of ways. Conversely, any two or more states can be superimposed to produce a new state..." (Quantum_superposition, 2024).

The concept of "superposition" was necessary for our analysis of the main directions of the history of social communications in Peru for the application of the third of the three provisions of the quantum chronos method. We considered the superposition in further research as the functioning of decoding of two states of mass media texts (newspapers, magazines, web platforms and documentaries) of Peru. One state was determined by the quality of generation and perception of texts during their creation and publication in a certain historical period in the system of certain knowledge of the peoples of Peru, the second state is determined by the processes of perception and decoding of texts, for example, at the beginning of the 20th century or the beginning of the 21st century. The processes of generation and perception of texts (for example, created by mass communication specialists, in particular journalists or authors of journalistic texts) will be produced and perceived differently by people who lived one hundred to one hundred and fifty years before today. At the same time, the researcher will not be able to fix two states of functioning of the texts, but the researcher will understand that the texts are in two different states, that is, they are in a superposition about the researcher himself and about the episteme, which is artificially created. Such an episteme is not physical, it is spiritual, that is, one

that conveys the energy of the spirit of the people (in our study of the spirit of the people of Peru). To date, there is no unit or method of measuring the processes of manifestation of the spirit of the people, but certain characteristics are singled out by various authors (Ku, 1915; Ford, 2012;) without taking into account the principles and concepts of quantum mechanics.

During the identification of the main directions of the research on the history of social communications in Peru, we involved the method of CI analysis (social engineering analysis) (Kholod, 2015: 21–25), which is based on the interpretation of social engineering as a triune complex of processes aimed at:

1) "identification of models of social activity (identification of one original phenomenon, the process from a certain number of others that are similar to the original, but different from it)" (Холод, 2015: 21);

2) "on the creation of a new model (of higher quality, in comparison with the identified "old" model) of society's social activity" (Холод, 2015: 21);

3) "pragmatics of effectiveness and efficiency of the created model of social activity of society" (Холод, 2015: 21).

Researcher O. Kholod calls the triune complex of processes (the three listed points) "the triune principle of social engineering" (Холод, 2015: 21). For convenience, we will refer to this principle as the "SI-analysis method" or "SI-analysis".

The method of CI analysis allowed us to analyze the main directions of research on the history of social communications in Peru thanks to the involvement of the three points mentioned earlier. First, we identified an "old" model for studying the history of social communication in Peru. Secondly, we created a "new" model for the study of the history of social communications in Peru. Thirdly, in our study, we verify the effectiveness of the created "new" model for studying the history of social communications in Peru.

The problems of researching the history of the development of social communication processes are not studied to the same extent and not at the same level of intensity in the countries of South America. This is evidenced by the information provided to us by the electronic resource of artificial intelligence "Claude-instant (Poe)" (The main trends in the study of the history of social communications in Peru, 2024). For example, in Peru, the fourth most populous (after Brazil, Colombia and Argentina) South American country, the mentioned studies allow us to record six directions, the content of which we formulate by interpreting the AI reference "Claude-instant (Poe)":

1) the emergence and functioning of mass media in Peru as a means of forming public discourse;

2) exercising control over the mass media to effectively influence public opinion in the country;

3) increasing the role of mass media in crisis political situations that occurred in Peru;

4) peculiarities of functioning of regional mass media, in particular in the language of the Indigenous population;

5) improvement of technical means of information exchange for positive changes in Peruvian society;

6) representation and formation of various types of Peruvian culture by mass media.

Observation (Холод, 2018), as well as the results of searches (Revista Historia y Comunicación Social, 2024; Revista Internacional de Historia de la Comunicación, 2024) indicate that the history of social communications cannot be narrowed down to the analysis of the specifics and features of such types of media and mass media (mass media communications), such as mass gatherings of people (meetings, plebiscites-referendums, elections, congresses, symposia, congresses, forums), mass force majeure events (rebellions, "maidans", terrorist acts),

mass clashes of people (wars, revolutions), mass reactions of people to natural force majeure processes and phenomena (refuge from earthquakes, fires, floods, droughts; resettlement of peoples); spectacular shows (concerts, performances, festivals), trade and exhibition mass events (fairs, bazaars, exhibitions, galleries); press, radio, telegraph, cinema, television or the Internet. To the objects of the history of social communications, it is necessary to add "cave art" or "rock painting" (rock graffiti and drawings), geoglyphs (for example, "Nasca lines", or drawings of the Nazca desert in Peru), oral signals (vocalisms) of ancient tribes, clothing of peoples of any historical period, writings and languages in which the writings were written, etc. The list of means of social communication may also include logistical routes (roads, railway tracks, aerial "routes", space tracks, etc.). It is worth recalling the proposal of H. Innis (Innis, 1991), who believed that money, fish and even wood that floats in rivers can also be considered "means of communication as means of control over the environment" (Innis, 1991), therefore, means of social communication.

We propose to call the listed groups of media and mass media means of social communications aimed at regulating social actions, social interactions and social relations. In this case, we will consider as an axiom the statement that when studying the history of social communications in Peru, it is possible to conditionally rely on the classification of types of social communications, which we present below (see Table 1 in the Appendices). Each of those is listed in the table. 1 directions further we analyze in detail with the help of the presentation of research results reflected in the publications of authors from Peru or those works in which non-Peruvian authors investigated the problems of studying the history of social communications in Peru.

Results and discussion

Signs of social communication of primitive Peruvians in the Paleolithic period (from 2.5 million years BC to 15-11 thousand years BC)

The primitive people of Peru "worshipped natural phenomena (rains, earthquakes, lightning, thunder, etc.) which it cannot explain and which it fears" (Historia del Perú..., 2024). Historians and archaeologists (Historia del Perú..., 2024) believe that "the first inhabitants of Peru had skills in making dishes and knew special hunting techniques" (Historia del Perú..., 2024). Since the ancient Peruvians were engaged in hunting, gathering and fishing, their social communication was based on a parasitic economy. In other words, the primitive people of Peru, thanks to the primitive exchange of socially important information, did not plan their lives and led a parasitic economy (Historia del Perú..., 2024).

Back in the Lower Paleolithic period (from 35–40 thousand BC to 15–11 thousand years BC), the primitive people of Peru had specific social communications, which were recorded in group associations based on family ties. Such groups were called "family groups" (Historia del Perú..., 2024). From the period of group family organization of life, the division of labour by gender begins: men performed the hard work of obtaining and transporting food to the cave where the tribe lived, where women were engaged in raising and caring for children, and cooking.

Characterizing the features of the social communications of the primitive people of Peru during the Paleolithic period, it is necessary to take into account how people "used the laminar technique, which consisted in the manufacture of elongated tools with parallel and sharp edges, very similar to modern knives. The technology, whose raw material was bone, was oriented

towards the production of throwing weapons that had decorations (sometimes as artistic designs)" (Historia del Perú..., 2024).

Later, from the 3rd to 4th millennium BC. (in the Archaic period), the descendants of the original people of Peru had already learned gardening. At this time, they had the first domestic animals - camels, which at that time were distributed in South America. During this period the primitive tribes of Peru began to live in groups, thus forming settlements that today are commonly called villages. At this stage, the social communications of the primitive people of Peru hypothetically have the following features:

1) the appearance of beliefs in supernatural forces, which stimulated the specificity of new social communications;

2) special places for sacrificing children to animistic gods appear; therefore, sacrifice explicates a new type of social communication, which we will conventionally call "ritual sacrificial social communication";

3) during the selection of a sacrifice to the gods, the ancient Peruvians determined the criteria for such a selection, which we label as operational social communications, thanks to which the development of abstract thinking was recorded based on the analysis of the salutary functions of the members of the tribe;

4) strengthening of parasitic social communications, which allowed the tribe to exist without planning its forces and preserving food and weapons reserves;

5) social communications of the division of labour took place, which made it possible to rationally distribute the tribal functions of strong and weak members of family groups;

6) joint production of "stone elements for hunting animals" (Historia del Perú, 2024);

7) formation of specific hunting social communications, which allowed verbal and non-verbal means to warn of danger, threat to life, preparation for organized fishing of fish, predators, collection of plants useful for existence;

8) the appearance of tribal leaders, which formed a social-communication cult of a strong leader;

9) the emergence of social and communication principles for the selection of shamans (priests), who "predicted" the power of nature, were "conductors" between members of the tribe and natural deities, could "cause" the elements, rains, drought, wind, etc.;

10) the emergence of the first family "precepts", and "statutes" of the tribe (rules of coexistence), in which sanction measures and norms of coexistence in the tribe were "engraved" orally and passed from generation to generation; the functions of the tribe leader and shaman, men and women, children and young men and women were determined.

Taking into account the forms of social communication of primitive Peruvians during the Lower Paleolithic period (from 35–40 thousand years BC to 15–11 thousand years BC), we singled out the types of social communication of the mentioned period and marked them with letter codes (see Table 1 below). We marked each type of social communication with the letter code "A", "B", "C", "D" and so on according to the alphabet of the English language.

Table 1.
Signs of social communication of primitive Peruvians
in the Paleolithic period
(from 35–40 million years BC to 15–11 thousand years BC)

No s/p	Forms of social communications	Types of social communications	Code	Unit of measurement
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				(number /%)
	The appearance of beliefs in supernatural forces, which stimulated the specificity of new social communications.	Belief.	A	1/10
2.	There are special places where children can be sacrificed to animistic gods. Therefore, sacrifice explicates a new type of social communication, which we will tentatively call "ritual sacrificial social communication."	Sacrifice.	B	1/10
3.	During the selection of a sacrifice to the gods, the ancient Peruvians determined the criteria for such selection, which we label as operational social communications, thanks to which the development of abstract thinking was recorded based on the analysis of the welcome functions of the members of the tribe.	Abstraction.	B	1/10
4.	Consolidation of parasitic social communications, which allowed the tribe to exist without the use of planning its forces and the preservation of food and weapon reserves.	Parasitism.	C	1/10
5.	Social communications of the division of labor took place, which made it possible to rationally distribute the tribal functions of strong and weak members of family groups.	Division of labor.	D	1/10
6.	Joint production of "stone elements for hunting animals" (Historia Del Peru , 2024).	Production of stone weapons .	F	1/10
7.	Formation of specific hunting social communications, which allowed verbal and non-verbal means to warn of danger, threat to life, preparation for organized fishing of fish, predators, gathering of plants useful for existence.	Signal systems.	G	1/10
8.	The emergence of tribal leaders, which formed a social-communication cult of a strong leader.	leadership	H	1/10
9.	The emergence of social and communication principles for the selection of shamans (priests), who "predicted" the power of nature, were "guides" between members of the tribe and natural deities, could "cause" the elements, rain, drought, wind, etc.	Priesthood.	И	1/10

10.	sanction measures and norms of coexistence in the tribe were "engraved" orally and passed from generation to generation ; the functions of the tribe leader and shaman, men and women, children and young men and women were defined.	Rules of coexistence.	J	1/10
11.	TOTAL:	–	–	10/100
12.	Error:	–	–	0
13.	AMOUNT (Σ):	–	–	10/100

Social Communications of the Lithic Period of Peru (11 thousand BC - 8 thousand BC)

According to researchers (Historia del Perú, 2024), the appearance of primitive people on the territory of modern Peru should be dated from 11 thousand years BC. The historical period in question is known as the Wisconsin Glaciation, or the Stone Age, or the Lithic Period, which lasted until the 8th millennium BC.

People of the Lithic period already have a belief in natural forces, which are controlled by Someone or Something, to whom/what must be obeyed and whom/what must be satisfied with sacrifices. Often such victims were children who did not yet know how to get food for themselves and serve themselves throughout life (Historia del Perú..., 2024). Adult members of the tribe were not sacrificed, because adults were useful to the tribe, and could obtain food in difficult conditions of existence, the food itself, and guard the caves in which ancient people lived.

Conventionally, in the working order within the scope of our study, we will call the first people in the region of the modern state of Peru "primitive people/tribes of Peru". They were hunters (Historia del Perú, 2024).

«Human groups led a nomadic lifestyle, lived in caves or rock shelters, where they made engravings or petroglyphs. On the walls of these caves, the first inhabitants of the current territory of Peru left their mark in the form of drawings» (Historia del Perú..., 2024).

The primitive people of Peru could hypothetically have the following forms of social communication:

- 1) exchange of information thanks to gestures and vocalization;
- 2) joint collective production of traps for large animals;
- 3) joint production of stone tips for spears, production of stones specially sharpened on one side for skinning of killed wild animals;
- 4) transmission and reception of information through the exchange of things (for example, clothes made of the fur of killed animals);
- 5) drawing rock paintings for the educational purpose of informing fellow tribesmen about the specifics of hunting or foraging for food, fishing, etc.;
- 6) painting and tattooing the surface of the body as a way of marking the social status of members of the tribe;
- 7) sacrificing children as a sign of establishing social communications with the forces of nature (gods).



Fig. 1. A deer hunting scene on a panel at the base of a shelter in the Llamachaki Gorge in Macuzana, Peru. Photograph by Rainer Hostnig (Hostnig, 2024).



Fig. 2. Rock paintings that were made by ancient Peraunians between 10,000 and 5,000 years ago (Utcubamba province in Peru) (Gereda, 2024).

We transferred the hypothetically formulated forms of social communications to Table. 2 (see below) and identified types of social communications.

Table 2.
Forms and types of social communications of the lithic period of Peru
(11 thousand BC - 8 thousand BC)

No s/p	Forms of social communications	Types of social communications	Code	Unit of measurement (number /%)
1.	Information exchange through gestures and vocalizations.	Sign vocalization.	K	1 /14.2
2.	Joint collective production of traps for large animals.	Creation of hunting traps.	L	1 /14.2
3.	Joint production of stone tips for spears, production of stones specially sharpened	Production of stone weapons .	F	1 /14.2

	on one side for skinning of killed wild animals.			
4.	Transmission and reception of information through the exchange of things (for example, clothing made from the fur of killed animals).	Natural exchange.	M	1 /14.2
5.	Drawing rock paintings for the educational purpose of informing fellow tribesmen about the specifics of hunting or foraging for food, fishing, etc.	Graphic rock visualization.	N	1 /14.2
6.	Painting and tattooing the surface of the body as a way of marking the social status of members of the tribe.	Bodyart.	O	1 /14.2
7.	Sacrificing children as a sign of establishing social communications with the forces of nature (gods).	Human sacrifice.	B1	1 /14.2
8.	TOTAL:	–	–	7/99.4
9.	Error	–	–	0/0.6
10.	Σ (sum)	–	–	7/100

Social communications of the pre-Peruvian Chavin culture (8 thousand BC - 3.5 thousand BC)

According to the declaration of S. Tello (The Life and Writings of Julio C. Tello, 2010) and according to the research of I. Shimada and R. Vega-Centeno (2011), in the early archaic period (from 8 thousand BC to 3.5 thousand years BC) the oldest culture in Peru was the Chavin culture, which arose 3000 years ago in the eastern mountains of the Ancash department.

In the aforementioned Early Archaic period, images of monkeys and felines were used in Chavin art to mark social communications between tribe members and the higher forces of nature. It is in this period that the first phases of Olmec ceramics (Mesoamerican form-building) are recorded (Historia del Perú..., 2024).

The testimony of Max Uhle (Rowe, 1954), who defended the idea of the autochthonous origin of Peruvian man in the archaic period, is interesting and relevant to our research.

«...the origin of Peruvian man would have been foreign, and the people who arrived in Peru by sea would have been the Maya and the Aztecs, who would have spread and radiated their culture through the central Andes, reaching the Peruvian coast, giving rise to the great Proto Chimu and Proto Nazca cultures, and from there it spread to the Peruvian mountains. This was accomplished thanks to the ease of navigation provided by the Pacific Ocean as a means of communication and as a source of food» (Historia del Perú..., 2024).

Therefore, our prediction that the logistical aspect of the problem of the migration of people across the Pacific Ocean is fully confirmed and proves the opinion that the ocean was a means of social communication for the people who once inhabited the Peruvian coast. This is also evidenced by the similarity of Maya and Aztec art with some cultural manifestations of

Peru, especially in the architecture of Chavin, Chan-chan and Gran Pajaten" (Historia del Perú..., 2024).

Based on the results of the research of our predecessors, we state that there are several features of social communication of the people of the Chavin culture.

1. Chavin culture people depicted animals on ceramics, which was a manifestation of the first forms of social communication in Peru.

2. The Pacific Ocean as a logistical means of spreading culture in the form of architecture and the cultivation of corn.

3. Similarity of Aztec, Mayan and Peruvian art as a convergent form of social communication.

Table 3.

Forms and types of social communication of the pre-Peruvian Chavin culture
(8 thousand BC - 3.5 thousand BC)

No s/p	Forms of social communications	Types of social communications	Code	Unit of measurement (number /%)
1.	the Chavin culture depicted animals on ceramics, which was a manifestation of the first forms of social communication in Peru.	Artistic visualization on ceramics.	Nk	1/ 33
2.	The Pacific Ocean as a logistical means of spreading culture in the form of architecture and the cultivation of corn.	Logistics.	P	1/ 33
3.	Similarity of Aztec, Mayan and Peruvian art as a convergent form of social communication.	Convergence in the language of art	Q	1/ 33
4.	TOTAL:	–	–	3/99
5.	Error	–	–	0/1
6.	Σ (sum)	–	–	3/ 100

Social communications of the pre-Peruvian culture Karal
(the period between 3 thousand years and 1.8 years BC)

The next period of development and improvement of social communications should be called the late archaic period. During the mentioned period of development of Peru, the Caral civilization became popular.

«The Caral culture, which arose between 3000 and 1800 BC, is the emergence of the oldest structured society in the Americas, a settlement area. The urban development occupies an area of 400 km in several valleys, the rivers of which flow into the Pacific Ocean. This civilization is contemporary with the culture of Mesopotamia and Egypt and precedes this culture by 1,200 years» (Bergoeing, 2014: 85).

The idea that the Karal culture is older than Mesopotamia and Egypt is not new (Shady, et al, 2009). However, the fact that the Caral culture should be considered a period of improvement of social communications in the territory of ancient Peru is not necessarily contradicted. Our opinion is proved by the statement that it was during the Karal period

«the first societies with monumental architecture appeared, which wove an extensive trade network, uniting products from the coast of the Amazon and Ecuador. Since then, the social and cultural complexity of the peoples of the region began to escalate, giving rise to the Andean civilizations» (Bergoeing, 2014: 85).

Here it must be recognized that the extensive trade system, as well as the complex social relations between the peoples of the Andean region, gave impetus to the development of new and transformed social communications between tribes. In addition, religion played a major social integration role in the formation of new types of social communication among the people of ancient Peru. As researchers note (Civilización caral, 2024), religion at that time was used as a means of cohesion on a level with coercion.

«Religion at that time was a state policy of control over the population, the production of goods and their circulation. This is represented in the great monuments of a religious nature (the pyramids) with their plazas, atriums and altars of the sacred fire, where the various feasts of the ceremonial calendar were held, symbolizing their cultural identity» (Civilización caral, 2024).

Therefore, the faith itself is a philosophical and everyday view and attitudes of the members of the tribes, and together with that, the social institution of faith in the forms of squares, atriums and altars of sacred fire marked new social communications. In addition, we note that ritual gatherings and other mass events grouped social communications around architectural religious and commercial buildings, altars and squares.

«Periodic meetings and joint activities, such as the restoration of the pyramids, allowed the recognition of authority and the strengthening of cultural identity» (Civilización Caral, 2024).

An important conclusion of the archaeologists is the statement that during the excavations, experts failed to record artefacts of offensive weapons. Instead, all the historical findings indicated the peaceful and successful economic development of the members of the Karal period. Historians call the Peruvian Caral culture the "civilization of peace" because

«no offensive weapons or defensive structures were seen or found. ...It would seem that art and commerce were used liberally to support economic production active and efficient» (Civilización caral, 2024).

The last fact testifies to developed social communications, oriented, first of all, to peaceful coexistence with representatives of other tribes. The society of the Karal culture was not isolated, but on the contrary, represented a part of the system of places that existed with the mentioned culture in a certain economic network.

«This network included coastal settlements and others located in higher areas (mountains). Between all of them, there was an exchange of products (barter trade), and the city of Karal was the centre of this whole network. From this point of view, we see the importance that specialization has reached, that is, the emergence of groups specializing in certain types of economic activity» (Civilización caral, 2024).

Let us add that the specialization of members of the Karal tribe in the production of certain narrow types of economic activity marked the emergence of certain specific types of social communications. Today, we call such social communications professional or specialized.

Taking into account the results of searches, studies and descriptions of anthropologists and archaeologists, historians, linguists and culturologists (Bergoeing, 2014; Shady, et al, 2009; Civilización caral, 2024), we will consider a certain list as the key types of social communications of the Caral culture (see below).

1. "Emergence of the first complex societies and states in north-central Peru" (Civilización caral, 2024).

2. The functioning of "a system of complex political entities that governed their territories in north-central Peru, with rulers and ruled located in urban centres and cities" (Civilización caral, 2024).

3. Caral civilization "was contemporary to other primitive civilizations of the world, such as Egyptian, Indian, Sumerian or Chinese, but unlike them (which exchanged their achievements), Caral developed in complete isolation from these civilizations" (Civilización caral, 2024). This refers to the isolation of Karal from civilizations whose representatives lived on the territories of other continents. The aborigines of the Caral culture carried out social communications with representatives of the Andean tribes regularly for economic benefit for themselves.

4. Social communications were formed and reinforced by "the existence of social organizations at the level of chiefs" (Civilización caral, 2024). Processes of exchange of socially important information were carried out during mass meetings, which we consider as social communication forms of strengthening the image of the government and strengthening cultural identity.

5. The social communications of the members of the Caral culture tribes were marked in architecture, as at that time the "building of large cities with monumental buildings" (Civilización caral, 2024) was recorded. So. Markers of Karal social communication are the "predominant forms of stepped pyramids, circular or semi-circular plazas sunk into the facades, with steps leading to the top, where rooms and places for rituals and ceremonies are observed" (Shady, et al, 2009). We can consider the construction of the great pyramids of the Karal culture as a declaration of power.

6. The Karal culture had marked social communication in "sophisticated displays of musical art: in the manufacture of flutes with incised figures of mythical animals, suggesting a religious character" (Shady, et al, 2009).

7. "The differences in size between the settlements and their buildings indicate a hierarchy between the population that occupied them and even the existence of a political organization that made their construction possible" (Civilización caral, 2024), which also distinguishes the types of social communication of the Caral culture from previous and of the following Andean cultures.

8. In the social communications of representatives of the Caral culture, religious institutional procedures functioned as a form of "control over the population, the production of goods and their circulation" (Civilización caral, 2024).

Taking into account 8 items from the above list, we created a table. 4 (see below).

Table 4.
Forms and types of social communications
of the pre-Peruvian Karal culture
(the period between 3 thousand years and 1.8 years BC)

No s/p	Forms of social communications	Types of social communications	Code	Unit of measurement (number /%)
1.	"The appearance of the first complex societies and states in the north-central part of Peru" (Civilización caral , 2024).	Complex societies.	R	1/12.5
2.	The functioning of "a system of complex political entities that governed their own territories in north-central Peru, with rulers and ruled located in urban centers and cities" (Civilización caral , 2024).	Political system. leadership	R1 H	1/6.25 6.25
3.	Caral civilization "was contemporary with other primitive civilizations of the world, such as Egyptian, Indian, Sumerian or Chinese, but unlike them (which exchanged their achievements), Caral developed in complete isolation from these civilizations" (Civilización caral , 2024). This refers to the isolation of Karal from civilizations whose representatives lived on the territories of other continents. The aborigines of the Caral culture carried out social communications with representatives of the Andean tribes regularly with economic benefit for themselves.	Insulation.	S	1/12.5
4.	Social communications were formed and reinforced by "the existence of social organizations at the level of chiefs" (Civilización caral , 2024). Processes of exchange of socially important information were carried out during mass events-meetings, which	Social organization. leadership	T H	1/6.25 6.25

	we consider as social communication forms of strengthening the image of the government and strengthening cultural identity.			
5.	The social communications of the members of the Caral culture tribes were marked in architecture, since at that time the "building of large cities with monumental buildings" (<i>Civilización caral</i> , 2024). So. Markers of Karal social communication are "predominant forms of stepped pyramids, circular or semi-circular plazas sunk into the facades, with steps leading to the top, where rooms and places for rituals and ceremonies are observed" (<i>Shady , et et al ., 2009</i>). We can consider the construction of the great pyramids of the Karal culture as a declaration of power.	Architecture.	U	1/12.5
6.	Karal culture had marked social communication in "sophisticated displays of musical art: in the manufacture of flutes with incised figures of mythical animals, suggesting a religious character" (<i>Shady , et et al ., 2009</i>).	Music.	V	1/12.5
7.	"The differences in size between the settlements and their buildings indicate a hierarchy between the population that occupied them and even the existence of a political organization that made their construction possible" (<i>Civilización caral</i> , 2024), which also distinguishes the types of social communication of the Caral culture from previous and subsequent Andean cultures.	Architecture.	U1	1/12.5
8.	In the social communications of representatives of the Caral culture , religious institutional procedures functioned as a form of "control over the population, the production of goods and their circulation" (<i>Civilización caral</i> , 2024).	Belief. Religion.	A1	1/12.5
9.	TOTAL:	–	–	8/100
10.	Error	–	–	0

11.	Σ (sum)	–	–	8/100
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Social communications of the pre-Peruvian Chavin culture (1200 BC - 400 BC)

Returning to the Chavín culture of another period during the Early Horizon (1200 BC - 400 BC)" (Cultura chavín, 2024), we record "the intensification of the religious cult, the appearance of ceramics, closely related associated with ceremonial centres, the intensification of the cultivation of corn and potatoes, the improvement of agricultural machinery and the development of metallurgy and textile processing" (Cultura chavín, 2024).

Researchers (Makowski, 1996; Cultura chavín, 2024; Benavides Estrada, Díaz Suárez, & Narrea Delgado, 2005; Cabezas clavos, 2024, etc.) believe that the Chavín culture created Chavín de Huántar, which was considered an important "ceremonial centre..., whose influence spread over most of the coast and highlands of the Andes of Peru" (Cultura chavín, 2024). According to archaeologists, Chavín de Huántar was built "between approximately 1500 and 300 BC" (Chavín de Huántar, 2024). An analysis of finds on the territory of this ancient city indicates that the structure was a complex network of paths, "internal stone galleries, illuminated only by rays of light that penetrate through strategically placed air ducts" (Chavín de Huántar, 2024).

«Inside you can still see the monolithic Lanson, a carved stone 4.54 m high, representing an anthropomorphic deity, perhaps the most important in the Chavin pantheon. On the walls of the main temple, you could see some nail caps, and sculptural bundles, which acted as mythological guardians of the temple» (Chavín de Huántar, 2024).

The fact that Chavin de Huántar was the centre of social communication of the Chavin culture is confirmed by artefacts that testify to the sending of religious cults, ceremonies, and oracle performances at this place. Researchers (Chavín de Huántar, 2024) prove the fact of the importance of the functions of the administrative centre that controlled food production. Such control was necessary to observe the periodicity of going out into the ocean by ships serving trade routes for the distribution of produced food. Since swimming at that time was a fixed process, social communication was carried out to regulate the population. Artefacts found by archaeologists and interpretations of anthropologists, which connect agricultural production with pompous rituals and show respect for supernatural forces, attract attention. Among such revered objects, historians name the God of Water, "on whom beneficial rains depended, as well as catastrophic droughts that destroyed crops" (Chavín de Huántar, 2024).

«The inhabitants of Chavin were a few priests and their assistants in the service, while most of its users were a kind of pilgrims who came to the place in search of 'oracles', carrying various kinds of offerings, with the possibility of staying for a long time» (Chavín de Huántar, 2024).

So, the social communication of the ancient Peruvian city of Chavín de Huántar was carried out thanks to the "hierarchical pyramidal society" (Chavín de Huántar, 2024), which had all the signs of a class society.

«At the head were priest-leaders who performed religious functions and at the same time ruled the people. The same specialists were artisans of stone and clay, metallurgy, textiles, and hydraulic engineers who improved irrigation technology to increase the production of

potatoes, corn, beans, chilli peppers, etc. These specialists were kept by the state. Finally, the same peasants cultivated the land with the help of machinery developed by engineers» (Chavín de Huántar, 2024).

It was notable that the class society of the ancient Peruvian Chavín culture had a "socialist" vector of development, since, according to historians (Chavín de Huántar, 2024), specialists who produced nutritious plants were supported by the state authorities.

Large monoliths that were found by archaeologists in the territory of modern Peru also attract attention (Rick, 2012; Tauro del Pino, 2001). Among the finds are a monolithic lanzon, the Raimondi stele (Estela de Raimondi, 2024) and the Tello obelisk (Obelisco Tello, 2024).

«Each of them is a menhir, which in Andean culture has a spiritual meaning and serves for social and political control over the population, which is threatened by the elements of nature and lack of food. In Quechua, it means stone of power, and they are extremely sacred» (Chavín de Huántar, 2024).



Fig. 3. Statue of Raimondi, Peru.



Fig. 4 Tello obelisk, Peru.

Sources:

For Fig. 3: <https://commons.wikimedia.org/w/index.php?curid=27141663>

For Fig. 4: <https://commons.wikimedia.org/w/index.php?curid=89593284>

We believe that both monoliths were used during ritual religious social communications and are evidence of the transformation of ancient Peruvian beliefs and ways of their cultivation and dissemination (Estela de Raimondi, 2024). The system of social communications of ancient Chavins included repressive and restrictive norms, or sanctioned limits of social behaviour and socialization in general (Obelisco Tello, 2024).

«According to one of the interpretations, Chavin's monolith unites three elements of Chavin's cosmogonic trilogy: the eagle, the snake and the cat (air, water and earth), that is, repressive deities who serve as guards and ward off evil. In this way, air, water and earth confirm the constant harmony with the Cosmos, with which the entire heritage of the Chavin culture is woven» (Chavín de Huántar, 2024).

The description of the monoliths of the Chavin culture allows us to record the reflection of the specifics of the social communications of the ancient Peruvian people. The monoliths depicted the heads of cats, which were dressed in a lower tunic similar to a belt. Strangely such a

belt imitated figures that had a common mouth with a single throat. According to researchers (Chavín de Huántar, 2024), images,

"where two or more images share a common form is called contour rivalry, and in the art of the people of the Chavin culture it is intentional, creating a rivalry or duality between cult followers and non-cult followers" (Chavín de Huántar, 2024).

Social communication was reflected by the Chavin people in almost all types of art, the signs of which are recorded in the artefacts found during excavations carried out in different years of the 20th and 21st centuries. The specificity of such social communications consisted in the labelling by ancient Peruvian artists of social relationships between people and animals, between simple and privileged members of the tribe family. Chavin art also recorded specific social communications of Chavin residents with the "other world" (Conklin, & Quilter, 2008). In the everyday life of the people of the Chavin culture, painted cloth was used, which was called "itsi". In the pictures, icicles are observed

"religious characters of the Chavín culture, which, according to some archaeologists, maybe a catechism intended to spread the religious cult of this culture" (Chavín de Huántar, 2024).

It is worth noting that clothing and music played a leading role in the introduction of religious cults of the people of the Chavin culture. Because Chavin's social communication relied on the authority of the priestly caste, it is assumed that the high priest occupied the highest rung of the social hierarchy (Makowski, 1996). During the excavations, archaeologists found various painted ceramic products. In connection with the above, experts define two types of ceramic products of the Chavin people by purpose, namely: 1) household ceramics "for the general use of townspeople and 2) ritual ceramics: for ritual practices" (Benavides Estrada, Díaz Suárez, & Narrea Delgado, 2005).

Along with the marking of the specifics of social communications in the ceramic products of the people of the Chavin culture, a similar marking was also recorded in the sculptural monoliths, which archaeologists called "hat nails". The latter represented the heads of mythical creatures, a belief which was widespread in the architecture of the peoples of the pre-Columbian Andes. According to anthropologists (Cabezas Clavas, 2024), the heads of mythical creatures were an explanation of the functions of temple guards or creatures that scared away evil spirits from the settlements of the Chavin tribes. There are also experts' assumptions (Conklin, & Quilter, 2008) that the analyzed hat nails in the form of the heads of mythical creatures could represent the emotions of priests of the Chavin cult people, who practised the use of hallucinogens, for example, the San Pedro cactus, in the implementation of religious social communications.

"The action of this drug was depicted allegorically on the faces of each nailed head, in the form of a sequence. Wide open round eyes represent dilated pupils; and the snakes sculpted on the faces showed hallucinations" (Cabezas clavas, 2024).



Fig. 3. Hat nails of the Chavin culture (formative horizon period) (1200 BC - 400 BC).

Source: https://upload.wikimedia.org/wikipedia/commons/thumb/c/c7/Cabezas_clavas_chavin.jpg/375px-Cabezas_clavas_chavin.jpg

Taking into account the information analyzed regarding the identification of types and specifics of social communications of the people of the Chavin culture, we singled out 14 points and formed a table. 5. We designated each type of social communication with a letter code (see Table 5 below).

1. Intensification of religious worship and ceremonies (in particular, burial ceremonies).
2. Intensification of social communications in agriculture.
3. Administration and management of production as a manifestation of social communications in Chavin de Huantar.
4. The transfer of social communications to stone creatures in the form of anthropomorphic deities (for example, the deity Uanka, God of Water, monolithic Lanson).
5. Ceremonies and mandates carried out by oracles served as means and forms of regulation of social actions and interactions of society members in Chavin de Huantar.
6. The presence of a hierarchical pyramidal society (priest-leaders, specialists, peasants).
7. The cosmological underpinning of social communications "is the menhir, which in Andean culture has spiritual significance and serves for social and political control over a population threatened by the elements of nature and food shortages" (Chavín de Huántar, 2024).
8. Manifestation of social communications in contour rivalry (rivalry between cult followers and non-cult followers).
9. Identifying oneself with the other world at the level of establishing good social communication.
10. Implementation of social communications thanks to the spread of religious cults in the form of ichi - a painted fabric depicting religious characters of Chavin culture.
11. Use of ritual ceramics for religious social communication.
12. Explanation of mystical and religious social communications through anthropomorphic hats and nails.
13. Religious social hierarchy explained the specifics of Chavin's social communication.

14. Music, clothing, and religious symbols are forms of Chavin social communication.

We transferred the forms and types of social communications described in 14 points to the table. 5 (see below) and gave each species its letter code.

Table 5.

Forms and types of social communications of the Chavin culture of the Peruvian Davies
(1200 BC - 400 BC)

No s/p	Forms of social communications	Types of social communications	Code	Unit of measurement (number /%)
1.	Intensification of religious worship and ceremonies (in particular, burial ceremonies).	Religious cult (during burial).	A2	1/7,1
2.	Intensification of social communications in agriculture.	Agricultural production.	X	1/7,1
3.	Administration and management of production as a manifestation of social communications in Chavin de Huantar .	State management.	R3	1/7,1
4.	The transfer of social communications to stone creatures in the form of anthropomorphic deities (for example, the deity Uanka , God of Water, monolithic Lanson).	Anthropomorphic stone deities.	A3	1/7,1
5.	Ceremonies and mandates carried out by oracles served as means and forms of regulation of social actions and interactions of society members in Chavin de Huantar .	Ceremonies. Priesthood.	Ц1 Ц	1/3.55 3.55
6.	The presence of a hierarchical pyramidal society (priests -leaders, specialists, peasants).	Social hierarchy.	R 4	1/7,1
7.	The cosmological underpinning of social communications "is the menhir, which in Andean culture has spiritual significance and serves for social and political control over the population, which is threatened by the elements of nature and lack of food" (Chavín de Huántar , 2024).	Cosmology as social control.	A4	1/7,1
8.	Manifestation of social communications in contour rivalry (rivalry between cult followers and	The cult and its opponents.	A8	1/7,1

	non-cult followers).			
9.	Identifying oneself with the other world at the level of establishing good social communications.	Hereafter.	A5	1/7,1
10.	Implementation of social communications due to the spread of religious cults in the form of ichi - a painted fabric on which religious characters of the Chavina culture are depicted.	Textiles (colorings of a religious nature).	W	1/7,1
11.	The use of ritual ceramics for the implementation of religious social communications.	Ceramics (ritual - religious).	Nk	1/7,1
12.	Explication of channels of mystical and religious social communications in the form of anthropomorphic hats and nails.	Religious and mystical decoration (nail caps)	A6	1/7,1
13.	The religious social hierarchy explained the specifics of Chavin social communication.	Religious holidays.	A1 T	1/3.55 3.55
14.	Music, clothes, religious symbols are forms of Chavin social communication.	Music. Clothes. Religious symbols.	V W A7	1/72,33 2.33 2.33
15.	TOTAL:	–	–	14/99.96
16.	Error	–	–	0/0.03
17.	Σ (sum)	–	–	14/100

Social communications of the tribes of the Nazca culture
(I century - VI century AD)

The Nazca culture existed between the 1st century and VI century not. A specific feature of the mentioned culture is the so-called line drawings (geoglyphs), "about 20 cm thick on the arid soil of the Peruvian pampa, where more than 800 animal figurines are represented" (Bergoeing, 2014: 85).



Fig. 4–5. The figure of a hummingbird, located on the arid soil of the Nazca pampa, is one of the first types of social communication of the ancient Peruvians of our era.

(source Fig. 4, left – *Archivo:Lignes de Nazca Décembre, 2006*;
source of fig. 5, on the right – <https://kor.ill.in.ua/m/610x385/1797568.jpg>).

In the future, we will consider the geoglyphs of the Nazca desert as a form of social communication, thanks to which the cultures of the Peruvian tribes who lived near the desert at different times encoded information of an agronomic and meteorological nature (Delfino, & Carlos, 2022). "Geoglyphs are the constellations of the ancient astronomical calendar (El misterio de las líneas de Nazca, resuelto por los arqueólogos, 2024) and were created to observe the course of celestial bodies in the sky" (Eda, Yamasaki, & Sakai, 2019). There is also the point of view of Japanese researchers about the ritual and decorative purpose of Nazca figures (El misterio de las líneas de Nazca, resuelto por los arqueólogos, 2024).

«According to recent findings and research presented in May 2015 by Yamagata University in Japan, it is argued that the lines served as epicentres of ritual activity for both the Nazca and other surrounding cultures. It turned out that the lines were made by more than one culture and at different historical moments. Thus, they performed an integrating function for all the cultures between the coast and the mountains of Ikenya. It is also concluded that they served to decorate the pilgrim's path to the city of Cauacha, the socio-political centre of the Nazca culture since the lines are made so that they can be seen from a certain height» (El misterio de las líneas de Nazca, resuelto por los arqueólogos, 2024).

Such information was passed down from generation to generation for six centuries. Information in patterns, fluoromorphic, anthropomorphic and zoomorphic images on ceramic, metal and textile products of members of the Nazca culture tribes can be considered similar to geoglyphs (Cultura Nazca, 2024).

«Ceramics were one of the most important manifestations of Nazca art. They used different techniques and designs to create objects for everyday, religious and funerary purposes. The Nazca decorated their pottery with figures of people, animals and plants, and used red, orange and yellow to create striking contrasts» (Soler, 2024).



Fig. 6. Ceramics of the Nazca Culture (source – <https://ceramologia.com/arte/nueva-mirada-a-la-ceramica-de-el-reino-nazca/>).

The social hierarchy was proof of specific social communications among the peoples of the Nazca culture. It existed in the Peruvian tribes, whose members were active between the 1st

century. and the VII century. on the territory that today is indicated on the world map as the territory of Peru. The society of the Nazca culture was ruled by lords and priests (Cultura nazca, 2024). The Lord's main function is the organization of public works and ritual actions. The place of residence of the lords and priests were pyramidal buildings, which were located in separate special sectors of the settlements of the Nazca tribes. The rooms of high officials "were made of adobe, and the walls were covered with a layer of plaster or lime to cover cracks" (Cultura nazca, 2024).



Fig. 7. Burial (skull and mummy embalmed in Peru;

source – https://st.depositphotos.com/1751683/3455/i/600/depositphotos_34556233-stock-photo-embalmed-mummy-and-skull-in.jpg

The social hierarchy of the society of the Nazca culture, after the privileged stratum of the population (priests and lords), was continued by artisans (potters and textile workers). Astrologers were separated from the social class next to musicians and soldiers, "who lived in small towns and ceremonial centres, among which the Kauachi complex stands out" (Cultura nazca, 2024). Farmers and fishermen were considered the foundation of the conditional social pyramid. Their residence was localized in valleys, closer to water sources (Cultura nazca, 2024). Places of residence of the tribes of the Nazca culture can be tentatively called settlements since the centres of political life were not recorded by archaeologists and historians during excavations. Instead of such centres, social communications were implemented in farms, which can be conventionally called so, since they were located near settlements. The unification of such farms began a political grouping around certain economically "strong" farms. Accordingly, such powerful farms became the basis for strong religious communities in the Nazca tribes. In turn, the latter served as the basis for the emergence of typical cultural traditions. Despite the permanence of conventional centres of political and cultural life, military skirmishes and conflicts were constantly raging among the tribes of the Nazca culture, which is evidenced by the military equipment of the graves of both elite and poor burials.

«The Nazca were very fond of war. They were always looking for trophy heads and painted their faces to imitate the spots of a falcon, as can be seen in their artistic depictions» (Macera, 1985).

The fact that the members of the Nazca culture tribes carry the severed heads of their enemies daily indicates, in our opinion, the specificity of social communications, thanks to

which the warriors of the tribe marked their merits and combat readiness to protect their fellow tribesmen.

«The Nazca used severed heads, known as trophy heads, in various religious rituals and appear as a motif in ceramic iconography» (Nalewicki, 2024).

Gradually, war trophies in the form of severed heads of enemies acquired a different marking in the social communications of the Nazca tribes.

«Visual images of beheading often associate decapitators with weapons and military-like clothing, but such clothing could also be worn in purely ceremonial circumstances» (DeLeonardis, 2000).

We consider their customs invaluable and indisputable facts that prove the specificity of social communications of the peoples of the Nazca culture. One such custom involved the presence of feasts, with which the adult population accompanied their hard daily work. The fact of feasting is confirmed by the presence in the burials of ordinary members of the tribe of dishes for chicha with various dishes. The people of South America (in particular, Peru) still call chicha "a low-alcohol drink similar to beer" (Chicha morada, 2024).



Fig. 8. Utensils for eating chicha (Cerámica de estilo arte precolombino, Nazca Perú, 2024).

During banquets as a form of social communication of the ancient Peruvian tribes of the Nazca culture in the period from the 1st century to the 7th century, members of the tribes also used such types of social communication as consumption of food stored in ceremonial containers; the use of musical accompaniment of the benectes in the form of antarams ("a kind of Pan flute made of reed cane, like a small pipe" (Antara, 2024)) and drums (Cultura nazca, 2024).

The analysis of various forms of domestic, political and cultural activities of the ancient Peruvian Nazca culture allowed us to single out eleven features of their social communication.

1. Social communications of the peoples of the Nazca culture were reflected in specific urban construction (Bergoeing, 2014: 85).

2. We consider the drawings, and lines (geoglyphs) of the Nazca desert to be a fixation of social communications of the Nazca culture.

«Among almost 300 figures there are images of a spider, fish, bird, monkey, llama, lizard, tree, flower, jaguar, iguana, pelican, sperm whale, even a strange human-like creature" the

researchers find "a lot of... various geometric figures: triangles, stars, trapezoids, rectangles, wavy lines, spirals, etc.» (Bergoing, 2014: 85) (see Figs. 4–5 earlier).

The mentioned facts testify to the attempts of members of the tribes of the Nazca culture to establish social communications with fellow tribesmen but also with the forces of nature and space.

3. The Nazca tribes deformed skulls for socio-communicational identification of their statuses (Nasca (culture), 2024).

4. The Nazca's constant conflicts with neighbouring tribes are named social communications as warlike (Nasca (culture), 2024).

5. Severed heads in early Nascan burials testified to the socio-communicative status of warriors.

«These heads were dried, flattened, painted, after which they were strung into "garlands" or worn tied to the belt, like war trophies» (Nasca (culture), 2024).

6. It is appropriate to characterize the social communications of the Naskans as those inherent in a centralized theocratic state (Naska (culture), 2024).

7. In the society of the peoples of the Nazca culture, social communications of law were commonplace.

«Relations in society were regulated by the norms of customary law, which supported public stability. Violators of such laws were eventually tied up, their mouths stuffed with human excrement, and then killed by force a blow with a stone or mace directly to the forehead» (Nasca (culture), 2024).

8. Marking of social communications of members of the Nazca culture tribes was recorded in weaving and embroidery, jewellery and colour schemes.

«The Neskans knew how to make a wide variety of fabrics from llama wool and cotton, adding human hair and bird feathers to them, and made carpets and brocade. They decorated their products with polychrome embroidery or drawings, the colour range of which includes up to 15 colours and shades; ...Gold ornaments were made, mainly for the ears and nose» (Nasca (culture), 2024).

9. The attitude towards nature and the environment among Naskans had a specific form of expression, which was recorded in household items that circulated as substitutes and objects of information exchange in the system of social communications.

«They used dyes of 11 colours to decorate their irrigated ceramics, Nascan artists depicted on their products birds and fish, insects and plants, predators and people (images of priests, next to whom the heads of enemies lie on special altars), various fruits and even fantastic mythical creatures, after which they covered their product with glaze for strength and beauty» (Nasca (culture), 2024).

10 Attempting to establish social communications with the elements through religious rituals, late ancient Peru anthropomorphized the forces of nature; the ancient Peruvians of the

Nazca culture gave a special divine function to the predators of the cat family, which was recorded in many archaeological finds during the excavations of Nazca burials.

«The goddess of fertility was depicted in the form of a woman with magnificent forms, with streams of water and plants that grow out of her mouth," revered "her divine husband in the form of a moustachioed warrior and ... predators of the feline family, primarily the jaguar. Killer whales, snakes, and birds were also worshipped» (Nasca (culture), 2024).

11. Religious social communications promoted all the ritual actions of the ancient Peruvians of the Nazca culture and were associated with sacrifices in various forms.

«There was a tradition of human sacrifice among the Naskans. Numerous victims were bricked (perhaps even alive) into the foundations of many buildings of Nascan origin, and on Nascan vessels, there are images of rituals of total "beheading of a person", that is, his quartering. In addition to people, llamas served as material for periodic sacrifices to the gods» (Nasca (culture), 2024).

The analysis of the features of the social communications of the Nazca culture allowed us to record a leading trend, the essence of which is that the lifestyle and living conditions of the ancient Nazca people (as well as representatives of other Andean cultures who lived in the period between the 1st and 7th centuries in the territory of modern Peru) did not require high level of social and technical skills. Instead, the social communications of the cultural order were already filled with samples of sophisticated jewellery, weaving, pottery, and painting products.

We have shown eleven features of social communication of the Nazca culture tribes in the table. 6 (see below), identified the types of social communications of the mentioned culture and marked them with letters of the English and Ukrainian alphabet.

Table 6.
Forms and types of social communications
tribes of the Nazca culture
(I century - VI century AD)

No s/p	Forms of social communications	Types of social communications	Code	Unit of measurement (number /%)
1.	Social communications of the peoples of the Nazca culture were reflected in the specific urban development (Bergoeing , 2014: 85).	Architecture.	U 1	1/9.0
2.	We consider the drawings, lines (geoglyphs) of the Nazca desert to be a fixation of social communications of the Nazca culture. The mentioned facts testify to the attempts of members of the tribes of the Nazca culture to establish social communications not	Geoglyphs.	III	1/9.0

	only with fellow tribesmen , but also with the forces of nature and space.			
3.	The Nazca tribes deformed skulls for the purpose of socio-communicational identification of their own statuses (Nasca (culture), 2024).	Deformation of skulls.	Y	1/9.0
4.	The Nazca's constant conflicts with neighboring tribes marked their social communications as warlike (Nasca (culture), 2024).	Military conflicts.	Z	1/9.0
5.	Severed heads in early Nascan burials testified to the social and communicative status of warriors.	Severed heads.	Г	1/9.0
6.	The social communications of the Naska people should be characterized as those inherent in a centralized state of theocratic type (Naska (culture), 2024).	Social system.	T	1/9.0
7.	In the society of the peoples of the Nazca culture, social communications were governed by the norms of customary law with the involvement of cruel sanctions close to the destruction of criminals.	Society of law.	R4	1/9.0
8.	Marking of social communications of the members of the Nazca culture tribes was recorded in weaving and embroidery, jewelry and color scheme.	Weaving, Embroidery, Jewelry.	W	1/9.0
9.	The attitude towards nature and the environment among the Naskans had a specific form of expression, which was recorded in household items (ceramics, dyes, glazes), which circulated as substitutes and objects of information exchange in the system of social communications.	Reflection of attitude to nature in art, in drawings, embroideries, patterns on household and ritual objects.	Nk	1/9.0
10.	Trying to establish social communication with the elements through the implementation of religious rituals, late ancient Peru anthropomorphized the forces of nature; the ancient Peruvians of the Nazca culture gave a special divine function to the predators of the cat family, which was recorded in many archaeological finds during the excavations of Nazca burials.	The sacralization of feline predators.	Ж	1/9.0

11.	Religious social communications accompanied all the ritual actions of the ancient Peruvian tribes of the Nazca culture and were associated with sacrifices in various forms.	Offering.	Б	1/9.0
12.	TOTAL:	–	–	11/99
13.	Error	–	–	0/1
14.	Σ (sum)	–	–	11/100

Social communications of ancient Peruvian culture Wikus
(I century AD - IV century AD)

In the period between 100 AD and 400 AD, the Wikus culture lived on the territory of present-day Peru. The mentioned culture should be placed «between the Chavin and Moche or Mochica cultures» (Smith, 2024).

According to the evidence of archaeologists and historians (Cultura vicús, 2024; Smith, 2024), members of the vicús culture tribes carried out active social communications where they lived. Such places were located next to the place of ritual religious events and the burial of fellow tribesmen.

«...the sites served as ceremonial and administrative centres, we can see the main platform, various environments (ceremonial and residential) and a cemetery. This platform has a height of three meters and a total area of one hectare. The residential complex has three main rooms, each 13 meters long and 6 meters wide. All rooms are usually delimited by rows of stones» (Cultura vicús, 2024).

It is clear that where the ritual actions were sent, social communications had a religious and ritual character. In permanent residence, members of the Wikus culture tribes carried out everyday social communications, which differed from religious and ritual ones. More often, those social communications were domestic during herding or hunting. As we understand, the social communications that took place during the military clashes with the representatives of the tribes hostile to the Wikus culture had a different character.

«A strong contingent of noble warriors roamed their domains to ensure the fulfilment of the sovereign's orders. These occupations were supplemented by herding or hunting» (Cultura vicús, 2024).

In peaceful life, members of the tribes of the Wikus culture were engaged in pottery, making household ceramics. During the explication of social communications in religious and ritual procedures, Vicúsians used decorative ceramics in their production (Cultura vicús, 2024).



Fig. 5. Statuette-1 of the Vikus culture.

Source – <https://a.warbletoncouncil.org/science/cultura-vics-descubrimiento-ubicacin-organizacin-cermica.webp>

The forms of metal objects and images on them were markers of social communications for various functional purposes of the Vikus culture. Among such objects found at the excavation sites are necklaces, foil, and headdresses with "sequins and feathers that make sounds when they move, as well as the rattles themselves" (Cultura vicús, 2024).



Fig. 6. Statuette-2 of the Wikus culture.

Source – <https://a.warbletoncouncil.org/science/cultura-vics-descubrimiento-ubicacin-organizacin-cermica-8.webp>

It is worth noting that anthropomorphic, zoomorphic and phytomorphic motifs, which were applied to gold, silver and copper products thanks to embossing and shaping, served as forms of social communication. Experts found pearls and emeralds, mother-of-pearl shells, turquoise, etc. in the burials of the Vikus culture. Among the finds are "gold and silver nose rings, earrings also made of thin metal and vessels of the same material" (Cultura vicús, 2024). An interesting find of archaeologists, which testifies to the specificity of social communications in the process of funeral rituals of the Vicús people, is considered (Cultura vicús, 2024)

«anthropomorphic gold sculptures in welded sheets (Venus de Frias and El Hombre de Frias), zoomorphic heads with movable tongues, hair removal flaps and tweezers, cord threads and other objects testify to extensive work and quality work» (Cultura vicús, 2024).

There is evidence (Cultura vicús, 2024) that the masters of the Vicús culture used specific tools and applied several techniques during manual work on precious gold products, which made the exploitation of social communications unique and realized in inclusive jewellery products.

It is worth noting such professional skill during the production of simple household items, clothes, shoes, etc. Especially in the manufacture of clothes used for sending religious procedures. The last fact testifies to the special role of the habitat image in the social communications of the representatives of the Wikus culture tribes.

Analysis of the information available to us about the ancient Peruvian culture Vikas gave us the reason to identify a certain list of features of the development of social communications of the mentioned culture, to code them with letters of the English and Ukrainian alphabets and to display the formalized indicators in the table. 7 (see below).

1. Social communications based on militarism are recorded in Wikus culture.
2. The exhibition of ceremonial social communications of the Wikus culture was carried out thanks to decorative ceramics.
3. Social communications of Vikus were carried out thanks to metal products. It was exchanging information about their social status and social roles.
4. Tweezers for epilation testify to the special hygienic and aesthetic attitude of the women of the Wikus culture to their appearance, which played a certain role in the implementation of social communications.
5. Gold ornaments of sophisticated processing declared the social status of the members of the Wikus culture tribes.
6. Different levels of architecture were performed to preserve the inhabitants and to mark the social status of the city's inhabitants. The large maidans in the settlements testified to the administration of Wikus social communications, as general meetings of the tribe were held on the maidans.
7. Carrying out manual work on the production of textiles testified that such work was taken care of by those who were more often at home, perhaps women who looked after children. This fact demonstrates the distribution of social roles in the tribe, a means of social communication vikus.
8. Exchange with representatives of other tribes, sometimes requisitioning clothes from different ethnic groups manifested the presence of social communications of various types: from cooperation to rivalry.

Table indicators. 1–7 allowed us to form diagrams 1–4, in which we displayed different forms and types of social communication, the signs and markers of which were recorded by us during the analysis of documents related to the description of artefacts of archaeological excavations of the remains of seven cultures: the primitive Peruvians of the era Paleolithic, lithic period, Chavin (8 thousand BC - 3.5 thousand BC), Karal, Chavin (1.2 thousand BC - 400 BC AD), Nazca and Wikus.

Since there were 65 positions between the highest (10.96%) and the lowest (0.33%) indicators of the frequency of signs and markers of types of social communication (see Table A below), we conditionally differentiated all signs and markers of forms and types of social communication of Peruvians, who lived from the Paleolithic era to 700 AD, into 4 such groups:

Table 7.
Forms and types of social communications
of the ancient Peruvian Wikus culture
(I century AD - IV century AD)

No s/p	Forms of social communications	Types of social communications	Code	Unit of measurement (number /%)
1.	In the Wikus culture , social communications based on militarism are recorded .	Militarism	Z	1/12.5
2.	Expilation of ceremonial social communications of the Wikus culture was carried out thanks to decorative ceramics.	Ceremonies. Ceramics.	Nk	1/12.5
3.	Wikus social communication was carried out thanks to metal products, which served as a means of exchanging information about their social status and social roles.	Metal products.	Ч	1/12.5
4.	Tweezers for epilation testify to the special hygienic and aesthetic attitude of the women of the Wikus culture to their appearance, which played a certain role in the implementation of social communications.	Fashion. Hygiene.	И2	1/12.5
5.	Gold ornaments of sophisticated processing declared the social status of the members of the Wikus culture tribes.	Jewelry.	Ю	1/12.5
6.	Different levels of architecture were performed not only as a means of preserving the inhabitants , but also marked the social status of the city's inhabitants. Large maidans in the settlements testified to the administration of Wikus social communications , as general meetings of the tribe were held on the maidans.	Architecture. Social system.	U1	1/12.5
7.	The manual work of producing textiles indicated that such work was taken care of by those who were more often at home, perhaps women who looked after children. This fact demonstrates the distribution of social roles in the tribe, which is a means of social	Textile works. Social roles.	W R5	1/ 6.75 6.75

	communication Vikus .			
8.	Exchange with representatives of other tribes, sometimes requisitioning clothes from other ethnic groups manifested the presence of social communications of various types: from cooperation to rivalry.	Barter. Looting. Cooperation. Rivalry.	Jl M Ko Cy	1/ 3.12 3.12 3.12 3.12
9.	TOGETHER:	–	–	8/100
10.	Error	–	–	0
11.	Σ (sum)	–	–	8/100

- group 1 – the range of frequency indicators from 4.21% to 10.96% (see diagram 1 below);
 - group 2 – the range of frequency indicators from 3.12% to 3.52% (see diagram 2 below);
 - group 3 – the range of frequency indicators from 2.0% to 2.9% (see diagram 3 below);
 - group 4 – the range of frequency indicators from 1.0% to 1.9% (see diagram 4 below).
- In the further analysis, we ignored indicators with a value of less than 0,9%.

Table A.

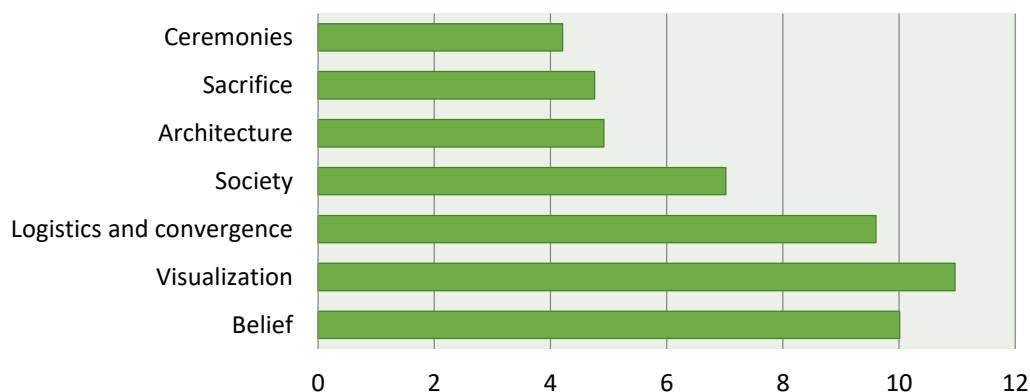
Indicators of the frequency of types of social communication of Peruvian cultures from the Paleolithic to AD 700.

No s/p	The name of forms and types of social communications	Code	Indicator (%) of frequency in a certain culture	Sum (number)	Sum Σ (%)
	Belief				
1.	Belief in the forces of nature.	A	10+3.55	13.55	1.9
2.	Belief. Religion. Religious holidays.	A1	12.5	12.5	1.8
3.	Religious cult (during burial).	A2	7.1	7.1	1.0
4.	Anthropomorphic stone deities.	A3	7.1	7.1	1.0
5.	Cosmology as social control.	A4	7.1	7.1	1.0
6.	Hereafter.	A5	7.1	7.1	1.0
7.	Religious and mystical decoration (nail caps)	A6	7.1	7.1	1.0
8.	Religious symbols.	A7	2.33	2.33	0.33
9.	The cult and its opponents.	A8	7.1	7.1	1.0
10.	TOTAL (A–A8):				10.03
	Abstraction.				
11.	Parasitism.	B	10	10	1.45
12.	Division of labor.	C	10	10	1.45
13.	Production of stone weapons .	D	10	10	1.45
14.	Signal systems.	F	10+14.2	24.2	3.52
15.	Leadership	G	10	10	1.45
16.	Rules of coexistence.	H	10+6.25 +6.25	22.5	3.27
17.	Sign vocalization.	J	10	10	1.45
18.	Creation of hunting traps.	K	14.2	14.2	2.0
19.		L	14.2	14.2	2.0

20.	Natural exchange.	M	14.2	14.2	2.0
21.	Visualization				
22.	Graphic rock visualization.	N	14.2	14.2	2.0
23.	Artistic visualization on ceramics (in particular ritual and religious).	Nk	33+7.1 +9.0+12.5	61.6	8.96
24.	TOTAL (N+Nk):				10.96
25.	Bodyart.	O	14.2	14.2	2.0
26.	Logistics and convergence				
27.	Logistics.	P	33	33	4.8
28.	Convergence in the language of art.	Q	33	33	4.8
29.	TOTAL (P+Q):				9.6
30.	Society				
31.	Complex societies.	R	12.5	12.5	1.8
32.	Political system.	R1	6.25	6.25	0.9
33.	State management.	R3	7.1	7.1	1.0
34.	Social hierarchy.	R4	7.1+9.0	16.1	2.34
35.	Social roles.	R5	6.75	6.75	0.98
36.	TOTAL (R–R5) :				7.02
37.	Insulation.	S	12.5	12.5	1.8
38.	Social organization.	T	6.25+3.55 +9.0	18.8	2.73
39.	Architecture				
40.	Architecture (size and area of public buildings).	U	12.5	12.5	1.8
41.	Architecture (size and area of residential buildings).	U1	12.5+9.0	21.5	3.12
42.	TOTAL (U–U1):				4.92
43.	Music.	V	12.5+2.33	17.83	2.59
44.	Textiles (colorings of a religious nature). Textile works.	W	7.1+2.33 +9.0 +6.75	24,18	3.51
45.	Agricultural production.	X	7.1	7.1	1.0
46.	Deformation of skulls.	Y	9.0	9.0	1.3
47.	Military conflicts. Militarism.	Z	9.0+12.5	21.5	3.12
48.	Harvesting				
49.	Sacrifice (sacrifice).	Б	10+9.0	19.0	2.76
50.	Human sacrifice.	Б1	14.2	14.2	2.0
51.	TOTAL (B–B1):				4.76
52.	Severed heads.	Г	9.0	9.0	1.3
53.	The sacralization of feline predators.	Ж	9.0	9.0	1.3
54.	Cooperation.	Ko	3.12	3.12	0.45
55.	Barter.	Л	3.12	3.12	0.45
56.	Looting.	M	3.12	3.12	0.45
57.	Rivalry.	Cy	3.12	3.12	0.45
58.	Ceremonies				
59.	Priesthood.	Ц	10+3.55	13.55	1.9
60.	Ceremonies.	Ц1	3.55	3.55	0.51
61.	Fashion. Hygiene.	Ц2	12.5	12.5	1.8
62.	TOTAL (C–C2):				4.21
63.	Metal products.	Ч	12.5	12.5	1.8
64.	Geoglyphs.	Ш	9.0	9.0	1.3
65.	Jewelry.	Ю	12.5	12.5	1.8
66.	TOTAL (quantity without error):	–	–	683.07	99.4
67.	Error (%):	–	–	4.1	0.58
68.	TOTAL (%):	–	–	687.17	100

We assigned the following subgroups of frequency indicators to group 1: "Ceremonies", "Sacrifice", "Architecture", "Society", "Logistics and convergence", "Visualization" and "Belief". We have shown the correlation of indicators of group 1 in diagram 1 (see below).

Chart 1. Quantity indicators (%)
types of social communications
in the period from the Paleolithic to 700 AD.
(in the frequency range from 4.21% to 10.96%)



An explanation of the names of the types of social communication is presented in Diagram 1.

The name "Ceremonies" is related to the fact that during religious (domestic or funeral) procedures, ancient Peruvians exchanged information aimed at regulating social actions, social interactions and social relationships. The very act of any ceremony provided both demonstrative, image, reputational, and propaedeutic, didactic influence for the current members of society. It served as a channel of social communication for future generations. We add the same meaning to the name "Sacrifice", which we interpret as the implementation of social communications with the deities of the upper (positive) and lower (negative) statuses.

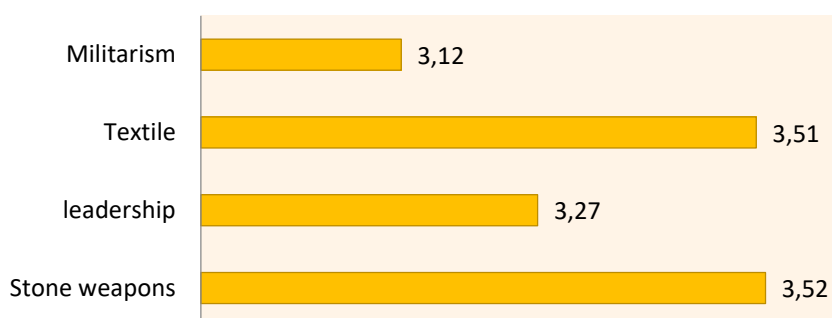
In the name of the species "Architecture" we reflected on the marking of the social hierarchy during the construction of the residences of the tribe members, highlighting the higher social status (for example, a leader or a priest) by the height of the building. Also, in the architecture, the ancient Peruvians reflected the places of departure for religious procedures (prayer, sacrifice, consecration into members of the tribe and other types of socialization). The ancient Peruvians marked different types of social communication thanks to such architectural differences. The name "Society" means the implementation of social communications in the social system of life and festive procedures of Peruvians of different historical periods.

The name of the type of social communication "Logistics and Convergence" has two elements that are closely related to each other. The word "logistics" in our study refers to the presence of social information exchange due to the implementation of the movement of ancient Peruvians in space for trade and the search for better living conditions. The word "convergence" in the working order of our research means the merging and mixing of signs of different historical cultures and the reflection of such marker signs in speech, drawings on fabrics, ceramics, the body, the surface of the earth, tools of work and hunting, etc. By the name "Visualization" we meant graphic images made by ancient Peruvians on rock walls and ceramics.

The name "Belief" reflects the different types of faith of ancient Peruvians in the forces of nature.

According to our analysis, group 2 contains the following indicators of the frequency of types of social communication: "Militarism", "Textiles", "Leadership", "Stone weapons" (see diagram 2 below).

Diagram 2. Indicators of the number (%) of types of social communications in the period from the Paleolithic to 700 AD.
(in the frequency range from 3.12% to 3.52%)



The name "Militarism" we called social communications that functioned among ancient Peruvians as a form of violent seizure of territories, settlements, tools of labour, domestic animals, household items and the sending of religious cults, etc.

The type of social communication "Textile" means the exchange of social information from generation to generation thanks to textiles, their form, decoration and artistic design. By the name "Leadership" we meant the implementation of information exchange with the help of physical strength, wisdom, and the ability to make decisions useful to the tribe, which provided acceptable conditions for coexistence. "Stone weapons" means, in our research, the implementation of manufacturing operations for manufacturing weapons from stone by the ancient Peruvians. During such production procedures, groups of Peruvians exchanged information, and performed two to three to eighteen manipulations with the stone, thereby passing on important salutary information to subsequent generations (Paige, & Perreault, 2024).

Group 3 consists of six indicators: Music, Social Organization, Body Art, Natural Exchange, Hunting Traps, and Sign Vocalization (see Chart 3 below).

As is known (Makowski, 1996; Shady, et al, 2009;), the ancient Peruvians of the Caral and Chavin cultures made musical instruments (for example, flutes), the fact of their presence gave us the right to assert that social communication in certain historical periods could be carried out through music. The name "Social organization" corresponds to the type of social communication implemented in the ancient Peruvians in the early days of a clear social hierarchy, the direct subordination of tribe members to the leader and priests. Tattooing, also called body art, was and still is traditional for certain Peruvian tribes (Merriam-Webster. (n.d.). Body art, 2024). We believe that thanks to the images on the body, Peruvians exchanged and exchanged information of a social nature, which we attribute to one of the forms of social communication.

The name "Natural exchange" (a type of social communication) was proposed by us to explain the exchange of information due to the transfer from one tribe of ancient Peruvians to another of various food products and household goods, products, booty, etc. An exchange of

information was carried out (to our definition of "social communications"). "Hunting traps" (the name of a type of social communication) were used by us to interpret the process of preparing hunting traps by the male part of Peruvian tribes. During such joint works, members of the tribes exchanged socially and salutarily important information.

The most important driver of forming social communications among ancient Peruvians was the exchange of gestures and vocalisms (exclamations, chants, howls, cries, etc.). We called such a process in the working order "Gestovocalization" (see diagram 3 below).

Diagram 3. Indicators of the number (%) of forms and types of social communications in the period from the Paleolithic to 700 AD.

(in the frequency range from 2.0 to 2.90)



In the composition of diagram 4 (see earlier), we included only those forms of social communication of ancient Peruvians (frequency indicators in the range from 1.0% to 1.9%). Among them were noted "Jewellery", "Geoglyphs", "Metal products", "Sacralization of felines", "Deformation of skulls", "Agriculture", "Isolation", "Rules of coexistence", "Signal systems", "Division of labour", "Parasitism" and "Abstraction".

By the name "Jewellery" as a form of social communication, we meant gold products left behind by ancient Peruvians. Thanks to the images of gold products, Peruvian masters transmitted information that was later used for further social coexistence by their descendants. In addition, it is worth considering that gold jewellery could be worn only by persons of high social status, which was reflected in the quantity and quality of gold jewellery worn by, for example, tribal leaders, priests, or strong, knowledgeable warriors. The name "Geoglyphs" encompasses the meanings that the ancient Peruvians of the Nazca culture placed in the gigantic figures of birds and animals on the ground, the scale of which can only be understood from a bird's eye view. The different ideas of Nazca geoglyph researchers about their purpose can be united by the leading, in our opinion, trend of information exchange about cosmic phenomena, agricultural processes and meteorological features that influenced the life of the Nazca people. We consider geoglyphs a vivid example of the form of social communication of ancient Peruvians.

"Metal products" - this is what we called the next low-frequency form of social communication, which was distributed in certain regions of Ancient Peru. The essence of this form of social communication was that the mental products of various economic, religious and household functions of the members of the tribe served as a means of exchanging socially and vitally important information. Perhaps another function was in this form of social

communication, which we called "Feline sacralization". The fact is that on the territory of both Ancient Peru and modern Peru, the cult of feline predators is widespread. In a sacred sense, predators of the cat family were considered a symbol of power, which must be protected by force. The symbol of such power was wild and strong animals with fangs - tiger, tigrillo, puma (mountain lion), jaguar (otorongo), Andean wild cat, lynx; chokenchinchai, or golden jaguar, etc. (Porras, 2009).

«Big cats in the Andean region, especially the jaguar and puma, were mythologized by pre-Hispanic cultures as the ultimate expression of power over earth, sky, and the nonhuman world. Similarly, feline deities were associated with the rainy world in the Andes and on the ocean coast, and in the case of the jaguar or otorongo, with the wet jungle. They received the gift of generating water, which they had dreamed of for so long. Water was necessary for the fertility and productivity of the land. Such qualities make cats a direct symbol of the union of forces necessary for the continuity and origin of life» (Porras, 2009).

In our opinion, from the point of view of the social communication system, representatives of the feline family in ancient pre-Columbian Peru were identified with the exchange of information about strength, power and superhuman abilities, moisture and sunlight, necessary for strengthening strength and power. The image of sacralized felines marked the socially important personalities of the tribe and distinguished them from ordinary tribesmen.

A unique form of social communication of the ancient Peruvians should be considered the process of changing the shape of the skull, which we called in the working mode "Deformation of the skull".

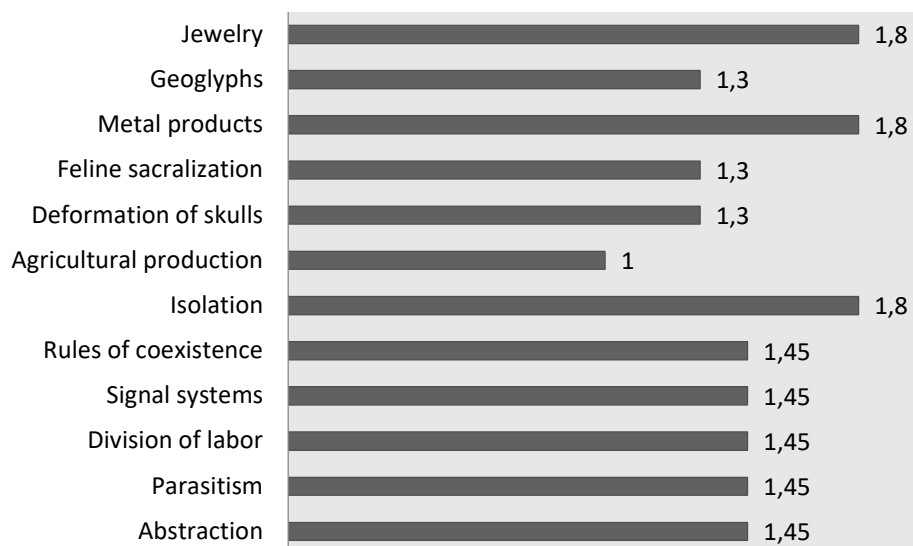
«Artificial deformations of the human head have a remote origin and are common on all continents. In Peru, the most diverse and incredible forms were presented. Of course, it is not known why our ancestors made these deformations, and they can be many, from aesthetic, ethical, social differentiation, economic, moral, magical, religious, as a national currency, etc.» (Borja, & Calla, 2014).

The artificial deformation of the skull of the ancient Peruvians, in our opinion, marked social communication as a means of information exchange, which signalled to the environment either the low social status of the person or that the deformed skull means work. There is also an opinion that the deformation of the skull was carried out only as a sign of elite individuals who had certain social preferences in the tribe. In any case, we consider the deformation of the skull, which is found among the archaeological finds in the burial of ancient Peruvians, a form of social communication.

We introduced the name «Agriculture» in diagram 4 (see below) to a form of social communication that included the social work of ancient Peruvians during agricultural operations (cultivating fields, planting and processing sprouts, harvesting, etc.). The agricultural work of tribal members allowed for the exchange of social and greeting information that regulated social actions and interactions.

Diagram 4. Indicators of the number (%) of forms of social communication in the period from the Paleolithic to 700 AD .

(in the frequency range from 1.0% to 1.9%)



The term "Isolation" is proposed by us to denote a form of social communication that was focused on a separate tribe of a separate culture of the ancient Peruvians. We are talking about the people of the Caral culture, which did not spread information to the ancient cultures of Europe and Asia, but had close social and cultural relations with representatives of other Andean cultures. So, the specific form of social communication of the Karal culture was their relative social isolation.

The processes of socialization of members of the tribes of different cultures of pre-Columbian Peru have been conventionally called "Rules of Coexistence", thanks to which the social statuses and roles of the members of the tribes were differentiated. The exchange of information took place at tribal levels in determined situations, which we regard as a form of social communication.

By «signalling systems» we called the form of social communication by which the ancient Peruvians notified each other of danger, prey, tribal gatherings, etc. By the term «Division of labour» we meant a form of social communication that allowed women to remain in places protected from predators and weather, take care of children, prepare food and wait for the male part of the tribe who was out hunting or making traps for the upcoming hunt.

One of the rare forms of social communication found in diagram 4 (see below) is called parasitism. This form meant the absence of agricultural labour in the tribe and the presence of gathering, fishing and consumption of what «nature gives». In the course of the parasitic way of existence, the exchange of social information took place through various channels and thus allowed to regulation of social actions and interactions between members of the tribe.

Finally, we identified a form of social communication called «Abstraction», referring to the ability of the ancient Peruvians to believe in the invisible forces of nature. The formation of

faith made it possible to carry out elementary social communications using "communication" with idols, deities, etc.

Discussion of results

We analyzed not only the indicators of high frequency but also paid attention to the specificity of the quality of the types and forms of social communications inherent in the seven analyzed cultures of primitive Peruvians of the Paleolithic, Lithic, Chavin (8 thousand BC – 3.5 thousand BC) cultures, Karal, Chavin (1.2 thousand BC - 400 BC), Nazca and Vikus.

Based on the results of the analysis, we singled out several specific features of social communications of the mentioned seven cultures of pre-Columbian Peru, which have different interpretations in different theoretical concepts and different scientific schools.

Next, we offer our interpretation, based on the postulates of holism (Smuts, 1926), double-aspect monism, or double-aspect theory (Double-aspect theory, 2024), the method of quantum chronos, which we described at the beginning of the study (Холод, 2020: 32–67) and the SI-analysis method (socio-engineering analysis) (Холод, 2015: 21–25). Our interpretation of the obtained results concerns only trends in the development of social communication processes, taking into account the concept of a technological boom (Paige, & Perreault, 2024).

From the standpoint of holism, we propose to perceive the various forms and types of social communications of the seven cultures of pre-Columbian Peru that we have considered earlier as seven elements of a creative system called the «Whole». All forms and types of the seven cultures of Peru analyzed by us (in the period from 35–40 million years BC to 700 AD) are elements of the Whole, which should be understood as a local matrix of Andean cultures that are «woven» into another global matrix of world cultures. At the same time, we see the holistic aspect of the manifestation of the forms and types of social communication of the ancient Peruvians in the ability to respond creatively «to environmental stressors, a process in which parts naturally work together to bring the whole to more advanced states» (Holism, 2024). Our interpretation means that the influence of stress factors in the development of the seven cultures of the Peruvians of the mentioned period was explained in a non-standard, or linear order of the unfolding of history, but in a holographic order. We equate such a holographic order with the way nerve fibres from the human skin send disparate impulses from different receptors to the human brain, and the brain, perceiving such impulses in a systematic order, accumulates such impulses and reacts, creating a holographic image of a stressful situation. The result of such a process is a holographic-complex reaction of the brain to stimuli coming from different parts of the human skin (Eagleman, 2020).

Thus, we identify the tendency of the human brain's reaction to irritating (especially stressful) factors with those tendencies and processes that occurred in seven cultures of pre-Columbian Peru during the period from 35–40 million years BC. to 700 AD For each stressful social or natural cultural factor, the Peruvians accumulated and synthesized the received information in a holographic manner and created new forms and types of social communications.

Based on a kind of monistic view of social communications from the side of the double-aspect theory (Double-aspect theory, 2024), we consider various forms and types of social communications of seven cultures of ancient Peruvians of the mentioned period as a unity of mental and physical aspects of one substance. Such holistic unity is due to the conditions of existence of Peruvians of seven different cultures and the convergent processes of combination with the spiritual beginning of the peoples of each Andean culture analyzed by us.

Considering the main positions of the quantum chronos method (Холод, 2020: 32–67), we are thinking that the evaluation of social communications must be carried out based on the basic

provisions of quantum mechanics, transferred from the atomic microcosm to the physical dimension of the macrocosm. The method of quantum chronos made it possible to attribute all the analyzed forms and types of social communications of the ancient Peruvians who lived from 35 to 40 million BC to 700 AD to the diachronic. This status (diachronicity) of social communications allowed us to apply concepts and principles of quantum mechanics of the microcosm. First, we analyzed the artefacts and their functions in the process of social communication of ancient Peruvians taking into account the episteme (the knowledge system of the historical era that was analyzed). Secondly, during the analysis of the forms and types of social communications of seven cultures of ancient Peruvians, we conducted a thought experiment, which allowed us to address the basic concepts of the quantum mechanics of the microcosm (the principle of uncertainty, the principle of complementarity, and the meaning of the concept of "superposition").

Taking into account the two mentioned positions (epistemic science and quantum mechanics), we interpret the forms and types of social communications of representatives of seven ancient Andean Peruvian cultures as such that:

1) have an undefined meaning in the sense of the impossibility of combining, on the one hand, social influence on the development of forms and types of social communications, on the other hand, subjective influence on the forms and types of social communications; in other words, we cannot unambiguously measure and evaluate (even taking into account the modern episteme of ancient Peruvians) the functionality of social communications of the seven analyzed cultures of ancient Peru;

2) must be supplemented by two factors, namely: the first factor is the energy that was "charged" or given by the ancient Peruvian artist – the manufacturer of a specific vessel, for example, ceramic or gold, stone or metal, weaving or geoglyphic, etc., not passed down through the millennia; the second factor is the materialistic concept of "time", which is not explained either by the drawings, the shape of the product, or the effort spent on making the product; a separate analysis of each factor without taking into account the duality of their synthesis cannot provide us with an objective Holistic (in the holistic sense) picture;

3) do not simultaneously record two states of functioning of the products of activity within the limits of a certain culture; in other words, the researcher needs to understand that the product of activity has two different states: on the one hand, it (the product of activity) is in superposition to the researcher, on the other hand, to the episteme as an artefact (artificial fact); the mentioned duality indicates that the episteme is expressed not only in a material form but also in a spiritual-energy form (it transmits the spirit of the people, culture, their energy; since there are only a few publications in science about the unit of non-quantum measurement of the mentioned energy (Ku, 1915; Ford, 2012), we leave discussion on this topic to future research.

Applying the method of SI analysis (social engineering analysis) (Холод, 2015: 21–25), we established that today's model of scientific research of forms and types of social communication of seven Andean cultures of ancient Peruvian tribes that existed from 35-40 million BC to 700 AD, is not valid and objectively verifiable. Firstly, the existing research model of the mentioned tribes of the mentioned period was based on a materialistic vision of historical processes, which did not holistic nature of the research subject (social communications). Secondly, the holistic approach involves a different study model for the dual (material-spiritual-energetic) nature of social communications. Thirdly, the verification of the holistic approach to the study of the history of development and transformations of forms and types of social communications allows us to state other (different) conclusions regarding the functionality, quality and pragmatics of such forms and types.

An important factor influencing the material and spiritual-energetic transformation of the forms and types of social communication of the ancient Peruvians of the period from 35-40 million years BC. to 700 AD, in our opinion, was what in the scientific circulation of recent years is called "cumulative culture" (Paige, & Perreault, 2024; Гайдамашко, 2024), or the theory of cumulative culture. The latter involves the thesis that the accumulation of human knowledge and technologies for processing stone, wood, and metal accumulated and caused a technological boom.

«Scientists now say that the jump in the complexity of the stone tools we find in ancient cultural layers suggests that hominid knowledge experienced a sudden increase around 600,000 years ago» (Paige, & Perreault, 2024).

The given opinion of the researchers can explain the transformation of the forms and types of social communication of the ancient Peruvians of the analyzed seven Andean cultures. We combine the mentioned interpretation from the perspective of the theory of cumulative culture with the theory of holism. From this, we can conclude that the new approach (synthesis of spiritual-energetic and materialistic postulates) to the analysis of social communication processes has the potential of objectivity, which is close to establishing the truth in comparison with the traditional (materialistic) approach. It should be taken into account that the theory of cumulative culture involves the generation of the following two elements: the results of random mutations and natural selection. Let's add the third element of such generation, namely the spiritual-energetic element, and we will be able to get an objective integral Whole.

People will «use and develop technologies without the need to fully understand every aspect of their development, opening the way to an ever-growing and adaptive pool of knowledge. As this collective knowledge and associated behaviour grew, so did the genes that influence learning» (Гайдамашко, 2024).

The use of various forms and types of social communication by the representatives of the seven Andean cultures analyzed by us was motivated by the processes of co-evolution of genes and culture, which the authors of the studies did not take into account before. We add that "early hominins may also have relied on cumulative culture to develop complex social, dietary, and technological behaviours that we may not see archaeologically" (Paige, & Perreault, 2024). Proceeding from the last thesis prediction, we understand that social-communication manifestations of cumulative culture today do not have a clear evidential explanation in archaeological artefacts. At the same time, they have a clear conceptual basis in the holistic analysis, which assumes the existence of the Whole, a material-spiritual-energetic synthesis. He is "responsible" for the formation of specific historical forms and types of social communications of the Andean tribes of ancient Peru, and any tribes of any region of the Earth.

Conclusions

1. At the beginning of the research, we formulated the goal of identifying, describing and classifying the main forms and types of social communication of seven ancient Peruvian cultures (the Paleolithic era, the lithic period, the Chavin (8 thousand years BC – 3.5 thousand years BC), Karal, Chavin (1.2 thousand BC – 400 BC), Nazca and Vicus.), which existed in the period from 35 to 40 million years before not. to 700 AD the set goal was fully achieved.

2. We have identified and described 49 forms and 7 main types of social communication during the analyzed period in the life of seven Peruvian cultures.

2.1. The peculiarities of the seven types of social communications specified in point 2 were their actual «ability to differentiate into a spiritual-energetic component (belief, sacrifice, ceremonies, visualization) and a material-practical component (society, architecture, logistics, convergence). The mentioned differentiation proves our opinion about the holistic principle of explanation of trends in the macro world of quantum principles and concepts of the micro world.

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Conflict of interest

There is no conflict of interest.

Ethics

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**Основні форми та види соціальних комунікацій
семи андських культур Перу
(період від 35–40 млн років до н. е. до 700 р. н. е.)**

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Анотація

Мета дослідження полягала у виявленні, описі та класифікації основних форм і типів соціальних комунікацій семи стародавніх перуанських культур (палеоліту, літичного періоду, Чавін (8 тис. до н. е. – 3,5 тис. до н. е.), Карал, Чавін (1,2 тис. до н. е. – 400 р. до н.е.), Наска і Вікус), які існували з 35–40 мільйонів років до нашої ери по 700 рік нашої ери.

У дослідженні було задіяно чотири методи. Холістичний підхід до аналізу історії соціальних комунікацій допоміг нам проаналізувати всі явища, процеси та об'єкти світу як частини Цілого. Метод квантового хроноса передав аналіз комунікаційних процесів і текстів, археологічних знахідок, які були поширені за допомогою різних комунікаційних каналів щонайменше за 75 років до моменту їх (комунікаційних процесів і текстів) аналізу. Завдяки методу соціально-інженерного аналізу ми визначили модель для дослідження форм і типів соціальних комунікацій культур Стародавньої Перу, створили ще одну модель для аналізу форм і типів соціальних комунікацій, перевірили ефективність створеної моделі. Теорія кумулятивної культури додала можливість розглядати форми й типи соціальних комунікацій народів семи стародавніх андських культур у конвергентному плані.

Методика передбачала виділення семи андських культур в історії розвитку Перу, які залишили значні для аналізу, на думку археологів, артефакти. Потім запропонований детальний опис форм соціальної комунікації, які гіпотетично функціонували в кожній із семи проаналізованих культур. Кодифікація та класифікація форм та ідентифікація типів соціальної комунікації проаналізованих нами культур продовжили наш процес аналізу. Під час обговорення результатів ми завершили процедуру, застосували вищезгадані методи аналізу й виділили особливості кожного виду.

Результати досліджень дали змогу констатувати факт зближення духовно-енергетичної та матеріально-технічної складових семи андських культур, що функціонували в період палеоліту (35–40 рр. до н. е. – 700 р. н. е.) на території, що належить до території сучасної Перу.

Ключові слова: соціальні комунікації, андські культури Перу, холістичний підхід, метод квантового хроноса, метод соціально-інженерного аналізу, теорія кумулятивної культури.

