

PETROGLYPHS

SOUTH KAZAKHSTAN



LABORATORY OF GEOARCHAEOLOGY

MONUMENTS OF ROCK ART

PICTOGRAMS AND PETROGLYPHS, BY THEIR ANTIQUITY, DIFFUSION, QUANTITY, SIGNIFICANCE AND AESTHETIC POWER, REPRESENT BY FAR THE MOST IMPORTANT RECORD OF THE HISTORY OF HUMAN BEINGS AND THE RICHEST DOCUMENT ABOUT THEIR ECOSYSTEM AND INTELLECTUAL LIFE BEFORE THE USE OF WRITING

WHEN PROVIDED WITH DATING THROUGH LABORATORY TECHNIQUES OR THROUGH CORRELATION WITH THE SURROUNDING ARCHAEOLOGICAL COMPLEX, PETROGLYPHS CAN EQUAL THE SCIENTIFIC ROLE OF CERAMICS IN DEFINING CULTURES AND HISTORICAL PERIODS

PETROGLYPHS SURVIVED TO THE PRESENT DAY WELL PROTECTED FROM WEATHERING AGENTS BY THE DURABILITY OF THE ROCK

TODAY, EXPOSED IN OPEN AIR SITES, THEY CONSTITUTE THE GREATEST ART MUSEUM ON THE PLANET AND AT THE SAME TIME THE MOST VULNERABLE MONUMENTS TO IGNORANT HUMAN ACTION AND DISTURBANCE. ONLY RESPECT, SCIENTIFIC UNDERSTANDING, PUBLIC EDUCATION AND SOCIAL CONCERN CAN SAVE THEM FROM DESTRUCTION

AT PRESENT ONLY 23 OF THE MILLIONS OF ROCK ART SITES OF THE PLANET ARE NOMINATED IN THE WORLD HERITAGE LIST OF UNESCO. THE SITE OF TAMGALY, IN KAZAKHSTAN, IS ONE OF THEM

Cover illustration: Petroglyph scene of an auroch (wild bull) assaulted from the left side (by animal predators and humans) and worshipped from the right side (by man, woman and child). Middle Bronze Age (1600-1300 BC), Kuljabasy (Chu-Ili mountains, Kazakhstan)

RENATO SALA, JEANMARC DEOM

**PETROGLYPHS
OF
SOUTH KAZAKHSTAN**

Laboratory of Geo-Archaeology:ONTENTS

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PREFACE

The year 2004 can be considered as the beginning or at least the most important step in the popularization and cultural protection of the petroglyphs of Kazakhstan. Everything started with the organization of an exhibition in Almaty, which further opened in Chimkent and Turkestan, and attracted all together more than 50000 visitors of every age and social class. The exhibition is now going to Astana and Taldykorgan, accompanied by the publication of this catalogue in both Russian and English; and most possibly it will keep circulating in Central Asia and abroad for several years.

Authors - The exhibition and catalogue “Petroglyphs of South Kazakhstan” are the fruit of the work of 2 scientists of the “Laboratory of Geo-archaeology” (“Centre of Geologo-Geographical Research”, Ministry of Science, KZ): *Renato Sala* (text and all photos concerning Kazakhstan) and *Jean Marc Deom* (organization and redaction).

Scientific Partners - The material is provided by many years of scientific cooperation with members of:

- Laboratory of Geo-Archeology (under the direction of prof. Bolat Aubekeroev, geologist)
- Archaeological Department of the “Institute for Study and Conservation of Monuments of Material Culture” NIPI PMK (under the direction of Alexei Rogozhinskiy, archaeologist).

Financial Sponsors - Sponsor agencies are:

- SOROS Foundation KZ for supporting the printing of the catalogue
- European Commission (INTAS, EC Delegation Kazakhstan) for the implementation of the exhibition
- UNESCO for promoting the educational circulation of the exhibition among the young generations of the Almaty province

Objectives – The main objective of the exhibition and of this catalogue is to inform about the existence, value and vulnerability of the monumental heritage constituted by the petroglyphs of the country; and to promote interest for this rare message inscribed on rocks that comes from the past, together with respect and concern for its conservation.

Target groups - The exhibition and the catalogue are addressed to the intelligentsia and public authorities of Kazakhstan for promoting procedures for the *legal* protection of every single petroglyph, and *physical* protection of the main petroglyph sites of the country. They are addressed in particular to the young Kazakh generations for promoting the *cultural* protection of these vulnerable monuments. They are also addressed to all people of Kazakhstan with the hope that in these modern times they will keep developing the traditional veneration for the elders and their most ancient memorials.

LABORATORY OF GEO-ARCHAEOLOGY (“Centre of Geologo-Geographical Research”, Ministry of Science, KZ). The laboratory was founded in 2004 in commemoration of the birth of Alan Medoev, who pioneered geo-archaeological studies in KZ. It is a scientific organization that introduces to Kazakhstan geo-archaeological methods in the study of ancient habitats and historical monuments. It is in this context that the scientific documentation included in the exhibition and catalogue about the petroglyphs of South-Kazakhstan have been elaborated **NIPI PMK** (Ministry of Culture, Information and Sport; KZ). This is the main national institute for the documentation and protection of the historical monumental heritage. It was the first in Kazakhstan to experiment with conservation measures for petroglyph sites, providing methods and scientific materials necessary for their study, protection and conservation **The EU COMMISSION**, through the “INTAS Program”, sponsored the geo-archaeological study of petroglyph sites of KZ; and, as “Almaty Delegation”, gave financial support for the popular diffusion, through the exhibition, of the scientific results of several years of multidisciplinary work **UNESCO** has been a major protagonist during the last 5 years in promoting and sponsoring the first steps for conservation measures of petroglyph sites in Kazakhstan and Central Asia **The SOROS Foundation-Kazakhstan**, devoted for several years to the promotion of a democratic open society in Kazakhstan, is becoming progressively concerned for its cultural heritage and is the sponsor of the publication of the present catalogue

EXTRACTS FROM THE BOOK

Homo sapiens has been engraving rock surfaces for more than 50000 years. In that way he transmits to the future, together with millions of images, precious information about old ways of life, of thinking and of inhabiting the planet

It is highly possible that these ancient images are messages, in the sense that they were conceived to be read in the future. Apparently they seem to be just portraits of animals and humans, but they often present strange figures and by that make us suspect deeper meanings. To understand them in their depth is a difficult job: we must reconstruct their ecological and social context and decipher the visual language used by the authors. What is clearly manifested is the absolute importance of the animal world in the life of our ancestors and the high aesthetic taste with which it has been depicted.

South Kazakhstan hosts one of the biggest collections of petroglyphs on earth. They are located where 3 factors are present together: good rock outcrops, human habitats and interregional roads.

Central Asia covers a huge territory characterized by similar natural features and historical events, which explains the strong analogies existing among different petroglyph sites. In South Kazakhstan 6 main sites, counting more than 4000 figures, and thousands of medium and small size have been found. Their development happened during the same time (1800 BC - 1300 AD) and across the same 7 chronological periods, a fact that defines the existence of a large homogeneous petroglyph cultural area.

Together with their homogeneities, the sites of South Kazakhstan show specific characteristics that allow their grouping into 3 main regions characterized by the existence of 3 ancient important interregional roads: the regions of the Karatau range, of the Chu-Ili range and of the Jungarian mountains.

ROCK ART: MESSAGES WITH AESTHETIC POWER

It is highly possible that these ancient images are messages, in the sense that they were conceived to be read in the future. Apparently they seem to be just portraits of animals and humans, but they often present strange figures that make us suspect deeper meanings. To understand them in their depth is a difficult job: we must reconstruct their ecological and social context and decipher the visual language used by the authors. What is clearly manifested is the absolute importance of the animal world in the life of our ancestors and the high aesthetic taste with which it has been depicted.

2.1 - Stone communication system

Questions concerning the social context, function, execution and meaning of rock art representations are very difficult to formulate and answer without the help of the semiotic sciences. There is something that is common in any simple action of putting or reading signs on stones, from Paleolithic cave paintings to modern graffiti: *they are acts within a process of communication composed of 6 elements: source, encoder, message, channel, decoder, receiver.*

- The **channel** is the material that supports and transmits the signs. It can be made of *stone, paper or microchips: the 3 most important communication systems* that have succeeded in human history. In the case of the petroglyphs of Kazakhstan the channel consists of smooth reflective rock surfaces (plus the sun-light that causes reflection) (**Fig 2.1**): they pre-exist the act of communication and their durability is counted by millennia.
- The **source** is the engraver, the **receiver** is the spectator. Source and receiver can be very distant in time due to the durability of the channel (the first sources are more than 20.000 years away from us). The opposite extreme is when the source and the receiver are intended to be the same person, as in ritual-magic performances: in this case the interpretation of the full meaning of the message, because it is related to existential biographical data, will be practically impossible.
- Source and receiver can be so distant in time that **encoding** and **decoding** schemes are no longer in phase, making the decipherment of former signs problematic in later epochs. This fact explains the difficulties of interpretation we are confronted with today, and it must be kept in mind even when studying a diachronic composition of figures of different epochs on the same surface or the organic evolution in time of a whole petroglyph site.
- The **message** consists of single petroglyph figures, of compositions of figures on the same surface, and of the whole petroglyph site itself. The entire rock art heritage of the world must be understood as the **archive** of the whole activity of the stone-channeled communication system: a huge message collectively sent to us from the past, still largely un-discovered, un-documented and un-deciphered.

2.2 - Semiotic analyses

The source and the encoding criteria are gone, their message stands. We, as receivers, must document this message, preserve it, and learn to decode and read it. To decode is a difficult job: codes change in history so that those we automatically use today present more difficulties than help.

Semiotic sciences can help by providing methodological lines for the syntactic (a), pragmatic (b) and semantic (c) study of petroglyph complexes.

a - First of all the message must be analyzed in itself, in its purely spatial and figurative traits, by **syntactic-stylistic** analyses of the spatial features of the engravings as well as of their rocky support. By features of the rocky support we mean the location and theatrical disposition of the rocks (in a cave, in a canyon, on a mountain top or on a flat land) (**Fig 2.1, 2.2**); the orientation of the rock surface (horizontal or vertical) and some specific characteristics such as its form and smoothness, the presence or absence of fissures, etc) (**Fig 2.3**). The engravings themselves must be analyzed on several levels: their virtual spatial planes (there can be one or many, in the last case with perspective effects) (**Fig 7.6**); the basic features of a single image (animal figures are mostly shown by profile, humans by frontal view); the spatial arrangement of several images on the same surface (the composition of several figures can be done in many ways, following laws of equilibrium, of opposition, etc.); the spatial arrangement of engraved surfaces within a petroglyph group (*Medoev 1979*)

b - The message must be studied in its relationship with the sender who engraved it. This is called **pragmatic** analysis and consists of the study of the ecological-social context, function-use, material execution of the message.

- Concerning the **context**, the collection of additional information about ecological and cultural elements surrounding the site is most important: the cultural landscape framing the figures (landscape context) (**Fig 2.3**); the remains of human habitats within the site (the paleo-ecological features of the territory and the various monuments of the archaeological complex), an investigation that must be supported by ethnographic accounts (ethnographical context) (**Fig 2.4, 8.4, 11.3**). In general and very approximately, the scientific literature distinguishes 4 main kinds of socio-economical contexts and correlated types of representation: ancient hunters (single figures), evolved hunters' communities (simple scenes), shepherds' clans (detailed scenes of everyday life), complex societies such as tribes and chiefdoms (complex compositions with an abundance of grammatical-abstract signs).

- Concerning the **function-use**, different researchers, referring to different sites and different historical periods, attempt to recognize in petroglyphs different kinds of function and use: signs of cults of places or of stones; ritual figures endowed with propitiatory or magic powers; elements of open air sanctuaries; graphic representation of cosmological orders or mythological scenes; creations in altered states of mind (shamanic travels); memorials of ritual acts or of narrative, funerary or inter-generational nature; marks of land ownership or political power; signs left by migrating tribes or travelers; and individual artistic expressions aiming to satisfy our sense of beauty through the representation of natural wonders. All these cases are often classified in 3 main groups: affirmation of presence; testimony of mythological, psychical or real events; and ritual tools for influencing the world (magic, educational, political, etc) (Clottes 2002).

Most probably each of these functions and uses happened to be true in different cases, regions and times. Even the same figure could have been used in different ways during different times or by different individuals, and eventually refreshed periodically with different purposes, as testified by ethnographic accounts (Australia, North America).

Referring to Kazakhstan, at the present state of knowledge, most of the executions of petroglyphs seem to have been consciously conceived as cultic objects, artistic expression of world orders, memorials and land-marks of migratory tribes.

- The **material execution** happened in different contexts and by different techniques. It could have occurred through collective or individual decision, in a ritualistic or existential scenario, in an altered or normal state of mind. All the cases are testified by ethnographic accounts. The engraving technique consists in removing material from the rock substratum, which can be done in several ways: by using different instruments [stone (Fig 7.3), metal (Fig 7.5)]; by different expedients [pecking or hammering dots (Fig 7.5), tracing or scratching lines (Fig 10.6), scraping-abrading the surface (Fig 8.10)]; by different outlines [linear (Fig 7.4), contour (Fig 7.3), bas-relief silhouette (Fig 7.6), rarely high-reliefs (Fig 2.10, 8.6)]. Quite often the natural asperities and cracks of the rock surface are used as elements of the figurative composition (Fig 2.3) and forms of the rocks as proto-statues (Fig 12.3-8). Individual authors can be recognized by traceological analyses from the earliest times. Moreover we cannot forget that in the building of a large petroglyph site the principle of accumulation is very important, i.e. the fact that, given the material conditions, the initial deposition of figures attracts the accumulation of further figures.

c - Finally, the message must be studied for the interpretation of its **meaning**, i.e. the relation between the engraved figure (**signifier**) and the referred object (**signified**). This level, called **semantic**, is strictly dependent on the pragmatic level and it conditions the characters of the syntactic one. In some cases the semantic analysis provides the decipherment of the encoding patterns of the source and the interpretation of the message. Potentially, applied to petroglyphs, it can provide the reconstruction of form and content of the semantic cosmos of prehistoric artists and cultures, a study that encounters many difficulties.

During history, language changes and with it also change the encoding-decoding criteria and the use of rhetoric forms. Some artists and epochs spoke by direct denotations of real objects; others began to use metaphors, symbols and iconic forms.

Most of the single petroglyph figures are very easy to interpret and appear to be simple denotations: we can immediately recognize animals, men, social scenes, objects. Difficulties in interpretation start when we are confronted with: abstract signs (cup-marks, points, lines, circles, triangles, squares, arrows, labyrinths) which, already present as ideograms in the cave-art of Australia, France and Spain (33.000 BP), are as old as the figurative representations (Fig 2.5); with representations of objects today forgotten or used in another way (hands and foot prints) (Fig 2.6); with recurrent cryptic associations between figures (deer-snake, horns-sun) (Fig 2.7, 2.8); with absurd figures (such as horned horses, horned camels, horned wolves, sun-heads, and mirror-heads) (Fig 2.9, 2.10); or with the interpretation of the internal theatrical structure of a whole rock group or of a whole petroglyph site (Fig 2.11).

2.3 - The message

The semiotic considerations discussed above give the idea of the difficulty in interpreting rock art messages. This study is based on complex elements pertaining on one side to the pragmatic context and on the other to the morphological constituents of the engravings and of the whole site. Moreover, the cultural traditions that created the rock art images disappeared long ago so that, even if during the last century some ethnographic accounts concerning artistic performances have been recorded, today we are left with very scanty pragmatic data concerning the senders and their original codes. In any case, without attempting detailed decipherments, a cautious scientific approach and the abundant record at disposition allow us to advance some general considerations about the meaning of the global phenomenon of rock art.

The interpretation of the global phenomenon of rock art and in particular of its manifestation in Kazakhstan cannot be attempted without considering the conditions and transformations of the ecological and historical background. It is a fact that more than 90% of the pictograms and petroglyph subjects in the world of all epochs consist of figures of animals and of humans very often endowed with animal attributes (which represents a classification zoologically correct), both emphasized in their naturalism, wonderful beauty and freedom.

Not all the animals are represented, of course, but just the biggest in size: more or less all those that can constitute a possible physical or mental challenge or those that are wanted as prey. We must consider that until 20000 years ago the human population was not such a widespread species as is today: like our concurrent big predators, it was counted not by billions but by thousands of individuals, so that at these times in several regions Homo sapiens himself was a rare species at risk of extinction. We must consider that wild animals, today so rare, were much more abundant and their herds were wandering as living protagonists around the sites where they were represented: "The quantity of herds of big herbivorous in the tundra-steppes of the late-Pleistocene was the same as that of the African savannas or of the American prairies before the coming of the Europeans" (Medoev 1979). It looks as if the first and deepest message carried to us by the rock art creations is a sense of equal power and ecological equilibrium between animals and men, and that fear and sympathetic respect for the animal condition were the main characteristics of the behavior of Homo sapiens until relatively recent times.

Then something happened that disturbed the former harmony. The human species underwent a sudden rise of power that made all the large mammals represented in the rock art or extinct or at risk of extinction. The ones that still survive today are domesticated or inscribed in the red book of endangered species (**Fig 2.12-24**). With the extinction or domestication of our equals, competitors and prey, the human concern for the animal world declined to nothing and our tendencies to confrontation, conflict and exploitation switched from the animal world to the relation with our human neighbor that was growing in number. That process happened relatively recently: it started in the Late Paleolithic with the invention of the bow that changed humans from collectors, fishermen and scavengers to skilled hunters (30000 BC); and had a definitive acceleration during the Holocene with the development of domestication, agriculture and settled life, with the smelting of metals and the invention of the plough and of other productive technologies. These events provoked uncontrollable human demographic growth, deep changes of sexual rules and social structure and, finally, the rise of markets and urbanization. By the end of the II millennium BC the signs of an ecological imbalance were clear all over Eurasia.

Today our culture is very far from any concern for animals. The silent regulation of the relations between animals and humans gave way to an explosion of verbal tools, in the form of laws, ideologies and religions, for regulating the increasing levels of interaction and conflict between humans. In fact all social institutions, ideologies (with the exception of ecology) and all religions (with the exception of Buddhism) still professed today in the world are strictly anthropocentric. They are the historical result of a switch of attention from the global phenomenon of life (as testified in the rock art representations) to a narrow concern for the human or just the individual existence, provoking a general contraction and "egotization" of the human consciousness.

The petroglyphs of Kazakhstan, mainly dated to the Bronze Age, just on the verge of the ecological catastrophe, are the last and most authentic witness of the pre-political and pre-religious human-animal world before the fall. Ecology and Buddhism, because they are endowed with characters of global compassion, are possibly the first signs of a trend towards a new planetarian consciousness and harmony.

2.4 - The aesthetic power

Both visitors and readers must try to interpret by themselves, in the light of these few guidelines, the wide archive of the petroglyphs of Kazakhstan, beautifully displayed by maps and photos in this exhibition and catalogue. Fortunately for those who do not want to read and think too much, most of the petroglyphs documented by photos in this book are executed by highly skilled artists, able to convey a message just by satisfying our visual sense of beauty and avoiding our decoding laziness and distortions. In the case of the best petroglyph representations, *the aesthetic power is the message...*

It would be a mistake to presuppose that stylistic skill and aesthetic value of rock art performances evolve gradually from early to later times. The phenomenon is more complex and more interesting: *as the quantity, so the quality of rock art production doesn't have a regular progression but blossoms and fades by regions and periods in different ways depending on complex factors.* The caves of Australia, South Africa, France, Spain and open air surfaces of Portugal and Gobustan host rock art representations tens of thousands of years old that are classed among the highest artistic chef d'oeuvres of all times. Moreover, together with figures, these ancient sites present more than 10 different ideograms, which would be enough to constitute an alphabet. These facts show that Late Paleolithic man is already in possession of our figurative and logic capacities. *It seems that evolution in the last 50000 years happened not on aesthetic or logical levels but on social and technical ones.*

2.5 - Protection, conservation and presentation of the petroglyph archive

Rock art, even if protected by caves or by the durability of the rock, is still exposed throughout the millennia to the slow action of weathering agents and biological and animal disturbances, so that the number of creations that arrived to us represent a very small part of the total performance. Pictograms are more vulnerable than petroglyphs; and petroglyphs are more durable when engraved on vertical surfaces of hard rock breed than when on horizontal surfaces of soft limestone.

During the last century the degradation of these invaluable documents has accelerated enormously due to the spread of anthropogenic and technogenic disturbances. Today this process is growing with ravaging speed putting the

whole archive at risk of deterioration or of total destruction in the very near future. Dams, quarries, pollution, vandalism, removal, graffiti, and tourism are the main responsible factors.

The landscape surrounding the rock art monuments, an integral part of their existence, is deteriorating even faster. In most of the sites the original landscape is already largely gone under the pressure of the high human demographic levels and of the compulsive tendency towards a total use of the planetarian space for economical objectives. Even in the case of protected monuments and archaeological parks, the expedients for protection (fences, guardians, tickets) and visitors' itineraries (paved tracks, facilities for old persons and handicapped, educational boards, kiosks, etc) help to bring a daily crowd and hundred of thousands of persons per year to a site without spirit, managed with bad taste and reduced to its minimal figurative remains. At the times of its glory, that site was surrounded by animal and human habitats in harmonious proportion, or was reached at the price of a long journey across an immaculate landscape!

To oppose such a disaster, some measures must be implemented. To ensure the endurance of the scientific record it is urgent to proceed to the documentation of what will be lost. To decrease the speed of degradation, it is necessary to provide legal protection for all the ancient rock art performances, physical protection for the most significant of them and cultural protection through educational campaigns. To save the pragmatic significance, is necessary to respect or restore the natural and animal surrounding that favored the rise of the site, to protect the ethnographic context and to involve the concern of the local aboriginal population.

The popular exhibition of rock art sites must not have as an objective the maximization of the number of visitors but the preservation of their quality. The main part of the presentation must be done by publications, virtual reconstructions and museums. Physical visits must not be encouraged by compromising with tourist departments and easing the accessibility beyond the capacity of the original monument and its meaning as it was at the moment of its creation or of its discovery. As in the case of a mountain peak or a wild forest or a rare spring still pure, the journey to a rock art site must be regulated first of all by requiring from the pilgrim a physical and mental personal investment.

Several cultural organizations in the world are working for the implementation of the recording, protection and conservation measures spoken above: UNESCO (World), WARA (Italy), CNP (France), Tanum Centre (Sweden), UCLA (California), RARI (South Africa), AURA (Australia), IGNCA (India), NIPi PMK (Kazakhstan).

PETROGLYPHS OF SOUTH KAZAKHSTAN

geography, location, quantity

South Kazakhstan hosts one of the biggest collections of petroglyphs on earth. They are located where 3 factors are present together: good rock outcrops, human habitats and interregional roads.

3.1 – Geography of South Kazakhstan

The *Syrdarya* river and the *Tianshan* mountains represent a sharp natural and cultural boundary between south and north Central Asia. They draw the line where the Turanian deserts end together with the irrigation agricultural facilities, and the wide zone of northern steppe starts with its stock-rearing potential. **South Kazakhstan**, going from the Aral sea to the Chinese border (of which the eastern segment, from the Karatau mountains to the Jungarian Gate, is commonly called Semirechie) constitutes exactly that boundary (**Fig 3.1**). It is *a corridor 2000 km long and 300 km wide* where two opposite human worlds met, cooperated and fought during the last 4 thousand years: a southern world of settled farmers ruled by centralized powers under the influence of the Iranian culture; and a northern world of nomadic shepherds, socialized through changeable confederations of clans and tribes, exposed to cultural influences from Ural, Siberia and East Central Asia. Hence, South KZ presents the best example of the dual agricultural and pastoralist character of Central Asia, a privileged territory for understanding the complexity of landscapes and cultures, and the exotic beauty and secrets of the heart of Eurasia.

3.2 – Location of petroglyph sites

Rock art in the South Kazakhstan territory is mainly in the form of rock engravings (petroglyphs). A few cup-marks can be found on the top and ridges of isolated granite blocks, on horizontal surfaces, more rarely on vertical surfaces and in this case together with petroglyphs. Other art performances on stones, as high-relief, proto-sculpture and geoglyphs exist but are difficult to recognize and until now only those located at the site of Tasbas have been documented; rock paintings (pictograms) in KZ are rare like the rock shelters, and are found only in the rock shelters of the north-east provinces.

Petroglyph sites of different sizes are very abundant. Scientific observations of their location patterns suggest a *law of distribution* first of all depending on the presence of water. Water favors the exposition of good rock outcrops, the establishment of human habitats and, in the case of aligned oases, the localization of interregional roads. *Formally it is quite logical that these 3 factors (good rock material, ecological conditions for human habitats, natural interregional roads) favored the execution of petroglyphs, being that they respectively increase the number of potential channels, of sources and of receivers of the petroglyph message.*

Rock material of a quality necessary to become a channel of communication for engraved signs is represented by open air rock surfaces with some special characteristics. In order of importance these are: smoothness, a metallic patina, a convenient dimension, and an impressive natural frame of the surrounding landscape. Such material is not present everywhere. It is absent in the Tianshan and Jungarian mountains where tectonic breaks lifted gigantic intrusive granite blocks without smoothness and without patina. It is present in a band of northern piedmonts 100 km wide where tectonic events folded the flat peneplain and exposed sedimentary metamorphic rocks of sandstone and slate, which are the favorite materials for the petroglyph performance. In the case of South Kazakhstan such a band goes from the Karatau mountains in the west to the Chu-Ili mountains in the centre, to the northern piedmonts of the Jungarian range in the east (**Fig 3.2**).

Optimal ecological pre-conditions for **human habitats** of mixed farming-stock-rearing communities are provided by areas favoring a double residence, i.e. where summer and winter pastures are near enough to be a few hours walk from each other. The simplest case is represented by valleys where, under favorable climatic conditions and a limited population number, summer and winter pastures can be respectively constituted by the northern and southern slopes. Such conditions can be found in different landscapes like mountain meadows, piedmonts, desert oases and river canyons.

Given the former 2 conditions of the presence of suitable rocks and human habitats, the decisive factor for the location of the biggest petroglyph sites is the presence of alignments of oases constituting favorable conditions for **regional or interregional roads**. In South Kazakhstan, together with the Tianshan piedmonts, the most important interregional roads for animals and people are represented by 3 regular alignments of low-mountain oases: the **Karatau range** (orientated SE-NW) that presents the only green corridor between the Syrdarya basin and the pre-Ural territories; the **Chu-Ili range** (SE-NW) that represents a green bridge between the Chu and Ferghana valleys to the south and the territories of central-east Kazakhstan and south Siberia to the north; the **Jungarian piedmonts** (W-E) that provide a series of piedmont oases east of the Ili river connecting Semirechie with Jungaria, North Tarim and the Altai regions. The historical events that happened along these 3 roads are clearly reflected in the subjects and styles of the petroglyphs engraved on the rocks along the way.

3.3 - Quantity

Most of the petroglyphs of South Kazakhstan are located where the lithic geological band, the low-mountain ecological habitats and the 3 low-mountain roads described above intersect each other (**Fig 3.2**). Together they favored the creation of the biggest concentration of petroglyphs in Central Asia and one of the biggest on Earth. Big important sites are counted by tens, medium size sites by hundreds, small sites and scattered petroglyphs by thousands, engraved surfaces by hundred of thousands, and single figures by millions.

It is not exaggerating to say that in South Kazakhstan more or less every stone surface of average quality located not far from potential human habitats has been engraved: it is a gigantic performance of landscape culturalization deposited on a corridor of high geo-political importance and constituting a document of invaluable historical significance.