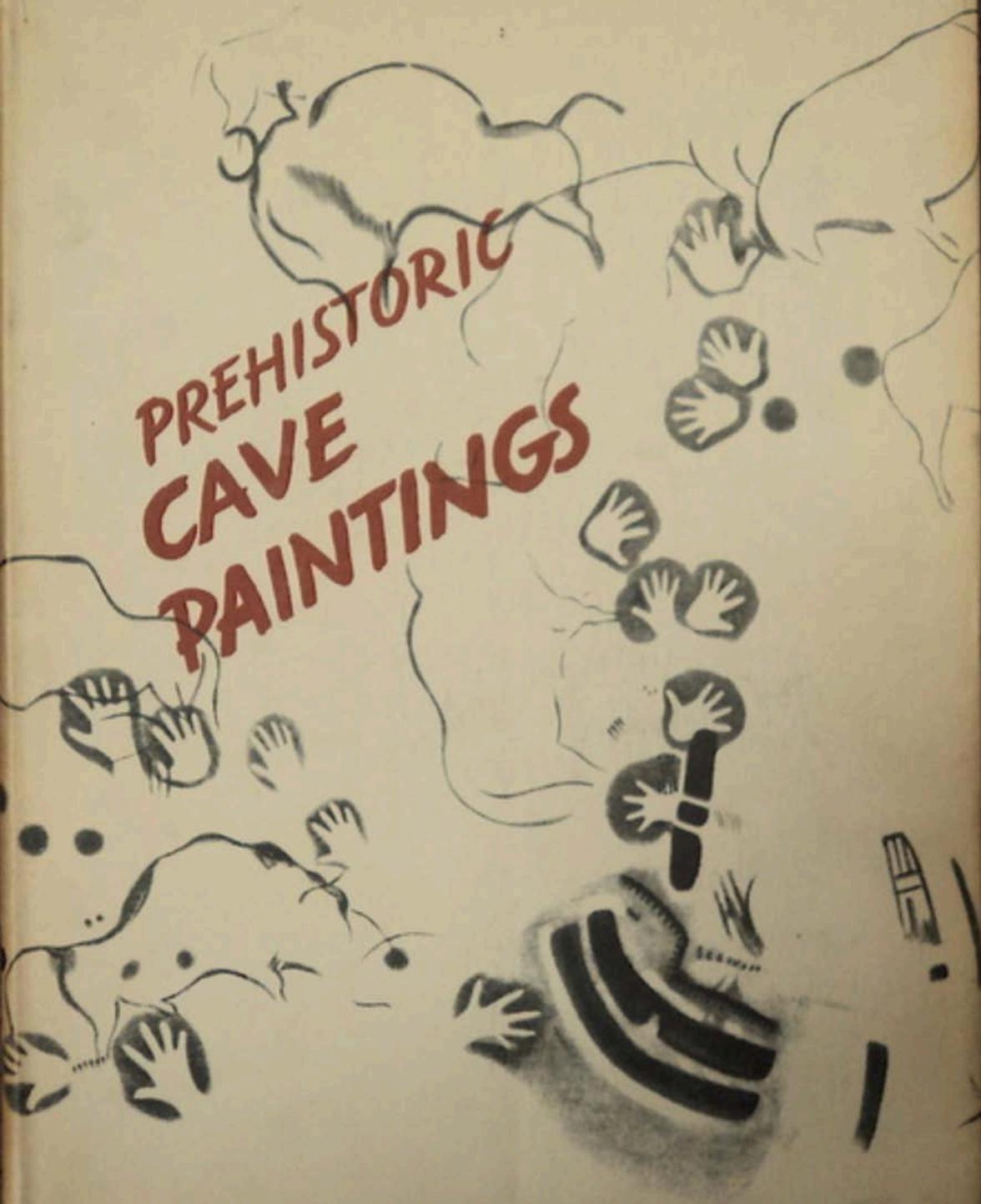


PREHISTORIC
CAVE
PAINTINGS



MAX RAPHAEL

PREHISTORIC
CAVE
PAINTINGS

TRANSLATION BY NORBERT GUTERMAN

THE BOLLINGEN SERIES IV

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L. Capitan et Breuil: *La Caverne de Font-de-Gaume*, 1910

Cartailhac et Breuil: *La Caverne d'Altamira*, 1906

Louis Capitan: *Les Gravures sur Cascade Stalagmitique de la Grotte de la Mairie de Teyjat*, 1912

The Elements of the Paleolithic World

The present study deals with the oldest known paintings; it does not deal with primitive art, even less with the beginnings of art. Disregarding paleontological or geological standards, archaeology, on the basis of known paleoliths, teaches us that the paleolithic era comprised at least two great phases. The first and earlier phase was common to Europe, North Africa and Asia Minor because several land bridges across the Mediterranean enabled the inhabitants of these continents to be in constant communication. In Europe, southwest and northeast of the Pyrenees, the interruption of this contact produced a development different from that which took place in regions that probably saw the beginnings of human civilization. And the examples of paleolithic art we possess come exclusively from this second phase of the Old Stone Age. But there is no reason to assume that art developed only then. The weapons represented in the cave paintings in Dordogne and Cantabria, as well as the logical and elaborate system of magic signs on the neolithic Egyptian pottery, indicate that wood painting and carving must have existed during the early paleolithic era; but because of the perishable nature of the material used, this art was lost forever. Only because the nature of history and the forms of art were theoretically misunderstood could these facts have been overlooked heretofore. Thus the dogma that paleolithic paintings belong to so-called primitive art gained favor. It has been said that paleolithic artists were incapable of dominating surfaces or reproducing space: that they could produce only individual animals, not groups, and certainly not compositions. The exact opposite of all this is true: we find not only groups, but compositions that occupy the length of an entire cave wall or the surface of a ceiling; we find representation of space, historical paintings, and even the golden section! But we find no primitive art.

Although the cave paintings appear modern to all who come in contact with them, in reality, there is no art more distant and alien to us who center our spiritual creation either on man or on man's relation to the gods he has created. Paleolithic art is centered around the animal; there is no place in it for the middle axis, for symmetry and balance inspired by the structure of the human body. Rather, everything is asymmetric and shifted. The objects are not represented as they appear when seen from a distance, as we are accustomed to seeing them in paintings from the times of classical antiquity, but as near at hand—for the paleolithic hunter struggled with the animal at close quarters, body against body; only the invention of the bow, which in the paleolithic age meant a revolution comparable to the invention of the boat and the plow in the neolithic age and of the steam engine in the Christian era, made the distant view possible. Finally, the object of paleolithic art is not to picture the individual existence of animals and men, but to depict their group existence, the herd and the horde. If, despite all that, the cave paintings strike us as being modern in conception, and therefore familiar, the reason is that they were produced in a unique historical situation and are a great

spiritual symbol: for they date from a period when man had just emerged from a purely zoological existence, when instead of being dominated by animals, he began to dominate them. This emancipation from the animal state found an artistic expression as great and universally human as was later found by the Greeks to express their emancipation from agriculture, when they broke with an existence bound exclusively to the soil and took up navigation and maritime trade and began to live the social-political life of the polis. The paleolithic paintings remind us that our present subjection to forces other than nature is purely transitory; these works are a symbol of our future freedom. Today, mankind, amidst enormous sacrifices and suffering is, with imperfect awareness, striving for a future in the eyes of which all our history will sink to the level of "prehistory." Paleolithic man was carrying on a comparable struggle. Thus the art most distant from us becomes the nearest; the art most alien to us becomes the closest.

But to study cave painting exclusively from the point of view of its distance from us, or its proximity, can only result in adding theoretical errors to the recognized objective difficulties. One such theoretical error is to conceive history as progress along a straight line, to imagine that what exists today has been created gradually out of nothing, as though the process of history followed the pattern laid down in the Biblical story of creation. Actually, no one has ever been able to discover an absolute "origin" for the very reason that the idea of an absolute origin is only a metaphysical hypothesis. A number of categories are present in all real existence and thinking and in the relations between existence and thinking; these categories remain fundamentally constant, only their concrete realizations vary historically, change and evolve. The conception of history as progress along a straight line paradoxically results in making it impossible to explain what we desire to explain. This does not mean that there is no historical evolution, but rather, that the social forces which create history are antagonistic and, like the forces of the physical universe, express the interaction of sluggish and living energies; the former radiate from a fixed point, the latter push forward from epoch to epoch. This antagonism transforms dynamic forces into static conditions, and disintegrates static conditions into negatively operating forces. The transverse section of historical existence is thus distinguished from the longitudinal section of historical development, although the transverse section only unfolds the qualities contained in the longitudinal section, while the longitudinal section is a necessary product of the static conditions that are born and pass away in the transverse section. All the actions and events of human societies rest upon limited material prerequisites: nature on the one hand, and working tools and weapons by which man makes nature accessible, on the other. The lesser man's physical domination of the world, the greater his need for imaginary spiritual domination of it, and the interaction between these two kinds of domination creates the differentiations and integrations, that is to say, the increasing complexities of every civilization. By this development within a limited arena, man gradually secures the relative domination of the world he knows; but at the same time he destroys its limits when they become materially too small and spiritually too narrow. The unfolding of the transverse section which rests upon the economic reproductive process and the struggle of economy, society,

and politics against religion, morality, art and science, drives toward the development of a longitudinal section, the creation of a new and wider basis of existence *out of* the old one, then alongside it and following it. Seen from this new longitudinal phase the preceding phase always seems to be less complex: the world of Egyptian agriculture is simpler than the world of Phoenician maritime trade: the world of the nomad hunter simpler than the world of the Mesopotamian peasant. But this “simplicity” is entirely relative: the late hunting age is more complex than the early age of the farmer working with hoe or stick, and for that reason the frescoes on the ceiling of Altamira are more complex than the ornamentation of neolithic earthenware. Man again and again starts from the beginning, each time on a higher level, that is to say, he finds new forms of expression for developments that have already run their course elsewhere, and rushes on toward new stages that have not been passed by mankind before. But all the fundamental categories are present even at the lowest stage, and both at the lowest and the highest spirals of development they unfold their activity in antagonistic dimensions and diverse domains that form a totality from which the forward-moving stream issues. In this sense, paleolithic painting is a very complex developmental stage within an early epoch of mankind.

The paleolithic peoples, as shown by the transformation of their stone implements and of their artistic styles, were history-making peoples *par excellence*; they were in the throes of a continuous process of transformation because they squarely confronted the obstacles and dangers of their environment and tried to master them. For that reason, they are in fundamental opposition to the so-called primitive peoples of today. The existence of these modern primitives is stagnant because they avoid all those changing difficulties of material life that cannot be mastered by the means of production they have adopted once and for all. In compensation, they develop the methods of fantastic-ideological domination of the world more extensively, superstitiously and rigidly. But the paleolithic peoples did not know of this great discrepancy between an absolutely restricted material basis and an unrestrained and elaborate ideology, or if they did know of it they did not tolerate it for very long. Because of this fundamental difference between the “primitive” peoples of today and the paleolithic peoples, prehistory cannot be reconstructed with the aid of ethnography. Ethnography might explain isolated prehistorical facts if the explanations fit in the general context of prehistoric times, but it is not correct to evaluate the life of the paleolithic peoples on the basis of the conditions prevalent among the primitive peoples of today, because whatever these primitive peoples have in common results from their having remained at one stage of material development. If totemism existed in the paleolithic age, it need not necessarily have the qualities and functions it displays today even among the most primitive hunting tribes. Thus, paleolithic art cannot be understood by drawing an analogy with the sculpture of the “primitive peoples,” with which it has absolutely nothing in common, because these primitive peoples either use the bow and arrow, or live in surroundings chosen in accordance with their primitive means of production and weapons, while the paleolithics constantly struggled against a dangerous environment. For

that reason we must attempt to understand the cave paintings as a spiritual expression *sui generis*.

Here we are confronted with another paradox which is the stumbling block of modern historians of art. On the basis of their theories, they cannot interpret art and translate the language of artistic forms into universal philosophical concepts. In particular, paleolithic archaeology, disdaining, so to speak, its own magnificent discoveries, has regarded its own material as a collection of unrelated fragments and thus completely missed the forms and even the subject matter expressed by the forms. The first condition for the understanding of paleolithic art is to recognize the existing material for what it is—and very often we have to deal not with single animals, but with groups; the second condition is to interpret the parts in relation to the whole, and not to isolate them on the basis of unproved hypothetical constructions; the third condition is to obtain the meanings and contents from the ascertainable forms of the groups and individual animals on the assumption that, in art, content and form tend to become identical. As soon as one recognizes the facts and discards the prejudice that the paleolithic artist could draw and paint only individual animals, the meanings of these groups are discernible. These meanings, because they recur, very often enable us to make inferences regarding the compositional devices by which the groups and the individual animals are constructed and organized. These devices in turn throw more light on the contents of the works of art and, in the end, thanks to the mutual clarification of form and content, even the individual animals acquire a new significance.

In the caves that we know the same animals appear almost everywhere: aside from a few carnivorous animals such as lions and bears, there are horses, bison, oxen, mammoths, ibexes, and so forth. The frequency with which each animal appears varies with the caves. At La Pasiega, for example, stags and does predominate; at Les Combarelles, horses; at the nearby Font-de-Gaume, bison. In each case, the other animals are represented as subordinate to the predominant species, and for a long time their relations remain the same. Thus at Les Combarelles, the horses are repeatedly represented as hostile to the bison and bulls: the reindeer as friendly to the mammoths, and it can be shown that three different breeds of horses live peacefully together and form cross breeds while a fourth breed appears only occasionally. At Font-de-Gaume, the bison fight against the horses they have found there before, only in the end to be overwhelmed by the much-older mammoths. The conflict between the hind and the bison, which is depicted on the ceiling of Altamira, can also be found at Castillo and at Les Combarelles. The character of each animal seems to be as limited as the subject matter; everywhere the reindeer live a bright cheerful idyll, just as the bison live a stormy drama; the horses display playful sensitivity and the mammoths unshakable dignity and gravity. What did the artists represent by this constancy in change? Animals as he observed them in nature? Animals as objects of his desires and actions? Or animals as representative of himself, that is to say, his social group? The Abbé Breuil emphasizes repeatedly that the animals depicted are not the same as those whose bones were found in the debris of hearths, and that, for instance, the mam-

moth was often represented even after it had ceased to exist on French soil. What does this discrepancy between art and life signify? What was the motive force of this art: naturalism, magic, or totemism? Or all three combined?

Let us go one step further: the animals are arranged in various groups; in the simplest group, the pair, the animals are represented as standing one beside the other or one inside the other or one "crossing" the other. The animals of the first group (one beside the other) are shown in three positions: head to head, rump to rump, or head to rump. In this last case we have, in rudimentary form, a procession such as is developed in Teyjat, of a male, a female and a young ox (fig. 5). The meeting of heads is the initial form of a unity that in other instances goes as far as the complete merging of two animals into *one* body that has two heads pointing in opposite directions (fig. 39). Where two animals are depicted one inside the other (fig. 17), the heads point either in the same or in opposite directions, and these animals may be of the same or of different species. In such groups the artist may have intended to represent them one behind the other, with the body conceived as transparent, and if so, the visualized or remembered form of the entire animal was preferred to a partial view of the figure standing behind. The groups that we defined as "crossed" are formed of two animals, one superimposed on the other, coming from opposite directions; here we have the most rudimentary form of crowds, many animals grouped together with no space among them. The difficulty in understanding such groups of superimposed animals led to the theory of the palimpsest, as though, for lack of space the same spot had been covered by several layers of paintings without the background being either recognized or removed. Diverse as these groups may be, they rarely follow a geometric pattern imposed *a priori*, as is, for instance, the case with the group of three mammoths at Les Combarelles (fig. 8); if a geometric pattern is present, it usually has the form of the letter "V" or of a slanting line with angles at each end (fig. 11). What is important is that in the larger groups there appear not only actors but also spectators, a kind of chorus that endows the depicted event with great solemnity and validity in the social consciousness.

What was meant by these groups of animals paired, in procession, "crossing," crowded together, or in a geometric design? The meaning is unmistakable with regard to those animal paintings which contain darts and other weapons (fig. 6, 35, etc.). However, even within the magic of hunting, the desire to slay is only one element. On many animals there are vertical lines separating fleshy parts from the ribs or bones—the more vulnerable parts from the less vulnerable parts; later the modelling of the animal goes slanting horizontally across the body, and three parts can be distinguished: the head, the middle and the rump. Strikingly enough the middle section is the largest; later it decreases in size, and the front and rear sections are shown larger. The head and the sexual organ had a special significance for the magic of fertility and for the masks, so that one can follow the growing power of the ruling medicine-men in the changing sizes of the various body parts. The magic of dissection is supplemented by the magic of propitiation: the dead animal is seated on its hind legs, votive offerings are served, as can be seen in an isolated example at Niaux (fig. 36). Besides the magic of hunting there was the magic

of fertility; the frequently recurring diagonals leading from the animal's rump to its belly could be interpreted in the latter sense. Then there is the magic of transfer: envied qualities of other animals are transferred, as in the group "horse and lion" of Font-de-Gaume (fig. 20), in which the lion's strength is obviously transferred to the pair of horses directly under the lion's neck while larger and older animals play the part of spectators. But even here the question arises: to whom is the lion's strength transferred? For whose sake is magic practised? This brings us to a second group of paintings whose subject matter is totemistic rather than magical. To this group belongs, no doubt, a large part of the pictures showing animals in combat, the animals in these cases representing clans. The pictures usually show the animals in the "crossed" position. Animals pictured one inside the other may represent pregnancy; this device may also be interpreted to mean alliance in the struggle, while the superimposition of animals may stand for domination, mediation or a promise of support. The latter is probably the case in the many pictures showing a mammoth superimposed on other groups of animals (fig. 17). At Les Combarelles, one can clearly distinguish between the left walls of the cave corridors on which scenes of combat predominate, and the right walls on which idyllic, peaceful scenes predominate. At Font-de-Gaume a male and a female bison are first shown in combat and then as a united group (fig. 18), which can be interpreted either as a wedding or a ceremony of reconciliation between two clans; and inversely, on the last wall at Les Combarelles, the dissolution of such a united group is depicted in a painting showing two representatives of the Lybian breed of horses taking away a male in a group of horses belonging to the Tarpan breed, attended and aided by friends (mammoths) and enemies of the combined horse clans. Or does this removal of the horse represent the funeral of a clan chief? At the end of the picture where the two formerly interlocked animals stand back to back with the tails lightly touching one another (fig. 16), a small horse is shown leaping out of the larger one: this can often be observed wherever an animal is represented as having been mortally struck by a weapon. Is this meant to show the soul of the animal leaving the body? Do we have here a connecting link for our knowledge of the interment of the dead and the feasts that were offered them?

However indefinite the interpretations of the groups remain, because there is no clear line of demarcation between the hunting of animals and the hunting of people, between the rites of fertility and the rites of marriage, or between the doubling of the body and the addition of a soul, the fact that totemism and magic coexisted in the world-view of the paleolithics in a specific manner is indisputable, although the two are different in nature and originate from different sources. At that time magic signified two ideas simultaneously: (1) the mental concentration of the sorcerer on his own intended action in all its details and the attraction and participation of the animals in this imagined action, and (2) the externalization of this intellectual and emotional concentration, the real action *against* the animal. Paleolithic man knew no magic without action, nor could he imagine action without magic; to him, theory and practice were one. This unity dissolved only when the social development from hunting to agriculture compelled the sorcerer to actions that no longer could be carried out by a human group. Then

magic became a superstition and was replaced by religion. Previously, it had been neither superstition nor faith, but a science: it contained the totality of all the existing social knowledge and took into account all the tools, weapons and actions by which society was to be transformed. Without question, the basis of magic as of all other sciences was a material need: to feed, clothe, shelter and defend against all attacks a society of a given size with given means of production in given natural surroundings. This magic was founded on the belief that if an image of an object was hit, the original object was hit, too, and for that reason the image had to be made as similar to the original as possible; and on the belief that an animal once it had fallen under the spell could no longer resist the power of man. In other words, through magic paleolithic man compensated for his actual helplessness with regard to certain superior physical qualities of the animals by the power contained in his knowledge of the animal, by his ability to trap it, to surprise it at certain moments particularly favorable for slaying. The slaying was done with the aid of his hands, or more accurately, of many hands: those of the entire hunting group. The hand was *the* instrument of magic, and the earliest awareness of this fact is directly attested by the hands that are represented singly or in groups in many places, for example at Gargas and Castillo. The hands were pictured naturalistically or as geometric patterns. Thus we see that magic is the root of the so-called naturalism of paleolithic art and that the formal means for artistically transcending the "natural" form is the hand (as will be shown later). But could a mere material need, which at the very moment of its satisfaction renewed itself and made man the slave of his hunger be the source of the monumental character of paleolithic painting? This is unlikely. Finger paintings in sand have been made for many centuries and are still being made by certain hunting tribes. They also exist in the clayey soil of certain caves (fig. 1). The fact that such drawings are found in the most inaccessible places points to an entirely different explanation.

Then as today man was both part of nature and opposed to nature (that is, animals), he also lived with and fought against his fellow man. Only in groups was he a match for powerful animals, only in well-organized hordes was he a match for roaming herds. Man could fight against animals in both a real and a magical sense only when he was organized in society. It was only with the help of his fellow men that he could assert himself in the struggle of all against all. We know nothing about this organization except what a correct understanding of the works of art that we still possess can reveal to us. And these tell us first of all that man represented his social unity as a group by animals. Furthermore, they tell us that there were few such groups, because there are relatively few animals that we can with certainty identify as clan animals; the recurrence of the same animals at various places can be explained by the migration of a population grown too large, which formed new settlements similar to the colonies formed by Greek cities. These groups had their shrines in caves; thus they were only partly nomadic, but we are unable to ascertain who wandered with the animals and who remained at home. Some enlightenment on this point can be found in the evolution of the forms at Altamira. The earlier paintings were asexual, later sex is represented with such intensity that

sexual desire becomes the expression of the disintegrating force, while its counterpart in the same pictures, the female magician, becomes the embodiment of harmonious wisdom. The works of art reveal that the forms of social consciousness and organization must have been diverse indeed, because only the representations of the mammoths follow a prearranged geometrical pattern, only the reindeer appear exclusively in pairs, only the horses admit different breeds into their groups, that is to say, combinations of various clans; further, only with regard to the bison does the mammoth play a special role, and it seems that in the clan of bison there was a far-reaching differentiation among the spheres of power of the warrior, the judge and the medicine man, and that this clan was familiar with all the conflicting claims to power of these three groups. The family was not unknown as we may judge from groups showing three animals: a male, a female, and a young one. In these groups sometimes the male and sometimes the female is shown in the center (fig. 5 and fig. 8 as well as the interlaced group, fig. 39, and the separated group, fig. 16). But whatever the social organization may have been in each case, however tenaciously each group clung to its own as the best, all these groups express and embody the consciousness of their unity in the shape of an animal, not a human being. This is the fundamental character of totemism. Just as the Jews were forbidden to make an image of God, so it seems that the artistically gifted paleolithics were forbidden to represent humans in their monumental mural art—a prohibition obviously social in origin, for their carvings did represent humans (although in small numbers). This explains why not only men were put in masks, but the animal character of the masks was made unrecognizable—not because of inadequate ability, but because of social will and compulsion. But by depriving man of his right to represent the unity of his own society the paleolithics were led to assume a conflicting attitude toward animals. As representing the group unity animals had to be conceived as superior to man, and this superiority had to increase as the relationships within the groups grew more and more complex, as differences in power and struggles for power increased. On the other hand, the animal as object of the hunt had to appear to the magic consciousness as fundamentally conquerable, and with every advance in the art of fashioning stone and wood, in the art of setting traps, this conquest grew easier; in other words, the animal had to lose in physical superiority. Ideologically, this conflict could be solved by the separation of the totemic animals from the other animals, by declaring them taboo; the artistic solution of this conflict was that art driven by totemism (and only by totemism) to monumentalism used the proper and predominant means of magic: the hand, in order to endow the naturalistic likeness required by magic with significant form. In practical social life, this conflict between the sorcerers and the representatives of worldly power may not always have been solved peacefully.

It would be futile to undertake to write a history of the magic and totemistic currents in paleolithic ideology on the basis of the works of art known today, in which magical contents are expressed with great monumentality (fig. 35) and epoch-making events of clan history with unsurpassed “naturalism.” The history of paleolithic painting is not a development towards naturalism and monumentalism, but an evolution *within* a realistic monumentalism.

However, the temporal sequence of the works of art shows us that because the two currents coexisted and because the artists were compelled to express them both in a synthesis, each of them grew richer in meaning: magic became socialized, society itself became a specific magic force. Because magic became socialized, the paleolithic's conception of it rose above the mere idea of casting spells to kill an animal; they began to develop an understanding of cause and effect. Sex was placed more and more in the foreground as the dominant need, and the close association of love and death was one of the fundamental experiences of paleolithic man: it was easier to slaughter the animals when they were in heat or to surprise them in the act of copulation; moreover, strength spent on women was wasted for not enough strength remained for the hunting of animals (this was true only if women did not participate in the hunting). The slaying of the animal was followed by rites intended to propitiate it, and by its dissection, which was also of a ritual character. Here, in the paleolithic age, we have not only the first conception of the *Liebestod*, but the first idea of catharsis, and the germ of the chorus. At Les Combarelles especially, the scenes that have social significance are so solemn and include so many participants that they impress one as state occasions. At the same time, both morally and politically, paleolithic ideology reaches universal human dimensions, and some of the scenes have the grandeur of Aeschylusian tragedies.

Magic endowed this monumentalism which was rooted in totemism with life and fulness thanks to its increasingly subtle observation of nature and the invention of various forms without destroying the unity of the traditional imagery. The degree of the paleolithic capacity for differentiation becomes clear to us when we copy on the same sheet several contours of mammoths or bison; only then do we see how dissimilar are these figures even if they belong to the same type of composition. Wherever all four legs of an animal are preserved, we find to our amazement that each leg has a different form in accordance with its different natural or compositional function, and that the contours of these legs, despite their differences, are combined to form a logically conceived group comparable to the Greek reliefs in variety of nuances and richness of contrasts. Because of magic, paleolithic monumentalism did not degenerate into empty abstraction, but preserved its vitality and massive power to the very last. On the other hand, totemism saw to it that "naturalism" never degenerated into a petty imitation of nature which overlooked the whole for the sake of accuracy of detail, but developed into that realism which transcends nature in nature itself, which is capable of conceiving the accidental mode and fact of being as being pure and simple, as substance that differentiates itself in phenomena, so that things and bodies never become a schematization of the genus, never an "idea" of force, but force itself in all its concreteness.

It has often been maintained that "primitive" man could not adequately distinguish his "ego" from other members of his group (including both humans and animals), nor assert it against them. This does not apply to paleolithic man, at least not to the paleolithic artist. If the sorcerer had not the consciousness, and even the complete conviction, of the superiority of his spiritual powers over those of the animal, he would never have been able to "believe" in the

success of his magic. It would be incorrect to argue that the sorcerer would not have practised magic if he had not believed that there was a close relation between himself and the animal. The most modern scientist, even the most sensualistic Machian idealist, must assume that his “sensations” have some kind of correspondence with the object; otherwise science would be a mythical invention on which technology would never be built, unless it were by a permanent miracle. Nor is the totemic animal any proof against the existence of the ego-consciousness, for the totem is neither the animal nor the social unity; the former only represents the latter in the totem. But representation implies difference, in this case the difference between the individual and his community. Thus one might say that consciousness of his own ego and being aware of its difference from other human egos prevented man from representing society as a whole. But if magic and totemism attest that the ego was distinguished from nature and society, the work of art goes further, for it attests the unity of the ego in its own creation.

Even going back to the earliest Aurignacian epoch, we find either *one* line element that is varied or two different, but related elements that are playfully contrasted in all possible ways. We find a few proportions or geometrical relations that combine these elements to form one structure; we can discern their beginning, middle and end—in short, we have a qualitatively and quantitatively unified whole despite spatio-temporal diversity. And because the creation has unity, we are forced to assume the existence of an underlying, unified conception. Even the senseless assumption that this unity was produced by an unconscious process would only prove that the unity had become so natural that it could sink into the subconscious. It is a completely different question whether this ego-consciousness is internally unified or divided. And it seems that at this point a change did occur in the course of the development of the paleolithic age. The bison at Altamira are obviously in contradiction with themselves and can only represent human beings who have become conscious of their internal antagonisms. But the composition of the ceiling at Altamira also proves that these men had the strength to master such antagonisms, at least in the synthesis of the artistic process. When the paleolithics began to paint the cave walls, their spiritual life was no longer comparable to that of a child, and every attempt to explain their art with the help of children’s drawings starts from a fundamentally false assumption, as will be clear when the content of this ego-consciousness is examined.

The economic foundations which are the substructure of a society, and the ideology which is its superstructure, determine its art; but these two factors must first pass through the artist’s sensibility, and achieve a personal, spiritual life as aesthetic feeling. The mural paintings of the paleolithic caves reveal several typical groups of such aesthetic feelings that sometimes appear separated and sometimes combined. The strongest is the feeling of the greatness, the power and the dignity of Being. “He did not love, he loved to be,” a Persian poet said. This is not an infatuation with any concrete forms of existence but a kind of adoration, a sacred devotion to Being, pure and simple; not for a being that has transcended the phenomenal world, but for the Being that has divested itself of all mere relationships and yet includes the individual—

not as an accident but as an essence; for Being that does not transcend the world but *is* in its constancy. The paleolithics constantly felt that their lives were in danger, and this feeling contributed to raising their sense of empirical existence to the level of Being. This can best be illustrated by the generation of 1430, the generation of Van Eyck, Masaccio, Konrad Witz and Fouquet—the generation which after the breakdown of the feudal conception of heaven felt the solid ground of earth under its feet, from which the world could be securely and calmly examined with the new conviction that “being is, and non-being cannot be” (Parmenides). This has absolutely nothing in common with the adoration or imitation of nature—it is rather an affirmation of the world as imperishable, objective and dynamic, not an affirmation by man, but a self-assertion, self-creation and self-revelation of its substance. Whether the object that represented that being was motionless or mobile, whether Being was conceived as inert or as subject to an impersonal, non-vitalist force, these artists achieve the same objectivity, the same freedom from purely subjective elements, and even from human consciousness. Paleolithic art displays the first great wonderment before the miracle of pure Being that mankind was not able to translate into concepts before Parmenides.

There is another group of aesthetic emotions in which the subjective element appears sometimes as sensitivity, so that the conflicts are expressed less vigorously, sometimes as the personal revolt against the authority of objective being, and which later assumes the form of tragic heroism, such as was rediscovered by Aeschylus with all his self-destructive and simultaneously reconciling dualism. Ibsen said that in every human face one can see an animal which discloses the deepest essence of its possessor’s soul; likewise, in every animal of the paleolithic paintings (and even more so in every animal species) there is the face of a human or a human group which reveals its fundamental needs and motive forces through the animal. Such attempts to discover the psychic factors may lead to arbitrary interpretations; but this much is certain: the paleolithic artists of the late Magdalenian period were quite familiar with all the innermost recesses of the human soul, with the comedy that is daily acted out between consciousness and being. But these psychic differentiations are no more than a concretizing feature; what is important is the will that creates the conflicts, the self-destructive tragedy or the comedy that exposes itself to ridicule, its authentic or false (that is, hypocritical) heroism. And such a dualism only confirms the fact that sense of being had nothing in common with imitation of nature, but that it was a metaphysical axiom whose man-made character had been erased and destroyed. On the other hand, the presence of tragic dualism shows that this hypostatized Being, this self-effacement of homo faber in his product did not suffice him, that he was confronted with the task of harmonizing the oppositions, with the problem of beauty as their synthesis. We only know of one solution: the hind on the ceiling at Altamira (fig. 47). This “Hagia Sophia” of magic is the prototype of all those who until Baudelaire followed the ideal of *Beauté* and strove to the end that formal beauty have beauty itself as its content—in other words, the strength and greatness of the emotion was matched by an equally strong intelligence.

Does this mean that paleolithic man did not differ essentially from the Greek and from modern man, and that all the theories of the pre-logical and mystical mentality of the emotionally dominated primitive do not apply to him or are nonsensical, and intended to glorify modern superstition? Let us try to understand what is expressed in art. In works of art we are confronted with the artist's ability—ability not in the sense of acquired technique or capacity for imitating nature, but in the sense of reproducing the existing social world in materials that speak to our senses. Such an ability is based upon will, and this in turn upon compulsion. The compulsion acting upon the artist is first the compulsion of the economic and social conditions, that is to say, the means of production, organizations and other devices by which society dominates the world and satisfies its needs; and, second, of the ideologies that allege to dominate the undominated sector of the world by fantastic means, thus incidentally helping to create new instruments for extending human power over nature, society and consciousness. In the artist, this compulsion becomes will: he takes a position toward it, he accepts or rejects it; yet the freedom of this will is limited. Even the thinker can conceive a non-existing world only as a Utopia; the most the artist can do is to take an attitude of opposition toward the world that he reproduces artistically. Flaubert's hatred for the bourgeois was both a negation of socialism and a portrayal of the bourgeoisie. Within his will the artist has only two alternatives: either to take the side of the ruling class of his time or to propagandize the cause of the ruled class. A social-critical attitude is the utmost limit beyond which art cannot go. But the artist's ability is less subjected to society than his will. With his talent he can not only uncover the unconscious ideas underlying the ruling interests, not only disclose the concealed developmental tendencies of the ruling class before this class has the will and strength to assert them, he can go beyond this and see the universally human values in the historically determined conditions of his time and express the former in the latter in such a manner that his work—although a product of his time—transcends all temporal limits and acquires “eternal charm,” that is to say, validity for all times and imperishable value. But if the artist, by his creative effort, rises above his time, his will nevertheless remains the social slave of the compulsions of his time, of the ideas of its ruling class. This is true to an even greater extent of every monumental art which by definition renounces all purely anecdotal elements, everything that is purely descriptive, literary, in brief, all the *petite histoire* of inner and outer life, and transcends all programs to reach those elements which can be seen or heard by men of all times and all nations.

Franco-Cantabrian art does not tell us anything about the daily life of the “masses.” It does not teach us anything about their external existence. We have no clear picture of their methods of hunting, and only from the nature of the stone implements and the few reproduced weapons can we infer that trapping the animals played an important part in paleolithic life. We know nothing about their habitations, for the caves were not dwellings, but sites of festivities, and perhaps temporary abodes for young people about to be initiated. We know nothing about their food. If the men wandered with the herds or even if they hunted relatively near their dwellings, little meat was probably brought home for the women and children, who in that

case must have chiefly fed on plants and fruits—a difference in the mode of feeding that must have resulted in considerable differences in temperaments and attitudes toward life. We know just as little about the relationships between the sexes and family life, even though its existence can scarcely be disputed. And we have no idea which of these half-nomads followed the herds and which remained behind, and what were the relations between the former and the latter. The cause of the sudden collapse and disappearance of paleolithic art at its climax, in so far as it cannot be explained by the invention of the bow and the social developments following, may be sought in the nature of the sexual relationships that developed in connection with the partially nomadic life of the men. We know nothing of paleolithic social organization, even though from certain signs we can infer with some plausibility that society was stratified and that the power of certain classes: the sorcerers and warriors, constantly increased. We know nothing about the relations between the various totemic clans, even though the paintings point to the existence of peaceful agreements and unions between clans as well as to constantly recurring struggles against the same enemies. And we know absolutely nothing about the spiritual life of the “masses” of that time, for what the works of art that have survived show us is a maximum of spiritually creative power placed in the service of the ruling ideas and classes, and they represent these ideas and classes not as they were, but as they were reflected in social wishful thinking. In every known society art has had the function of creating a synthesis of real actions and theoretical-ideological ideas. This synthesis of compulsions and wishes in the paleolithic age displays a striking power of emotion and thought. But it does not tell us anything about the distance between these artists and their “communities,” their “public”—unless one may infer from the authenticity and perfection of the monumental character of this art during its entire life-span, from the Aurignacian to the Magdalenian epochs, that genius and *profanum vulgus* were not separated by an unbridgeable gulf and that the people were not merged into “one” community, in which the “priest,” that is, the sorcerer, offered his faithful a kingdom of heaven, but that there was a social interaction rich in contrasts which built a general culture on the basis of great artistic values. In this respect, paleolithic France may have been little different from the Gothic or the classical age. But here we are in the domain of conjecture, and we are handicapped by the fact that prehistory has no literary documents, although it is true that it has no misleading, ambiguous or falsified documents either. This fact makes it impossible for us to trace the process through which the materially and socially limited domination of the world was transformed into social feelings and social knowledge and finally into magical and totemistic ideologies and in which manner art became the synthesis of all of them. It also limits the concreteness of our statements when we try to go from art to reality. Our knowledge of paleolithic civilization will always remain fragmentary.

If paleolithic art permits us only a few vague conclusions about the world that made its appearance possible, what we can learn from it about itself and about the nature of art in general in one of its earliest manifestations, is perfectly clear. The data supplied by this art can be

divided into three groups. The first comprises the artistic devices which serve to translate the material and spiritual worlds into adequate forms, and to create an artistic form for the substance of social compulsion and will. We shall deal with these devices in the following two chapters. The second group comprises the historical development of these devices; the third, the signs and “anthropoid” figures which appear side by side with the animals; these constitute the most obscure aspect of paleolithic art, and the most difficult to elucidate.

To begin with the signs: the Abbé Breuil and his collaborators have in the main limited themselves to cataloguing them and giving them names, which although they were not intended to make these signs less obscure, nevertheless steered modern interpretations into definite and often misleading channels. In order to go beyond this cataloguing, we must first of all single out those signs that can be recognized as representations of weapons. Then we must distinguish actual weapons from weapons of magic. Such weapons of magic are no doubt the sheaves of rays on the Altamira ceiling that emanate from one point and are then directed outwards (fig. 26). They reproduce certain forms of stone implements dating from the Chellean, Acheulean, Mousterian and Aurignacian periods, that is to say, forms of earlier periods, while the actual weapons are analogous to those of the Solutrean and Magdalenian periods, in so far as they are not obviously made of wood. If this interpretation is correct, we have here a phenomenon that we will also encounter again: just as the Egyptian priest of the later dynasties continued using neolithic knives for the performance of certain religious rites, so the paleolithic sorcerer used stone implements from a previous period reshaped into radiate structures in order to represent mystical weapons that could kill from a distance.

The meanings of another group of signs are clarified by the contexts. The sign on the hind-bison group at Les Combarelles (fig. 10) is most probably the trophy which the hind set as a boundary-stone to the procession of bison: it represents the idol of the hind shown beside the real one. At Font-de-Gaume (fig. 40), many signs can be explained by the fact that they are found close to the mammoths or fulfil the same function as the mammoths: that of dominating the rest of the group or of keeping it in peaceful order. But then it also appears quite clearly that the abstract geometrical form of these signs did not result from the degeneration of the naturalistic objective designs, but served a specific purpose. The signs seem to represent a reduced front view of the animals which are exclusively drawn in profile. On the small carved wooden objects, too, we find an insignificant number of facial views, and these resemble the signs that appear in the paintings. If this interpretation (which is intended as a hypothesis) is valid for a whole category of signs, then, alongside the prohibition (that was not absolute) to represent human beings, there was also a prohibition to represent full-face views naturalistically. The most plausible reason for this might be found in the magic of the evil eye, which—in contrast to the active magic of the hand—was feared, for the picture could cast spells as the original could. That would also explain why the representation of the dreaded magic was just as avoided as that of the active hand was sought. A rare example of the magic of the eye is perhaps the bison toward which a little hind is shown leaping (Altamira ceiling,

left half, fourth row). In front of the head of the bison there is an eye, but it is not clear whether the bison is hurling this eye at someone, or whether the eye is being hurled at the bison. In either case, one might regard the magic radiate weapons at both sides of the hind as part of the representation of the magic of the eye. The conjecture that some of the signs relate to the magic of the eye is perhaps strengthened by the fact that circles or semi-circles are inscribed in the signs. There are many such signs at Font-de-Gaume. One of them is placed in a niche as though the artist meant to endow it with greater significance (fig. 27). In that case the purpose might have been to transform the magic of the eye from a passively dreaded one into an active one, that is to say, to oppose the evil eye with the evil eye. At Les Combarelles, one is struck by a "human" profile (fig. 27) in which a strongly enlarged eye breaks the connection between the nose and the forehead and gives the impression that the artist wished to emphasize the fact that the figure was one-eyed (Cf. Polyphemus).

The interpretation of the other signs may be derived from the geometric patterns that underly the individual compositions. If we reduce the merging group of the two bison at Font-de-Gaume (fig. 39), or the encounter of the lion and the horse (fig. 20) to the essential geometrical element in its composition, we obtain figures that look extraordinarily like the so-called "Tectiform" signs, although the subject of the composition has no relation to a habitation or a trap. The signs could thus signify the unity of the animals, whether it be their bodily union or the union of their power (Mana), and stand for abstract concepts derived from concrete events, such as the power of the clan or the social function of certain animals within the clan (official badges). Another sign found at Niaux (fig. 36), and at Font-de-Gaume I have already designated as a votive offering. The Abbé Breuil established that a representation of the vulva appears among the signs, and I believe that a line which occasionally traverses the body of the animal downwards from its rump could be interpreted as a line of fecundation or of fertility. Piette was the first to point out the characters similar to the letters of the Latin alphabet that appear on some small carved objects, and Breuil noticed the same signs on certain paintings. An analysis of the alleged ornaments on the Egyptian neolithic pots proves irrefutably that the Greek and Latin characters were for the most part magic signs, and this fact confirms Piette's views. But we must grant that the characters, the magic and real weapons, the signs representing votive offerings, the power and functions of certain clans or groups, are only part of the enormous and quite unsystematic multitude of the existing signs. The majority of them remain incomprehensible.

We do not fare any better with the so-called Anthropoid figures (fig. 28). As long as these are taken out of their contexts and presented as isolated entities, any attempt to interpret them must be confined to the vaguest generalities. What are they when seen merely as figures? The hypothesis that the "Anthropoids," represent humans masked as animals is implausible since only a few of them really stand upright, and since the addition of a tail does not make an animal. They are just as unrecognizable as animals as they are as human beings. This does away with the idea that the same artists who drew animals so brilliantly reproduced humans so poorly and

under the influence of their ideas of animals; it also eliminates the theory inspired by ethnography, which assumes that these figures are masked dancers. It is well to admit that the figures were intended to be unrecognizable, that they probably had to be fantastic entities composed of both familiar and unfamiliar elements if they were to perform their functions. One might recall that in many languages the words denoting “to know” or to “recognize” have a physical meaning as well: to grasp, and more strongly, to copulate. These figures must not be recognized because they must not be grasped; they must not be touched because their functions, the act, the force or the result of their functioning must not suffer any damage. But what was their function? An examination of the figures in their contexts shows that they are divided into three groups:

(1) Those that stand at the beginning of a wall and introduce a scene or a mere sequence of animals;

(2) Those placed in the center of a depicted event, probably to indicate that they were the cause of this event (fig. 12),

(3) Those distributed in a depicted event less as causes of the action than as auxiliary means of the actors, as on the ceiling at Altamira where one of the many fantastic figures stands directly in front of the hind, and another traverses the body of the bison, which is between it and the bison leader. Thus it seems that the fantastic figures embody various phases of a magic act. This would tally with the fact that they can be easily arranged in groups: those with raised arms, those with erect sexual organs, etc. Fig. 12^b shows very clearly that we have to deal with a magic of fertility: the fantastic figures represent the event in pantomime. The scene on the opposite wall (fig. 12^a) is less clear, although under the right horse there are many signs similar to the vulva. The fantastic figure is half-sitting, half-rising; although it is almost a three-quarters view, only one large eye is pictured; the hand is strongly stressed and consists of six lines, so that we have not five fingers but two outside lines and four spaces in between. It is as though one had a combination of two principal magic instruments: the hand and the eye. The specific character of the magic act represented here might be explained if the numerous bears and heads of bears present in the painting and the fact that the posture of the left horse was changed by a “correction” to make him standing instead of running are taken into account. (The same thing seems to have been attempted for the middle horse.) The most plausible conjecture is that this is a magic of transfer from the bears to the horses or vice versa. This uncertainty would be dispelled if we could interpret the signs in the left horse and if we could ascertain whether the head of this horse had ever been drawn. The scene showing the bear that we interpret as having been captured (fig. 15) proves that we are dealing with historical recollections of the horse clan and that history and magic were closely connected.

This explanation of the fantastic figures as performers of specific acts of magic seems inapplicable to our first group: the figures found at the beginning of many walls, have, as far as we can judge, no direct relation to the depicted object. The most natural conjecture would be that drawing and painting were themselves regarded as acts of magic that could not be dis-

turbed, and that for that reason the artists each time placed themselves at the beginning as unrecognizable beings thus creating an alibi for themselves against any attempt at counter-magic. It is as though every sorcerer tried to be able to answer, with regard to his work, the question of the counter-sorcerer: *Who are you?*, with the famous answer of Odysseus: *Neither man nor animal: No One.*

If modern archaeology is unable sufficiently to explain the paleolithic signs and fantastic figures, the reason for it is a purely material difficulty; but the inability of modern archaeology to write a history of paleolithic art results from the absurdity, the contradiction in terms, implied in the very notion of art history. Art is the creative act which gives the material and ideological life-contents of a concrete society adequate visible forms. These forms are not completely determined by their antecedents nor do they arise mechanically under the pressure of external influences nor are they the product of both: the truth is that they have no history of their own. More precisely: art has historical roots that lie outside it, and it has historical consequences that again lie outside it. Art as such is not a historical act but an act of creating values. Art belongs to two spheres: its roots are in the sphere of history, and its life is in the sphere of objective categories and values. Only the degree of its approximation to perfection can be studied from a historical point of view. Paradoxically, the work of art closest to perfection is both most profoundly determined by its time and goes furthest beyond it into timelessness, while the imperfect work of art remains caught in the spatial and temporal conditions precisely because it has been touched by them most superficially. Only the great artist can grasp and master the whole historical reality, lesser artists cling to the fragments of this reality that float on the surface. The main task of a history of art is to show that these determined forms—forms and not contents!—must necessarily arise from definite economic, social, political, moral, religious, etc., roots, that these forms express them, represent them, manifest them; vice versa, that they react on these roots and play a part in their transformation. Every attempt to go beyond this task and to constitute an immanent history of the development of forms necessarily leads to reducing the creative process to a mechanical act. The result is a catalogue or a sequence of “styles,” but not a history of art or even of styles. Art as such has no history, there is only a theory of art which is the theory of artistic creation; but this theory of art itself has a concrete content only if it can explain artistic creation as the transformation, the translation of historical situations into the language of visible forms, and this as a necessary process. This task has never been formulated, let alone solved. And it can be solved only in a fragmentary way with regard to paleolithic art, because we do not know enough about the material and ideological conditions of this art and of its historical metamorphoses. We can simply analyze the specific manifestations of this art, and going back from these, draw our conclusions—not always certain or concrete—as to its conditions.

It must not be thought, however, that paleolithic art is a monotonous unity. Many and frequent changes occur in it; we can record them, but we cannot explain them; they concern the ideological attitudes and the choice of artistic devices, they do not concern art as such.

Leonardo has said in his *Treatise on Painting* that the elements of this art are the point, line, surface, and body (space). Paleolithic art sometimes gives the impression that this theoretical order was the historical one, as though Hegel was right in maintaining that history unfolds itself in accordance with the internal dialectics of concepts. Paleolithic painting seems to start with points, and these seem to be followed by lines to which the surface surrounded by them is subordinated; the line is followed by the plane that is composed of dimensions and directions, and the line is employed only to reveal these internal tensions of the surface. The body follows, even though not as a stereometric illusion but as a modelled plane. One glance at plastic arts as a whole suffices to refute this construction, at least to limit it to painting, for paleolithic sculpture begins with the body and strives to the low relief—not without being influenced by the nature of the material. But even in painting the actual facts of the case are more complicated: the theoretical elements are not so clearly separated and each moves independently from its own basis toward the body. Thus flat planes and modelled planes first vary within the domain of the points, then within the domain of the lines, then within the domain of the planes; first in one color, then in combinations of colors, and finally in real polychromy. These repeated changes clearly reflect the intense historical life that underlay paleolithic art. For the unmodelled plane is contemplation, the modelled plane is action, and paleolithic man was harnessed in these oppositions as much as medieval man. But this is not a “development,” not a “progress” from the plane to the body, nor a retrogression from the body to the plane: these are two different currents within the same view of life like Manet’s *Cartes à Jouer* and Courbet’s *Faire des Boules*. The greatness of paleolithic art consists in the fact that it was able to express both these opposed currents of action and contemplation which are closely connected to magic and totemism.

Another observation that seems to support the view that history of art is an independent discipline, refers to the combination of techniques. Originally, designing was completely separate from painting; designing originated in sculpture and was made on walls conceived as a stone surface to be incised; in its beginning it was extraordinarily deep and plastic (as though the artists intended to carve reliefs on the walls), but later the cuts grew less and less deep. Likewise, in painting, the colors were separated; black and red crayons were not mixed: probably the difference in the meanings they expressed, death and life, was so strongly felt that their merging was subject to a taboo. Later they assumed different functions: black was used for the rim and usually only for the rim of the hard dorsal boundary, red served for the interior modelling, as though the artists meant to say that life can achieve form only if it goes through death. At the moment the colors were mixed, that is to say, when their tones blended, designing became connected with painting. We have here an elementary example of the development from the simple to the complex. But this was neither a one-way development nor a historical development of art. True, it was even less an idle and accidental play of fantasy or purposeless flaunting of abstract technical ability. This is most clearly shown in the fact that the graphic devices (as for instance at Front-de-Gaume) strive toward plastic values, which are later

recovered by painting, while at Altamira, painting dominates modelling to such an extent that the design becomes flat and is used only to suggest the subject. The combination and merging of the technical devices was determined by the growing complexity of social life, and shows us both that the paleolithic artists had to express increasingly complex situations, and that they were consistently equal to this increasingly difficult task. This should put us on our guard against interpreting paleolithic art as a primitive art that is unable to cope with the problems of space, motion and composition. The truth is that paleolithic art did succeed in perfectly expressing the paleolithic world.

CHAPTER II

The Magic of the Hand

Historians attached to the dogma of unbroken progress will be reluctant to admit that the antagonisms of paleolithic life and the ability of the "primitive" paleolithic artists to express the synthesis of these antagonisms in works of art were greater than they surmised. To us, "complicated" men of the twentieth century, geometric signs on the one hand, and naturalistically painted animals on the other may appear as expressions of two separate worlds that we can connect only by considering the first degenerated forms of the second. In the eyes of paleolithic man, however, they were certainly two aspects of one and the same world, in which half-nomadic communities of hunters stood in close physical relation to the animals through their wooden and stone weapons, and in distant mental relation, through their magic-totemistic ideology. Discussing the Parpallo cave Obermaier wrote that eastern Spanish and Franco-Cantabrian arts were contemporary (cf. *Prehistoric Rock Pictures in Europe and Africa*, by Leo Frobenius and Douglas C. Fox, p. 25). If Obermaier is correct, history itself reveals the internal complexity of this epoch which saw the coexistence and mutual contact of societies equipped with bows and societies without them (or societies that deliberately excluded the bows), an art that represented silhouette-like distant views and an art that represented objects close at hand, an art of direct reproduction of historical reality and an art of indirect reproduction of the sources from which historical life flowed. The complexity of history itself thus suggests to us that the abstract signs and the naturalistic reproduction of objects express two aspects of one process. But this is possible only if we regard the object not as a mere pretext for imitation but as a device for the realization of formal ideas, which are rooted not in nature, but in human needs, the human spirit and the existing means of production.

The formal basic element of Franco-Cantabrian painting is the concave-convex curve if we disregard the modelling which cannot be clearly discerned on the reproductions of original paintings, where color is lacking. The straight line and rigid geometrization and symmetrization of the concave-convex curve into a sine curve are avoided everywhere. The originally complementary parts of the curve are shifted and their measures and positions become asymmetrical in relation to its turning point; and this external law is a consequence of the internal law according to which the curve is not a sequence of points that obey a rigid and always identical course, but a motion caused by an elemental force (*mana*) whose rhythm it follows. The factors that determined this curve were predominantly ideological; they were, first, magic, which was the force that changed one condition into another and thus required a purposeful motion marked by definite turns, and second, totemism, which, with its consciousness of the clan unity and of the dignity of the clan's history pressed toward a rhythmic taming of the magic transformation. The lack of strict mathematical regularity called for a system of proportions to control the course of the curve. In accordance with this ideological origin the free

curve gradually became less vague and arbitrary, as it was adapted in a progressively concrete and differentiated manner to the figures and lives of the animals and to the aesthetic feelings the animals were intended to represent. The striving for objective and subjective exactitude constantly changed the quality of the curve: motion through many dimensions became motion through one dimension, motion in one direction became motion in two opposite directions, etc.

The artistic function of this curve also changed several times during the paleolithic age, for the path toward exactitude involved the gradual replacement of the imagined unity by a concrete totality which was the sum of many differentiated elementary component parts. Neither at the beginning nor at the end of Franco-Cantabrian art did the artists take it for granted that this curve was a continuous line similar to a geometric line; they were always aware of the process which created it. They felt that such a linear trait, so to speak, depreciated, eliminated the place that it passed and thus removed the tension between the fixed place and the motion through many places. A nomadic people must have been particularly strongly conscious of this inability to cling to constant, motionless objects; this explains the repeated attempts to represent the continuous line as secondary and to construct it as the sum of discontinuous single dashes (fig. 30). In the beginning there was the point, the first expression of a need, which—in contrast to all naturalism—revealed itself as a personally and metaphysically determined conscious will by the fact that the sequence of points could not be freed from the structure of a concave-convex curve. The point must not be defined in a mathematical sense, but rather as a fluctuation between a circular thickening and a comma-like dash. Later there developed the sequence of parallel discontinuous dashes (fig. 22) which were deliberately contrasted with the continuous line to such an extent that they were traced at other places and even in other dimensions of the surface. Existence in a place was separated from motion through places, and the constitution of motion through being, from the abolition of being through motion. In the drawings at Altamira, which served as a first sketch for the polychrome paintings, the connections between the discontinuous local dashes and continuous lines are so varied that to describe them systematically would require several pages (fig. 25). The original conflict between being and motion had assumed such dimension and such depth that it could be solved only by a great number of constantly varying patterns—a sign that the conflict was not only passively tolerated under the pressure of the existing material conditions, but that it was active as a spiritual force. Freedom and necessity grew simultaneously.

The first function of the continuous curved line was to circumscribe surfaces. Instances of a single line-element, a single variation of the concave-convex curve forming the entire figure of an animal are rare; usually there are two related variations, one easily distinguished from the other. There are, among others, convex (or concave) hooks with long quasi-rectilinear shanks that replace the second branch of the curve; quasi-straight lines that are bent only at one end; convex lines that meet other convex lines (or concave lines that meet other concave lines) at an angle, etc. The functions of two such curves appearing together are related, that is to say, both identical and different; one circumscribes the hinder part and the back, the

other the belly and the neck (fig. 37). Quite obviously the differentiation had a naturalistic or, more accurately, a material-economic cause: it represented the difference between the hard and soft parts of the animal, because from the hard parts weapons might recoil, while they could easily penetrate the soft parts. But it is equally obvious that the artist did not represent this experience for its own sake but because the double form of the linear element favored his own independent play with forms. One curve turns from the horizontal to the perpendicular, another from the perpendicular to the horizontal, always as a modification of the slanting line. When after their greatest diagonal distance they approach each other again, the head and the terminal line of the frontal part of the body represent the formal synthesis of the two curves. Thus the real experience is translated into a coherent play of forms which is simple only because the surfaces circumscribed by the lines do not assume an independent life, but remain dependent on them.

The function of the line changed completely as soon as the surface became independent, and this development is anterior from the point of view of the artistic conception. The dimensions of the surface separated, entered into mutual tension, and the same happened to the directions within each dimension. The perpendicular line can rise or fall, the horizontal line can move to the right or to the left; the directions can converge or diverge. Surface parts were formed, some complementing each other, others repulsing each other, even at the opposite ends of a figure. The surfaces were no longer determined by the lines, but their internal oppositions determined the directions, dimensions, flexures, articulations and even the various functions of the curves used in the design. Each group of curves served to represent a different aspect of the conflict between the surfaces: for instance, the curve of the spine is often opposed as *one* form to the curve of the abdomen as a multiplicity of forms. The differentiation of the plane into the oppositions inherent in it must not be conceived as being symbolized by a horizontal-perpendicular frame of reference, such as we have become accustomed to regard as primal since Euclid. Some animals, especially mammoths, either because of their natural shape or, what is much more likely, because of the social spirit of their clan or their social function within the clan, stimulated the artists to adopt a certain frame of reference and to relate the proportions of the artistic object to it. But even in this exceptional instance, the axes are of different lengths, and completely unlike the axes in a symmetrical frame of reference. The differentiations and integrations of the dimensions and directions are not static, but are displaced by internal tensions, and these are determined by the different elemental forces (*mana*) emanating from inside the animal or penetrating the animal from outside. The paleolithic artists knew that the specific forms of surfaces and space are shaped by biological and magical forces, a knowledge which the Greeks made us forget. Surfaces were related or opposed by elemental forces, and the boundary lines served to show the presence of these forces, which at first were hidden rather than revealed by the colors.

Later the discrepancy between the opposed *mana*-forces and the colored surface that

smoothed them out, and the discrepancy between the function of line and color, disturbed the artists. The violence of the oppositions broke the unity of the surface; the various dimensions and directions produced individual forms and these served to construct the body in such a way that the line became the outline of these internal forms, whose exactitude of expression it was intended to enhance to the same extent as it lost its function of general outline. This general outline is now composed of the outlines (frequently in different colors) of the internal forms (fig. 47). Just as at an inferior stage the line was formed of points, so now the body is composed of delimited surfaces, the plane becoming dependent upon the representation of bodies. This representation does not aim at producing a stereometric illusion in the manner of Giotto; the body is determined by the reciprocal tensions of the surfaces, and these are produced by vehement oppositions of colors and figures, by the manner of interlocking or separating the outlines. Thus the tendency to massiveness that had dominated Franco-Cantabrian art from the beginning and had always driven it to construct the artistic shape of animals from their bodies and not from their legs, found its highest expression: the surfaces were determined by the whole body, and the lines, through their formal dependence, assumed new expressive values: those of sexual images and events. The violence of sexual instincts triumphed over hunger and became the form-determining force that respected the old convex-concave line-element, which was rooted in a constant of paleolithic culture, a constant that persisted through all the historical changes: the magic-totemistic ideology of half-nomadic hunters.

To what extent did this culture apply the elementary principles of artistic representation? Did the paleolithic artists represent space? No one will deny that these wanderers across plains, river-valleys and mountains, to whom the vastness of the sea was not an unfamiliar sight, knew all the motor sensations connected with the discovery of space, all the optical sensations produced by emerging and disappearing images, all the touch sensations produced by resistances, etc. But did they represent them artistically? At this point a theoretical digression is necessary. If we understand space to be an empty box-like structure that results from a linear perspective drawing or the infinitely fluctuating moving space of the Baroque which was achieved mainly by the illusionistic device of air perspective, then the obvious answer to our question is: No. If limited historical manifestations are accepted as fundamental criteria, we are forced to deny that in Gothic stained glass windows or Doric architecture space was represented. But if we distinguish between the category of space as the form of all reality and all perception, and the historical manifestations of this category in particular artistic periods, all the realizations of perspective must be explained by specific historical conditions. Since space cannot be completely eliminated, not even from a purely spiritualistic world, the real question is: What concrete spatial sensations predominate in a particular epoch, and why did those which actually existed in history assume well defined artistic forms? The very tendency to eliminate space is only another method of representing space, even though in a negative sense, and requires explanation just as much as the positive representation of space. But even if we deal with varying historical forms of one inescapable category of space, it still

can be asked whether certain spatial attributes are present in all artistic representations of space. It seems to me that there are two such attributes: the tension between the two dimensions of the surface and the dimension of depth (without which a body could not be represented), and the extension of this tension beyond the individual body (or group of bodies) into another form be it a spatially vibrating plane, or a surface curved in depth. Then the negative representation of space means the approximation of one or both of these attributes to zero, and the positive representation of space the intensification of both attributes. The elements that make for artistic space can be almost obliterated if the distance between bodies or colors is merely increased, for instance, a perspective drawing supplies a complete illusion of space, but in itself it cannot be considered an artistic representation of space. We can now formulate our problem in more concrete terms: Is there in paleolithic painting a relation to the dimension of depth that—sufficiently differentiated and intensified—reaches beyond the limits of the individual animal figure? And does the paleolithic artist strive for a positive or a negative representation of space?

That the tension discussed in the preceding paragraph exists in the individual animals can be disputed by no one, despite the absence of stereometric illusion, in view of the tremendous volume of the animals. Shall we infer then that paleolithic artists did not apply a principle familiar to them beyond the limits of the individual body and represented space only when representing bodies, that is to say, that they negated space outside the bodies, in the sense that they did not even represent it negatively but simply considered it non-existent? This is unlikely because even the non-existence of space achieves artistic existence only through the negative representation of space, not through its omission. But even the scientific and unbiased Abbé Breuil must admit an effect of perspective in an early black painting at Marsoulas. He also points out that at Font-de-Gaume (Salle des Petits Bisons, fig. 19) the animals are set off against a homogeneous background of red ochre, which, he says, spatially connects the entire composition. He might have added the trunks and tusks in several mammoth drawings to the spatial effects arising from the intersections (fig. 8). And if he had not mistaken the working hypotheses of superimposed layers of paints and palimpsests for a demonstrated truth, the fundamental problems would have been very clear to him. Is not the partial superimposition of animals a definite form of representation of space? And is not the insertion of smaller animals into larger ones another form of it if the drawing of one animal inside the other is meant to represent one animal behind another? The fact that the existence of such groups and other compositional forms were negated, came as a result of the premature assertion that the paleolithic artists did not represent space. To justify the hypothesis that these artists represented only single animals, the absence of a common base-line for several animals, of intervening empty spaces between the animals and of explicitly marked boundaries (frames) are put forward as proofs. It is true that the earliest base-line is found in Egyptian neolithic vases for plants; simultaneously we have the earliest examples of a conscious use of the line of vision. The function of this line is to separate the plane upon which we are looking down from the plane to which we are looking up. These are the artistic achievements of a people become

sedentary, that contemplated the world from a fixed place. But we have shown above that the half-nomadic hunting tribes knew only the opposition between being-at-one-place and moving from place to place. The ancient wanderer never had a firm base-line, in his eyes the world was related to a wandering mobile line—that was the way animal herds and human hordes actually appeared to him. The fundamental spatial experience of the nomadic hunter was determined by the sight of the herd with some animals in clusters and others scattered. This most frequent and most important practical experience demanded an artistic expression. Thus the arguments intended to prove that the paleolithic artists did not represent space are also based on the mistaken assumption that an historically determined idea of space, valid for a particular period, is valid for all periods.

As for the absence of empty spaces between the bodies of the animals and the absence of common and connecting backgrounds, the same can often be noted on Roman reliefs, which show bodies crowded even more densely than in paleolithic paintings. Does this mean that the Romans were incapable of representing space? But did the paleolithic artists even want to represent it?

Let us return to the most obvious spatial experiences of the hunters who wandered with the herds. Space as infinite distance and emptiness separated man from the animals and at the same time compelled him to wander further and further along; the sight of crowded bodies showed him that the animals could be attacked, and thus enabled him to anticipate a period of rest. It follows that finite and closed space acquired for him a positive value, practically and later ideologically, and infinite and open space a negative value. Under the influence of Christianity our values are the exact reverse, but this was not the case with the Greeks who, for a long time, as seafaring tribes, were nomads; in their eyes, the finite body meant salvation and rest, just as open space meant unrest, hardships and dangers. If this valuation of the finite is the predominant wish-experience, it is clear that every expression of space in accordance with it will tend to decrease the intervals between the filled spaces and to intensify the relation between the empty and the filled spaces. And it can be said that the intensity of this relation must be the greater, the smaller the dimension of the intervals. The *horror vacui* was not a metaphysical attribute of paleolithic man, but a consequence of his most catastrophic experience: the loss of the herds that supplied him with his food and clothing. This practical terror was assuaged by magic because its spells could act at a distance, the animal being conjured back to a magic place; art did the same thing by reducing the empty spaces to a minimum, by painting the animals one inside the other or one on top of the other, by enhancing the massiveness, the power of the animals. Emptiness and intervals also played a positive part in paleolithic art. This is clear at Les Combarelles in the group composed of the hind looking into the distance and the bison looking closely down (fig. 10), and at Altamira in the intervening space between the two protagonists at the left (filled with smaller animals some of which are painted in a single color, fig. 24), but especially in the two reindeer at Les Combarelles (fig. 9), a male and a female trying to walk toward each other, with the female characterized as mortally

wounded. The physical distance between the two animals expresses the distance between what they want to do and what they are compelled to do, between their wishes and their fate. This is not a literary or philosophical interpretation, but a fact that can be geometrically ascertained, as soon as one makes up one's mind to consider the two animals as forming a group. The difference in size between the two animals is equal to their distance from each other; in other words, if they were of equal size, they would touch each other. There was not the slightest natural or ideological compulsion to make these two so completely different measures equal; the compulsion was purely artistic, that is to say, it was determined solely by the conception which it adequately expressed. Nor did the artist leave us in doubt as to the meaning of this conception. For not only is there a relation between the sizes of the animals and the empty space between them, but in addition the symmetrical animal curves have a different form and motion according to their positions, while the relation itself is strengthened because these differences are determined by ideal horizontals: the two mouth openings, the ends of the two tails and the two eyes, that is to say, the beginning, end and line of vision of each animal, are at the same level. While the two reindeer thus attract each other by the force active in themselves, they are violently separated by an outside force. The group is the resultant of these opposing forces, and the distance between the two animals corresponds exactly to the intensity of the two energies involved: love and death. The tension between them increases with the asymmetry of all elements of the design, and of certain corresponding sizes and patterns. And the fact that the amount of empty space plays a special part is shown first in that it does not constitute a unit for measurement for the animals; and second, in that it reappears in the antlers which diverge at the base and converge at the top; the formal play of these oppositions is liberated from subjection to natural likeness and unfolds in ornamental purity and freedom. These converging antlers above the empty surface show how strongly the artist could take space-representing vacuum into account as soon as he wished to do so.

The last argument, that of the lacking frame, is the least convincing. It is based on the idea that an infinite earthly space must be represented directly, that is to say, as one constantly transcending itself. The frame (painted or sculptured) indicates the artificiality of the painting's autonomous form within this frame, and the leap into divine transcendence outside it, in other words, the trans-substantiation of what Hegel termed the "bad infinity" (earthly quantity) into the genuine one, the infinity of divine quality and substance. Even those who, in order to preserve their own prejudices, take it for granted that monotheism existed in the paleolithic era, will not maintain that it had a transcendent character, which is in all events incompatible with magic. In the eyes of the totemistic magician, space extends as far as the interests of his magic: to the group in which the animal to be killed was living and to the groups into which the clan was divided or with which it had external relations. Space as the object of artistic representation was not an infinite continuum but a finite space between bodies and a form concentrated in the bodies, for the very reason that everyday life threatened to be lost in the infinitely open space and the magician had only finite means at his disposal. The

absence of a frame does not prove the absence of all representation of space, but only the absence of one specific (Christian and modern) conception of space, and the presence of another one, which limited space in accordance with the range of the existing material and ideological weapons and regarded the rest as motive force, not as an object to be represented. This should remove all doubts as to the existence of spatial representation in paleolithic painting. It existed on the one hand indirectly as a condition for the corporeity of the animals themselves which was contrasted with the *horror vacui* as fullness and massiveness; and on the other, it was a direct representation of space, usually in the sense of restricting emptiness, but often involved the deliberate use of emptiness as intervening space for the purpose of representing a definite conception: in other words, it was positive representation of space.

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We have said that the line-element of paleolithic cave painting was the concave-convex curve, although this underwent several historically determined transformations. This curve could not be made mathematically regular because magic change was expressed by the surprising element of the geometrical turn. On the other hand, since totemistic monumentalism required a clear disposition, this disposition had to consist of a system of arithmetical and geometrical relations between the curve variations which could be all the more numerous and varied because the mathematical order was homogeneous and strict. In fact we find such systems beginning with the earliest works, and they are almost the same as those that we find in the latest paleolithic period: there was a traditional canon of proportions and a geometrical structural pattern flowing from the same source. The relationship between the geometrical and arithmetical orders likewise remains the same: wherever proportions predominate, the geometrical relations are less directly apprehended, and vice versa, wherever the latter appear clearly as parallelisms and complementary designs, the unity of the system of proportions is broken up into a variety of free rhythms.

The proportions, if we disregard the changing absolute dimensions, apply to the relations between the width and the height of the whole animal, between the whole width to the height of the body (without the legs), between the smallest and largest heights of the body (the former usually is situated far back, the latter far in front), between the articulations of the dorsal and abdominal curves; in many animals they apply to a system of two diagonals of unequal length, of which the shorter usually extends from the abdomen to the beginning of the tail, and the longer from the head to the hind leg. From this enumeration it will be clear that the individual proportions apply not only to lines drawn in one dimension, but also to the distances between lines and to lines drawn in different dimensions; for instance, in an early ox at Font-de-Gaume (fig. 37) the dorsal line is divided according to the absolute measures of the shortest and longest height of the body, that is to say, the proportions, in addition to articulating the lines, define the surfaces. Taking proportions into account was so natural to these early artists that sometimes they even omitted connections as a compositional device. The first

surprise of the spectator who takes measurements is not that he finds proportions in all these lines and surfaces, but that these proportions—largely independently of the various animal species represented—can be reduced to a few recurrent types such as 1:1, 1:2, 2:3, 2:5, 3:5, 3:4, 3:7 and 4:7. The first two require no explanation because they can be achieved with any scale. The next three form the homogeneous group $2:3 = 3:5$ which is known as the golden section. This second and greater surprise will naturally be received with general skepticism: in our aesthetic and historical thinking there seems to be an absolute contradiction between the cave-dwellers and the golden section. Yet the great frequency with which the width and height of the animals conform to the proportion of the golden section and the numerous repetitions of the same proportion in the system of the diagonals, in the articulations of the curves of the spine and the abdomen require a simple explanation, and in all its simplicity it literally lies in the hand: it is enough to spread the fingers in such a way that two of them oppose the other three to obtain the proportion $2:3 = 3:5$. It should be noted that—once the hand and fingers are taken as the basic scale—this way of spreading the fingers is the most natural deviation from dividing them in two halves which is impossible. But probably the origin of the golden section in the human hand was even simpler. If the normal male hand of paleolithic man had the proportion 3:2 between length and width, that is to say, if two hand-lengths were equal to three hand-widths, this explains not only why the total width and total height of the animals are in this proportion but also why the proportion 3:4 appears relatively frequently (even though less frequently than the golden section): by placing one hand beside the other one obtains 3:4 instead of 3:2. It is more difficult to explain the proportions of 3:7 and 4:7 from the hand alone. The drawings of arms at Santian suggest that the forearm and its relation to the hand (the ell measure) played a part. Be that as it may, there can be no doubt that the golden section which next to the 1:2 proportion is the most frequent proportion, was developed out of the hand, and this is only the first concrete example of the derivation of the aesthetic significance of the hand from its magic significance. The two explanations of the golden section, from the proportions of the hand as a whole and from a definite position of the fingers differ in that the first takes only a unique measure (the hand) and the second also a unit of measurement (the finger) as the basis. Logically these explanations do not exclude each other; historically, the dual attitude which made the hand first an undivided unity and then a composed totality may have actually existed in accordance with the manifold functions and extraordinary importance of the hand.

Before we discuss the artistic implications of the hand, a few remarks about the golden section are necessary. While it may have been imposed upon art by the magic of the hand, in accepting this compulsion the artist made it an element of freedom, that is to say, he appraised and recognized it as the adequate means of expressing a definite conception of and attitude toward life. Aestheticians steeped in psychology have made thousands of investigations as to whether the golden section is a proportion pleasing to the eye; but for the artist “delight” is not an abstract concept but the natural consequence of the fact that a given content has found its adequate expression. Thus the real question is: For what content is the golden section the

adequate (and therefore enjoyable) formal expression? And for what content must it be the inadequate (and therefore not enjoyable) expression, unless it be considered an obstructive counterpart, or a dissonance to be eliminated? In contrast to all proportions that imply only one division (1:2, 1:3, 3:4, etc.), the golden section expresses a relation between unequal parts in such a way that the relation of these parts to the whole is expressed at the same time. And the inequality of the parts in the golden section is such that it circumscribes the possibilities of equilibrium between a predominantly static and predominantly dynamic division and applies to that rectangle which is intermediate between the square, form of rigid immobility, and an exaggeratedly long or high rectangle (for instance whose length is to its width as 1 to 4)—in other words, the golden section is the synthesis of space and motion (time). The golden section is the proportion that creates form and that stresses the universality and unity of relations within this form. It secures a maximum of motion and an optimum of static order. Thus it is a concrete individual case of the more general aesthetic laws of unity in diversity and of synthesis of oppositions.

This general significance of the golden section (Cf. Max Raphael, *Der Dorische Tempel*, p. 15) entirely tallies with what the paleolithic artists tried to represent. True, the erroneous view that the animals of Franco-Cantabrian art are standing or lying rigid and motionless, has been repeated with tiresome monotony. In so far as this error is not intended to satisfy the consecrated prejudice of historians who make something—motion—arise from nothing—immobility, it results from another methodological prejudice: that of regarding motion through empty space as motion pure and simple. In reality, motion appears in paleolithic paintings as often as immobility. And this immobility is always the blocked motion of the mana-forces which traverse the contours or the interior modelling of the body. True, we are never in the actual presence of motion from place to place through empty space, but of motion within a limited space—but it is always motion of a very vehement kind (fig. 12^a, 13, 14, 44). One can distinguish between free motion from place to place through open space (open motion) and motion within a body in its own closed space (fixed motion). This would be another analogy with Greek art. The rearing horse at Les Combarelles (fig. 13) is not the most mobile figure there, but perhaps displays the greatest tension between statics and motion. The whole animal is inscribed in a square, while the actual body of the horse occupies only the middle third of the height and approximately the left two thirds of the length of this square. The intensity of motion can be measured by comparing the diagonal in the rectangle of the body with the extended forelegs (2:1) and with the diagonal of the square (from the hind legs to the head, 2:4). If it is also noted that the smaller diagonal has nothing in front of it and that the longer diagonal has nothing behind it, it will be clear that the double contrast of the dimensions and the position of the empty space with regard to the filled space was intended to produce the *effect* that one diagonal is finite and the other infinite; the body of the horse balances and shapes this tension between the two diagonals. If this interpretation is correct, we have here the first formulation of the problem that Leonardo tried to solve in *St. Anne with the Madonna and Christchild*: a syn-

thesis of tension between the finite and infinite, represented by two diagonals of unequal length, through a combination of geometrical figures situated in a definite manner (the pyramid and the oval). But even aside from the motions of the animals, walking, galloping or rearing, Franco-Cantabrian art is very definitely a style of movement. The line element was a concave-convex curve that changed its direction; the curves of the back and of the abdomen had the same direction in a quite different tempo of movement; and all this remained constant because the artist could represent the magical transformation, the magical effect only by the transition from one state of motion to another. But it is true that this motion was kept in the motionless circle of the magically fixed space. And it is the coexistence of motionless space and highly intensive motion that the golden section expresses. The actual motion of the half-nomadic paleolithics was a motion from place to place through space; the motion artistically represented was motion within an object. This difference is explained by the fact that here as always and everywhere art is the synthesis of the real dominant interests and the dominant ideological wishes of a given society. The golden section is the adequate form in which this synthesis of specific paleolithic objective and subjective contents, of the outer and the inner worlds, is represented. It is an artistic category which (like most categories) is rooted not in thought but in the very organ of action: the hand.

If we pass from the arithmetical to the geometrical aspect of the composition, the latter might appear quite unimportant to those who approach paleolithic animal painting with Euclidean ideas. The centering of figures on axes, and above all, on a middle axis, is almost entirely absent; the pure parallelism of two curves is an exception found only at an early period; complementary designs are rare; the combination of several bodies into one geometrical figure with an a priori function is limited to individual instances (fig. 8), and the same can be said of its a priori application to an individual animal for the purpose of a definite expression (fig. 45). The just mentioned derivation of the composition from the square (fig. 13) is also found in a single instance at Font-de-Gaume (fig. 20). But the composition at Font-de-Gaume shows with particular clarity that understanding for the paleolithic geometrical composition can be achieved only when one places oneself outside Euclidean geometry which was developed on the basis of the symmetrical structure of the human body, its balanced motion within itself (the horizontal of the hips) and its potential motion in space. The geometry of the paleolithic artist was not based on the human body, but on the human hand and the play of hands and fingers. Almost all the figures at Font-de-Gaume can be reduced to one single motion of the hand: that of spreading it. This "spreading" pattern applies to the upper or lower sides of the animals depicted or to both sides equally, in other words, only one of the two identically directed dorsal or abdominal curves is bent, while the other is quasi horizontal; in other instances both curves are bent, and the curvatures either balance or stress one another. In addition to the spreading of the hand one also finds, but much more rarely, a narrowing of the hand. It will be recalled that at Gargas, Castillo, etc. spread-out hands are almost exclusively represented: once again, the magic function determined and produced the

artistic form. But the formal aspect of the case must not be over-simplified even as far as Font-de-Gaume is in question. By cataloguing the geometrical compositional patterns of the bison it is easy to see that the motion of the spread-out hand was answered by a counter-motion whose shape depended partly upon each animal's attitude and partly upon the extent to which motion and counter-motion were blended. Wherever the counter-motion is organized only formally the pattern is that of two squares (the second has four times the area of the first) terminated by a rectangle (occasionally having the proportion of 3:5). (It should be noted that the geometrical figures and the measures are here artificially simplified, because of the irregularity of all corresponding forms.) When motion and counter-motion are blended more intimately, the whole design forms a kind of rhomb with differently accented diagonals or a curve going around the entire front section of the body, a curve which is strikingly reminiscent of an arc. The two examples can be easily demonstrated by stretching the thumbs and index fingers of two hands and placing the tips together. But even the much more complicated intermediate forms at Altamira can be obtained by simple finger motions, and these have the same sexual significance among peasants of today as they had in the paleolithic age. The development proceeds from the motionless or slightly moving hand toward the ever freer play of hands and fingers; the original forced magic character was increasingly displaced by an aesthetic playful character, whose intentions may still have been magical, but whose causes (like those of magic) were concretely physiological and stressed as such to an ever increasing degree.

Why was the hand the main source of compositional form in paleolithic art? The reference to the great and decisive magical role of the hand does not completely answer the question, because this role must itself be explained. The hand was the organ by which erectly walking man could translate the superiority of his consciousness over the animal's thinking capacity into practice. The hand enabled him to make instruments and weapons independent of his person; he could use these implements himself or give them to other men and limit himself to making the implements which gave him power over other men. The hand was the organ that enabled man's spiritual and physical forces to strive outward, that in the struggle for existence secured his life against animals and his power over other men; it was the conductor of the mana-forces which steered the organization of society and the distribution of the means of subsistence to his own advantage. If the world was conceived after the image of the hand, it was conceived as an abundance of forces, and these physical and magical forces must conversely find their representation in the hand. It would seem that paleolithic man took for granted the formal analogy between the animal and the hand, which for us remains a paradox. The hand is not a structure centered on an axis, it is unsymmetrical in shape, it has a one-sided direction just like the animal in motion, and its motions are free and independent of one another, because, unlike the human body as a whole, they do not constitute a single system of balance. At the same time there is a great difference between the hand and the animal: the hand developed independence earlier than any other human organ, while the animals had less

mobility and freedom in proportion as they were larger (as, for instance, the bison in contrast to the horse). This contrast must have strongly stimulated paleolithic man, because it was the expression of his superiority over the animal. The double factor of formal analogy and functional heterogeneity between the hand and the animal led to the utilization of the hand (imposed by magic and determined by the natural and social conditions) as the basic form of artistic composition, arithmetically and geometrically. Perhaps still another factor contributed to eliminating all mechanical character from the aesthetic utilization of the hand on the basis of its material and magic significance—the much more ancient role of the hand in the formation of language. Modern philologists (Cf. Sir Richard Paget, *Human Speech*) maintain—taking up an older theory of Dr. J. Rae—“that the speaking organ imitated the bodily gestures, especially those of the hands, with which homo sapiens some 30,000 years ago tried to make himself comprehensible and understand his neighbors.” Professor Alexander Johanesson whose words I have just quoted (*Nature*, February 5, 1944), on the basis of his own investigations of primitive speech, goes on to say that “Of the 2,200 Indo-European roots constructed by philologists, the most important class can be explained as an imitation by the speech organs of the movements of the hands, as the first man began to speak. . . .” He singles out 500 roots that have concrete meanings. But whatever we may think of this modern philological hypothesis, the fact that the hunters used the hand as a means of communication in order to avoid frightening their prey by shouts, suffices to support my assertion that the hand is the basis of formal composition of all paleolithic (Franco-Cantabrian) painting. We have here the earliest known stage of a long evolution. For if the symbolism of the hand has almost entirely disappeared from western European Christian art (God’s hand as a symbol of His person or power is one of the few vestiges; in the Jewish priestly blessing, too, the magic significance of the hand still operates), the magic and symbolic meaning of the hand has a long history in the East. In another book I will show that the magic signs on neolithic Egyptian ceramics can be reduced to and explained by fingers; the symbolic meaning of hand and finger postures in the Buddhist art of India and China has often been discussed by writers on the subject. Can one infer from these facts that the Orient was closer to the historical source of the magic of the hand than the region of the Pyrenees?

During the paleolithic age the animal was the measure of all things—but only through the intermediary of the human hand. Animals had forced man to follow them through valleys and mountains in search of food, before man was able to pen and protect the animals and thus dominate and exploit them, without killing them. Between these two stages man had emerged from his zoological enslavement to animals and “laid his hand upon them” both magically and artistically. When the artistic imposition of the hand followed the magical one, a higher stage of human emancipation was achieved. Man began to experiment with his power, he was no longer subjected to the animals, but he was still subjected to his own spiritual means of domination over the animal world. And everything indicates that this subjection was complete.

The thesis of a homogeneous compositional principle for a whole epoch has a significance that goes beyond the paleolithic age: it raises the problem whether such formal unity cannot be found in other epochs too. I have already mentioned the fact that all Greek plastic art is based on the Euclidean frame of reference. The history of Greek plastic art could be written as the history of a theme with variations according to whether this frame of reference was used to express a higher power or human will, and whether this human will referred to a movement within the human figure or to the relation of man to space. During the Renaissance all the dominant artistic forms were derived from man's anatomic structure, his system of muscles, his circulation of blood. The artists used chiefly either one aspect of this conception or the whole conception as a unity of mutually determined partial phenomena; and this defines the difference between Leonardo and Raphael (or Michelangelo). Without dwelling upon those periods of art which see the measure of all things not in man, but in man's relation to God (like the Egyptian and medieval periods), I should like to stress the importance of this thesis for a general history of the human spirit. It illustrates the progress man had made in the understanding of himself, and thereby of asserting himself as *homo mensura*, the measure against nature. Also, it enables us for the first time to investigate the derivation of the form system, conceived as homogeneous, from its material and ideological bases. It enables us to understand all art centered on man as a contrast to his real motion through space in his role of nomadic hunter or sea navigator, and all art centered on the relation between man and God as a contrast to man's sedentary life: the spiritual movement into the infinite corresponds to physical immobility; and the fixation of spirit in the finite, to constantly renewed physical motion. Finally, it enables us to show why a definite world of forms must necessarily correspond to definite material and religious bases. Thus the history of art can leave the Linnean stage of cataloguing unessential characteristics and become a serious science.

* * *

The term "art" is employed in three seemingly related, but essentially different meanings: (1) the imitation of a ready-made world (whether it be the product of nature or religion, emotion or reason); (2) the portrayal of a contradiction between fixed and ready-made forms on the one hand, and contents in process of development on the other (or between fixed contents and forms in process of development); and (3) the constitution of a world of more or less autonomous forms, which draws its life from itself, and which is adequate to the contents. The first idea of art negates the basic importance of the contradictory tension existing between the process of experience, which achieves unity of conception starting from the manifold external and internal reality, and the process of artistic creation, which methodically translates the original conception into a sensual theme and later into an artistic whole for the purpose of achieving the identity of nature and art, spirit and sensibility. The second idea of art recognizes the heterogeneity of the two orders but superimposes them one on the other, just as an arbitrarily ornamented veneer is superimposed on the natural grain of the wood, and

considers the dualism of form and content, the paradox of non-identity of life and artistic representation, an unchangeable principle. Only the third idea of art rests upon the fundamental assumption that the outer and inner worlds, the object and the soul, natural and social compulsions achieve unity in an autonomous element of form that unfolds spontaneously and methodically from a theme both concrete and universal into self-sufficient artistic creation. In order to give paleolithic art its correct place in history and in the realm of values, it must be said that it belongs to the last of the three categories just described. This art is not a peripheral manifestation, a blind alley, but expresses the very essence of art. What the creation of a work of art implies in paleolithic Franco-Cantabrian painting will be indicated in the following paragraphs, which deal with a few important aspects of this creative process.

Even such a simple and early example as the ox at Font-de-Gaume (fig. 37) shows us that the form of this work of art is not completely defined by the parallelism of the hind and fore parts of the body and the divergences of the dorsal and abdominal curves. The striking outline of the neck and the belly, a concave center piece with two (only barely symmetrical) convex ends, recurs both in the hind part of the thigh and in the interior hind leg and varies in curvature, size and position. We are dealing here not with a haphazard juxtaposition but with a necessary sequence, that is to say, this sequence is not purely temporal, but logical: the variation at the front part of the body is the later one, and has its concrete form at a definite place between the beginning and the end. Thus there is a shape to the artistic body that does not depend upon the shape of the animal (or object) alone, but upon a specific process which, starting from the form-element, strives toward form-totality. Several reasons can be cited for the transformation of the initial variation into the end variation. The first reason is that a differently formed line-element is situated between them; the second is that the end variation is traced in a different dimension of the plane. Thus two axioms rule here (1) one form interrupted by another form can re-emerge only in a variation; and (2) the change from the perpendicular to the horizontal dimension causes a change in direction in the perpendicular dimension, which no longer rises but falls. The first axiom means that the mere interruption of a line-element by another involves a struggle between them, and that every struggle changes the nature of the struggling elements. The second axiom denotes the different meaning of the individual dimensions and directions for our consciousness, because our consciousness itself is a complex frame of reference (Cf. Max Raphael, *Erkenntnistheorie der konkreten Dialektik*, p. 181), which in art expresses itself in a spatial frame of reference. What we are referring to here is not only that the horizontal signifies death and the perpendicular, life (Auguste Perret), but that man sometimes lives as a bodily being among other bodily beings, sometimes raises himself as a conscious being from the unconscious to the super-conscious, and sometimes moves from the materiality of the body to the immateriality of the spirit (or vice versa). It would be an idle undertaking to attempt to formulate a general law, independent of historical and individual psychic conditions, expressing the relation between the spiritual and spatial frames of reference. It is enough to call attention to the fact that in the drawing mentioned above, the

horizontal line that runs from left to right expresses a passively accepted compulsion which becomes conscious, and the vertical line conquers and spiritualizes the earthbound heaviness of the animal's belly. To constitute a work of art means to carry a form-element through several dimensions of space and consciousness in such a way that certain axes of these different frames of reference are unambiguously related to one another.

There seems to be an indissoluble contradiction between the idea of autonomous artistic representation to which the artist strives as the perfect goal of his activity, and the spatial and spiritual frames of reference. For while the work of art is finite and necessary, the frames of reference are infinite and arbitrary in their applications. But even paleolithic artists had several methods of being both finite and infinite, arbitrary and determined in one work of art. We have said that in our example two different but related line-elements meet. Their contrast supplies the theme, that is to say, the sensually apprehended content of the conception. Whether the oppositions contained in a theme are solved spontaneously or whether the oppositions are solved by the artist's will forced upon them, in brief, whether the work of art, speaking in religious terms, is "genitus" or "factus," depends upon the depth of the artist's insight and his creative freedom. But the theme always signifies two things: (1) the limitation of the existing infinitely numerous possibilities to one concrete, limited, finite instance, and (2) the liberation of the finite instance from its concrete materiality by developing it in all its possible variations; this process is limited only by the power of the artist's fantasy and the degree of the public's receptiveness. Thus the invention of a theme enables the artist to express a fundamentally infinite process in a fundamentally finite form, or in other words, to preserve the created and finite work of art in the infinite process of creation. For the spectator the consequence of this is that the process of contemplation spontaneously renews itself after it has been completed; that a finite work of art can be seen an indefinite number of times without ever being exhausted. The spectator is rarely aware of this fact; he takes it for granted. The end suddenly becomes the beginning after the beginning has methodically, step by step, led to the end.

The invention of a theme to express a conception, the translation of a content into a play of form-elements is the condition sine qua non of the constitution of a work of art, but the work of art is not constituted until its immanent artistic potentialities are unfolded. These immanent potentialities have no doubt more to do with form than with the content, that is to say, they are inherent as much in the nature of the conception as in the figural shape of the elements that form the theme. Thus it is characteristic of paleolithic art that at first the development of the theme is based only on the animal, on a force active in it, which transcends its will and breaks through as an elemental process; but at Altamira this inner urge that strives outward, encounters the outward force that acts magically on the animal, and these two forces change motion into rest or rest into motion. More than that: the physical forces are subject to a dialectics of their own. While the bulk of the animals is contrasted with their motions, or while their massiveness is pushed to the extreme dooming them to impotence, the magic

force acting from outside becomes as though the concretization of this change, for instance, the change from sexual ardor into exhaustion and weakness. This can be detected on many of the bison at Font-de-Gaume, but is particularly clear at Altamira where the conceptual content: magic—sexual drive, struggle—death, propitiation—dissection, has achieved such solid form that the spectator is aware of both the external and internal causes and effects. But duality of causes and effects is only a simplified expression of a complex reality. Even if this reality is grasped, the profound artistic content is not exhausted; the act of artistic creation has produced a content that comprises more than was supplied by reality and by social consciousness. The reason for this is not that the artist created new contents by the intensity of his feeling (his genius)—such contents would remain finite and historically determined just like the existing contents—but that he penetrated the existing contents with all the coordinates of human spirit and thus secured ever more universal meanings. This chain of meanings which begins with the relatable content of the subject or the describable form and attitude of the object and ends in profound universal human contents, constitutes the unfolding of the concrete conception (individual idea). The formal unfolding of the theme into artistic representation rests upon it or is identical with it.

This process of universalization is itself only one aspect of the material unfolding of the subject matter and its development into a profound artistic content; the second process takes an opposite course, it leads to a concrete differentiation of the same subject matter. The same force which makes the hind (fig. 47) the symbol of all magic, and beyond this, an analogy of the Hagia Sophia of Greek wisdom, and raises the bison (fig. 48) into the symbol of the internally exhausted sham potency of human will (or of the monomanous will of every slave)—the same force, in the bison seated for purposes of propitiation, produced the passively accepted unsteady fall into the formless (female animal) or the controlled fall of a proud and conscious royal destiny; in the two smaller black bison (fig. 24) it produced the acceptance of a change to which one reacts with virile will and the other with feminine receptiveness. Differentiated subjective experiences of man and differentiated observations of animals, different parts of objective existence and stages of evolving consciousness are adequately related to each other and synthesized into a unity of inner and outer worlds; and this unity of concretizing differentiation is woven into the universalization of the historically determined subject matter. It is this tension between oppositions that enabled the artist to raise the historically given and limited magic totemism into the sphere of the timeless aesthetic object and this translation is in turn a condition for the formal development of the theme into an artistic whole.

To constitute a work of art as autonomous, means to liberate this closed system of objective meanings and meaningful things from these two different yet united worlds of subject and object. The method of this liberation is that the sequence of individual forms in the work of art that represents it is developed as though the motive forces and laws of this development were inherent neither in the natural laws of things nor in the psychological laws of consciousness but as though the theme unfolded itself in accordance with the artist's ultimate purpose.

Every individual form flows from the same undivided unity, and determines the following form just as it is determined by the whole, thus performing at least three different functions: it unfolds the unity of the theme, prepares the next step of the development, and represents the whole. But as a form it is more than a synthesis of these three functions: it is a structure, a representation on its own count, to wit, that likeness of the whole which irreplaceably corresponds to its particular local value. The means by which this process is realized are various: decomposition of the complex into its elements and combination of the elements into a complex whole; interruption, intensification, reversal, etc. The paleolithic artist knew those devices which were compatible with his fundamental attitude of not centering himself on man, and of determining all form by constantly changing forces. But more important is the fact that he completely mastered the blending of emanation-like self-motion with causal and teleological determination. For this, and only this, makes the constituted work of art reveal more than is obtained directly from its constitutive elements, and translates the complicated objective form into simple formal effects. This formal effect alone is grasped by sensual perception which is oblivious of the fact that the work of art has arisen neither from simple nor homogeneous sources. We have seen that the paleolithic artist was greatly dependent on natural and social reality, and that this reality often assumed an increasingly dual character: hunting economy and gathering economy, two modes of feeding that increased the differences between the sexes, nomadic and sedentary portions of the individual life and of society, totemism and magic. These tensions and antagonisms of real life produced an increasing compulsion to overcome them in works of art. The creation of works of art was possible only under a system of laws which set a new and maximum resistance to man's spiritual creativeness. But these laws—then as today—could be established only on the basis of a leap into freedom, a leap made possible by the developmental stage of the existing society and by the artist's talent, which is nothing more than the specific artistic form of the history- and civilization-making powers of society as a whole.

The Composition of the Magic Battle at Altamira

The more we analyze the single animals represented in the paleolithic paintings, the more clearly we see that, despite many external differences, these works of art are fundamentally the same as those of today. It seems to follow that man of that time was not fundamentally different from man of today. But if paleontology has long since admitted that early paleolithic man had a similar physical structure to man of today, modern historians of art, and especially archaeologists, still refuse to formulate a similar conclusion with regard to art, because this would entail for them the sacrifice of their so-called historical science. Thus they choose to belittle the spiritual achievements of the paleolithic people in order to maintain the misleading doctrine of progress from nothing to something. They assert that the paleolithic artists knew neither space nor movement, let alone the composition of individual animal units into unified wholes, complex works of art. This assertion completely contradicts the facts; thus Zamiatnine⁽¹⁾ has tried to show that the reliefs of Laussel dating from the Aurignacian period are a composition representing a magic hunting rite. To prove our thesis more generally for the painting of the Magdalenian period we need not limit ourselves to pointing out the already mentioned frequency and variety of groups. We will show that a single conception underlies the fresco on the Altamira ceiling, and that this conception is represented by an equally unified composition; that the elements of this conception and composition can be found in earlier paintings at Les Combarelles and Font-de-Gaume, and that the Altamira ceiling is thus the result of a long development which combines elements that were originally separated. Incidentally, the compositions related to the ideas and forms at Altamira are not the only existing ones; there are others, very different ones from those of Altamira.

A unified composition requires an equally unified and differentiated conception, and this to an increasing degree in proportion with its size and monumentality; it requires a subject matter and artistic content of which the diverse elements derive from the same source and which develop in clearly articulated contrasts toward an end that was implied in the beginning. The unity of subject matter on the Altamira ceiling, as is usual in paintings of battles, lies in the very disorder which was mistakenly interpreted as showing the absence of unity. The division of the fresco into left, central and right groups is apparent even at a casual glance. If we try to interpret this unity, so diverse and so rich in contrasts, on the basis of Abbé Breuil's sketch of the "plafond" (figs. 23 and 24) we must keep in mind that Breuil left out all the "anthropoid" figures which are gathered chiefly at the extreme left, around the hind, as well as most of the heads of the hinds that are found chiefly at the upper right, and the signs known as "Tectiform," most of which are near the hind and the large bison. If we now examine first the "upper" part (fig. 24), a group of crowded animals, this is what we see:

(1) S. Zamiatnine, *La Station Aurignacienne de Gagarina* (Moscow-Leningrad, 1934).

To the left, in a position sloping downward, stands the hind, completely isolated. It is the largest animal in the painting. To the right of the hind and parallel to it, on a base situated above, there is the bison, which forms the lower focal point of the composition, and is also relatively isolated. The spectator sees these two animals in profile, but they themselves, the hind with a somewhat raised, the bison with a somewhat lowered look, see each other face to face. The spectator is almost compelled to notice this fact, because the massive bison is surrounded by signs from three sides (below, in front and behind) and is thus obstructed and condemned to immobility, while the long-legged hind is shown advancing lightly but urgently, with its entire body and head more than with its legs. There is an extraordinary tension between the two animals, and the significant empty space between them intensifies rather than weakens this tension. The distance between them is equal to the length of the female animal, that is, greater than the length of the bison; thus the hind has greater weight in the picture although the bison is placed higher. What we have here is obviously a magic of the eye, which, as contrasted to the magic of the hand, is based upon action at a distance. The isolation of the animals can be explained by the custom which even today prevails among certain primitive tribes according to which warriors and especially war leaders are taboo (Cf. Frazer, *The Golden Bough*, Abridged Edition, p. 210). While the space between the hind and the bison is empty at the level of the hind, we find it filled on two planes at the level of the bison: below, there is a single bison with a strikingly rounded back in dull color; above it, two smaller and black bison, a male and a female, are shown stepping toward each other, but are separated by several heads of hinds; behind the female bison a smaller one is represented seated upright (later we shall discuss the meaning of this posture which is also found at the right wing). The size and color of these animals show that although they are placed between the large and more colored leading animals, they do not prevent the direct relation between the latter, but are supposed to emphasize it. Above, on a third and parallel plane there is a male bison on whose back a much smaller hind has leapt; before its head there is an eye turned from a horizontal to a vertical position and surrounded by two sets of triple lines. We have here both the magic of the eye and the actual struggle which terminates this left and slantingly situated wing. It is entirely filled by the contrasts between the hind and the bison, between femaleness and maleness, long-legged mobility and massiveness, majestic tenderness and self-obstructive weight. The fact that two enemies are depicted here is proved by the pictured attack—we find such an enmity at Castillo also, where from the back of a collapsed (or perhaps painted in an erect position) polychrome bison two small hinds drawn in red look triumphantly into the distance while hands are placed around the lower portion of the conquered bison's body. At Altamira we have at first only the initial stage of this conflict: the magical stage; but in this initial stage there is no question that the hind possesses a greater magic power as opposed to the great physical strength of the bison.

The paleolithics did not believe that magic alone could be victorious. Thus we see in the center of the fresco the thrice repeated fight between the bison and another animal. In all

these three cases we have “crossed” groups, superpositions or intersections, with the heads of each of the two fighting animals pointing in opposite directions: a vehement centrifugality in the middle of the composition. In the lowest of these three groups, the animal opposed to the bison belongs to a species of bovine, in the middle group its identity cannot be established with certainty, and as for the upper group, Cartailhac and Breuil interpret this animal as a wild boar (however, its strongly enlarged head which stands for the whole body, is more like that of a horse). No doubt we have here several phases of combat and flight. Actually the wild boar shown at the extreme left and right corners of the fresco is the attacking animal; its presence and function are difficult to explain because wild boars appear only rarely in Franco-Cantabrian painting, and the question arises whether they do not play the part of scapegoats such as the primitives use to propitiate killed animals (as described in the text by Frazer quoted below). It would be easier to explain the presence of a horse: at Les Combarelles bison and horse clans are shown as enemies, and here the horse may be the ally of the hind, for it has a hind painted inside its body.

At the right wing there is a group of bison, all of them in similar postures, arranged in three levels. Breuil who drew them upright in his sketch later reproduced each animal as lying down and as seen from behind, that is to say, from the place occupied by the two leading animals at the left wing. The two postures (lying and upright) have definite meanings: these bison are dead animals who are seated upright for the purpose of a ceremony of propitiation, which is shown us in all details at Niaux (fig. 36). Here, offerings are set before the upright animals and the weapons are set behind it, as though the clan performing the rite of propitiation tried to lay the blame for the killing on its weapons. I found the explanation of this posture and rite in the following passage from Frazer:

“The explanation of life by the theory of an indwelling and practically immortal soul is one which the savage does not confine to human beings but extends to the animate creation in general. In so doing he is more liberal and perhaps more logical than the civilized man, who commonly denies to animals that privilege of immortality which he claims for himself. . . . Thus to the savage, who regards all living creatures as practically on a footing of equality with man, the act of killing and eating an animal must wear a very different aspect from that which the same act presents to us, who regard the intelligence of animals as far inferior to our own and deny them the possession of immortal souls. Hence, on the principles of his rude philosophy the primitive hunter who slays an animal believes himself exposed to the vengeance either of its disembodied spirit or of all the other animals of the same species, whom he considers as knit together, like men, by the ties of kin and the obligations of the blood feud, and therefore as bound to resent the injury done to one of their number. Accordingly the savage makes it a rule to spare the life of those animals which he has no pressing motive for killing. . . . But the savage clearly cannot afford to spare all animals. He must either eat some of them or starve, and when the question thus comes to be whether he or the animal must perish, he is forced to overcome his superstitious scruples and take the life of the beast. At the same time he

does all he can to appease his victims and their kinsfolk. Even in the act of killing he testifies his respect for them, endeavors to excuse them or even conceal his share in procuring their death, and promises that their remains will be honorably treated. By thus robbing death of its terrors, he hopes to reconcile his victims to their fate and to induce their fellows to come and be killed also. For example, it was a principle with the Kamchatkans never to kill a land or sea animal without first making excuses to it and begging that the animal would not take it ill. Also they offered it cedarnuts and so forth, to make it think it was not a victim but a guest at a feast. They believed that this hindered other animals of the same species from growing shy. For instance, after they had killed a bear and feasted on its flesh, the host would bring the bear's head before the company, wrap it in grass, and present it with a variety of trifles. Then he would lay the blame for the bear's death on the Russians, and bid the beast wreak his wrath upon them. . . . When the Ostiaks have hunted and killed a bear, they cut off its head and hang it on a tree. Then they gather round in a circle and pay it divine honors. Next they run toward the carcass uttering lamentations and saying, "Who killed you? It was the Russians. Who cut off your head? It was a Russian axe. Who skinned you? It was a knife made by a Russian." They explained, too, that the feathers which sped the arrow on its flight came from the wing of a strange bird, and that they did nothing but let the arrow go. They do all this because they believe that the wandering ghost of the slain bear would attack them at the first opportunity if they did not thus appease it. . . . Among the Nootka Indians of British Columbia, when a bear had been killed, it was brought in and seated before the head chief in an upright posture, with a chief's bonnet wrought in figures, on its head, and its fur powdered over with white down. A tray of provisions was then set before it, and it was invited by words and gestures to eat. After that the animal was skinned, boiled and eaten. . . . A fuller account of the Koryak ceremonies is given by a more recent writer. He tells us that when a dead bear is brought to the house, the women come out to meet it, dancing with firebrands. The bear skin is taken off along with the head; and one of the women puts on the skin, dances in it, and entreats the bear not to be angry, but to be kind to the people. At the same time they offer meat on a wooden platter to the dead beast, saying, "Eat friend." Afterwards a ceremony is performed for the purpose of sending the dead bear, or rather his spirit, away back to his home. He is provided with provisions for the journey in the shape of puddings or reindeer flesh packed in a grass bag. . . . But after, the resurrection of dead game may have its inconveniences, and accordingly some hunters take steps to prevent it by hamstringing the animal so as to prevent it or its ghost from getting up and running away. This is the motive alleged for the practice by Kouï hunters in Laos; they think that the spells which they utter in the chase may lose their magical virtue, and that the slaughtered animal may consequently come to life again and escape. To prevent that catastrophe they therefore hamstring the beast as soon as they have butchered it. . . . But hamstringing the carcass is not the only measure which the prudent savage adopts for the sake of disabling the ghost of his victim. In old days, when the Aino went out hunting and killed a fox first, they took care to tie its mouth up tightly in order to prevent the ghost of the animal

from sallying forth and warning its fellows against the approach of the hunter. . . .” (The propitiation of wild animals by hunters, in *The Golden Bough*, pp. 518-530.)

The end of the event is depicted at the extreme corner of the ceiling: a number of animals surrounded by heads of hinds and attacked by a wild boar. One bison is bellowing because it is wounded (or perhaps because it is in heat), one has its head wrapped (this can be explained with the help of Frazer’s text), one is shown without a head, which is a hunting and death spell, and one stands completely fascinated, still living, but unable to stir. Thus physical death and magical death are in close contrast. The duality of the causes: magic and actual combat, that we saw at the left in the beginning, now at the end tallies with the duality of the effects: death and propitiation. In addition the lines of dissection are (like the lines indicating the sexual drive) marked on every individual bison, and only on the bison.

The subject matter of this ceiling fresco should now be clear in its unity and diversity. It deals with a conflict between hinds and bison, with magic, fighting, and the propitiation of dead animals. But what is the nature of this conflict? Is it a hunting spell that the hind clan is casting against the bison or a conflict between two clans which had the bison and hind as their totems? The latter hypothesis is supported by the fact that one of the bison seems to represent a sorcerer or a chieftain; if so, we might assume that the propitiation ceremonies described by Frazer were held in connection with the social-political struggles between the clans and perhaps only later were transferred to hunting. Another possible interpretation is that the fresco does not deal with two different clans but with two different powers within one clan: the spiritual magical power and the physical political power. It has been said that in various primitive tribes the magical power is often in the hands of women. Which of these hypotheses is correct remains uncertain, but one glance confirms the general interpretation that the scene represents a mortal conflict and a reconciliation. It seems that all the material weapons have been thrown away, and that the final phase of the struggle, the decisive intervention of the magic weapons, is about to begin.

All this may appear chaotic to us, but in the eyes of paleolithic man there was nothing more forceful than the power of magic and the power of propitiation. The conquered enemy in the painting is not depreciated, the greatness of his power is not doubted. As a result this struggle acquires the character of a sacrificial rite, and is endowed with tragic grandeur. It is clear that the subject matter of this painting, so closely bound to its time, with its historically determined iconography, could not have struck us with such force if the artist who created it had not endowed its content with a universal human significance. The materially and historically determined opposition between the two clans (or between a clan and an animal) has been transformed into a conflict between feminine tenderness and masculine bulk, between spirit and physical force; the hunting and fighting ideology of the early paleolithic period has become the conflict between spontaneous action and broken will; natural and historical facts have been transfigured to represent the power of Being, its constancy in change, the tragic break in human life. The magic power emanating from behind, acts on every individual animal, and

all of them react by varying the same primitive human forces. The transformations described above are justified externally by magic, and internally by the overpowering sexual ardor of the animals as the symbol of an unquenched and urgent need. Thus the posture and composition of each individual animal supplement and intensify the content and form of the whole.

Is this unity of subject matter and artistic content matched by a corresponding formal-compositional unity? One might be tempted to answer this question in the negative if the group analyzed above is studied in relation to the ceiling as whole. It will then be possible to point out the heterogeneity of scales used in the lower part and the upper part, the numerous signs in the very smallest scale that can be found between these parts, and the considerable dispersal below in contrast to the strong concentration above. However, the scales are considerably less different than appears from the sketch, because several animals are as large as 175 cm., that is to say, as large as the leading bison. Moreover, the duality of scales, which existed as late as the end of the Egyptian neolithic period (tomb painting of Hierakonpolis), argues not against but for unity, since the many small objects in the painting enhance the monumental effect of the large animals. It is clear that the accumulation of animals decreases as we go from left to right; this again stresses the importance of the leading animals and the development of the action according to the principle of cause (magic) to effect (propitiation). The contrast between agglomeration and dispersion, concentration and volatilization, was the basic compositional experience of the paleolithic hunters who followed the herds in hordes; unless this is borne in mind, the formal elements of their painting must remain unintelligible. This is not meant to imply that the whole ceiling in every detail was painted at the same time according to one plan, but that older layers, if such layers had existed, were taken into account and utilized in such a way that far from impairing the unity of the total composition they strengthened it. It should be noted here that an older technique may have been applied at a later time for sacral-ritual purposes, while conversely the more modern technique, which was invented to answer newer needs, was not applied in equal measure to all the animals depicted. Thus polychrome modelling was a device for representing the desired dissection or the sexual impulses of animals, but since these animals did not include the victorious clan of the hind and its allies, this device was not applied to them. As for the red color used for some signs, and the black color used for others (which we have interpreted above as magic weapons), they may have been prescribed ritually. If a unified composition does not exclude the fact that different layers were painted at different times, conversely this fact does not exclude the unity of the composition.

This unity is more easily demonstrated for the "upper" group taken separately. This group is inscribed into a triangle standing on its apex; its base is composed of concave and convex lines of various curvature. From a purely geometrical and organizational point of view it is striking that the animals of the left group (the magic scene) are distributed on four different parallels at the left side of the triangle, and that the altitude of the triangle is emphasized by quasi horizontals (the combat), while the other three perpendiculars arranged stepwise

(the animals seated upright for propitiation purposes) are to the right of this altitude, approximately parallel to it. Thus the effect of a sequence is obtained; it begins from the slanting line at the left, and leads over two crossed slanting lines which form a quasi horizontal, to the vertical lines. It is sufficient to imagine these three directions (slanting, horizontal, perpendicular) following one another in a different order (for instance, perpendicular, slanting, horizontal) to realize that the artist deliberately developed his composition from an undifferentiated unity (the slanting line) into a differentiated contrast (between the vertical and horizontal lines). This sequence of lines is perceived either from a fixed point or if we follow the whole group from the left (narrow) side, across the ceiling, to the end. Since the procession-like group played an important role in paleolithic painting, one may assume that the artist's intention was to combine a procession and a fixed halting place of the procession. The meanings of the compositional elements, the curve and the triangle, hardly require analysis: we have seen that the concave-convex curve expresses magical transformation; as for the open triangle, it represents the vulva which expresses the sexual content of the whole composition. These two elements together produce the shape of the weapon which flies in the air in various positions and directions.

We began to describe the composition by describing its geometrical form; this is, of course, a result of our modern formalist habit of a geometry a priori, which was alien to paleolithic man even when he seems to apply it. The fact that the height of the triangle is stressed by the two quasi-horizontals and that the verticals are displaced to the right proves that all geometrical elements were secondary with regard to the elemental forces in motion. For the paleolithic artists the primary element is the direction of these elemental forces (mana). They diverge at the center and strive inwards from the corners, but they are not in the least symmetrical (except the two wild boars at the extreme corners). The centrifugal force is thrice varied on the central axis: above, it continues further to the left; below, further to the right, and in the middle it is between the two extremes. Thus we have here an early example of the will not only to repeat a formal function but to vary it, develop it in such a manner that the formal idea creates its own adequate representation. It is a differentiating breaking up process that is integrated by the whole. This is particularly evident in the group of the animals seated upright (right) which is arranged in steps; thus the height is developed by stages and its effect is intensified. This device also makes the blocking of the centrifugal movement particularly clear. But the artist does not content himself merely with blocking it; in the upper row the centrifugal movement is opposed by a centripetal movement coming from the sides so that divergence and convergence are shown in one dimension. This fact assumes special compositional significance because in the left wing where the two leading animals walk toward each other, this centripetal direction is repeated in a weakened form only in the third diagonal row, while it reaches its culmination in the fourth row in a "crossed" group. In contrast to this gradual moving together, the different animals shown on the upper part penetrate and interlock, and the animals to the right represent a blocking movement and thus terminate the scene.

If one starts with the idea of the pack or the herd and the dynamic currents active in it, the composition unfolds its dynamism that leads logically from a beginning to an end.

The existence of a unified composition can be inferred not only from what is in the painting: the geometrical form of the whole, the dissolution and complication of the dimensions and directions, the repeated use of parallels and steps, the function of the bison leader as the focal point, the fact that the distance between the two hostile leading animals is exactly equal to the size of the hind, the corresponding positions of the wild boars, the accumulation of "anthropoids" and signs at definite places—devices that can all be explained as representing the internal movements of the herd: its crowding together and dispersion, which had fundamental importance for the paleolithic people's physical and spiritual life. A definite compositional intention can also be inferred from the fact that the two leading animals do not meet at the apex of the triangle and that the animals seated upright for the purpose of propitiation are not arranged along the height of the triangle. If the artist had done this, he would have destroyed the meaning of his composition, or, more accurately, the adequacy of the compositional form to the contents of the painting. This shows clearly that the composition was not made to conform to an abstract geometrical pattern but to express a definite concrete content. It cannot be denied that certain socially and historically determined compulsions were operative both in the form and the content: the diagonals were traced before the verticals and quasi-horizontals, the pure horizontals were avoided, asymmetry and successive storeys were preferred, and an axis to balance the left and right was not introduced. Perhaps it is the absence of such an axis that leads many to believe that the picture has no composition: for under the pressure of both the Renaissance and ancient art we see in every composition an attempt to "set right," in accordance with the rules of balance around an axis, a world that is "out of joint." On the Altamira ceiling, too, there is a world "out of joint," this fact was felt painfully, for otherwise the fourfold propitiation would not be there; but artistically nothing can be "set right" in accordance with the principles of Euclidean statics. But even if the general historical prejudice is overcome, it will perhaps be argued: is not the element of this composition the individual animal (or group), and can one do anything more with mere units than to add them together, can one mold them into a whole that is an unfolding entity? We shall try to answer this question once again by discussing the history of the composition of Altamira and its preliminary stages at Les Combarelles and Font-de-Gaume.

It would be of the greatest help to reconstruct the original painting on the ceiling; according to Breuil, vestiges of it are under the present painting. If one takes into account the distribution of the earlier "anthropoids" and the heads of the hinds, the fact that the later paintings used more varied colors and that the central parts of the animals' bodies came to be neglected in favor of other parts, one finds that the upper row had the same width in the earlier fresco and that it connected with a downward slanting line that is essentially identical with the present painting's third slanting row at the left wing (the two small black bison of 90 cm.). The general pattern would thus correspond to the sign described by Breuil as "l'Image

d'une lance avec sa flamme, d'un drapeau déployé au bout de sa hampe horizontalement étendue," (the image of a lance with its pennant, of a banner unfolded at the end of a horizontally stretched staff), which is no doubt a stone weapon attached to a wooden stick for killing entrapped animals. This again shows the connection between the form of the composition and that of the weapon (the means of production), which also exists in the present ceiling. Thus the form of the means of production (weapons) probably changed between the two conceptions of the Altamira fresco, and this material development might explain the spiritual one. The scales are different, for the black bison measure only 90 cm. against the 150 to 175 of the present painting, but as for the contents, the sexual motivation and the propitiation theme had probably been present before, since behind the two small black bison one bison is placed in an upright posture, which Breuil omitted on his sketch. The monumental scale and the propitiation idea thus followed a parallel development, and this fact particularly emphasizes the social-totemistic origin of the propitiation idea. Simultaneously the importance of magic increased. Today's large hind (220 cm.) was absent from the earlier painting which showed another hind under the belly of the wild boar at the left edge (55 cm.). This suggests that originally the real struggle was more strongly emphasized than the magical struggle. The question would then be, whether magic had in the interval developed from a spiritual instrument of the hunting community into an ideological weapon used by the clan leaders to dominate an increasingly complex society. All these problems as well as our idea of the original composition remain unsolved. But this much can be said concerning its relation to the painting we have today: the diversity of the parts within the unified whole and the simplicity of the whole with regard to the differentiated complexity of the parts were heightened.

At Les Combarelles, which was the cave of the horse clan, we find two large and different groups of bison, one before and one behind the so-called tunnel, a fact suggesting that there was an indeterminate interval between the dates of the paintings. The first (fig. 10) shows eight bison in two rows connected at one place: an upper row (which was perhaps intended to represent the rear) of three animals, and a lower (front) row of five animals which is crossed by the larger hind in such a way that it forms one group of two and one of three. Note the absolute number: 2, 3, 5 and 8 (if the animals are taken as units, which is particularly suggested by a separate bison at the left near the back of the hind), which connect the two approximate formulas for the golden section ($2:3 = 3:5$, and $3:5 = 5:8$) and which, together with the contrast to the isolated hind, constitute the formal meaning of the composition. Thus the effect of indefinite renewal within an aesthetically closed group is produced. The two oppositions included in the synthesis of the golden section are made explicit by the opposite heights, directions and lines of vision of the hind and the bison, and by the sign which catches the spectator's eye following the procession of bison and which redirects it to the hind only in order to lead it through the counter-curve in the uppermost bison and make it begin once more to follow the procession after reaching the end. This effect going beyond mere imitation of nature irrefutably proves compositional intentions which are carried out with regard to the

spectator. They can be analyzed in much greater detail. The upper row is striking because of the strong spiritual expression of the animals which, although always of the same kind, varies from bison to bison. The first bison is moved not only from inside, spontaneously, but its whole movement remains internal, turned back upon itself; the movement of the second animal is directed outward and stops because the opposite movement is of equal intensity; in the third bison we have a movement that goes unopposed into the extreme, and the exhaustion of his inner force is manifested in a crossed superimposed group. Thus the externalization of the internal is matched by an analogous formal element. The upper row is unified, for the dorsal and abdominal curves of all the animals in it oscillate around a slightly mounting straight line, as though they were ascending an inclined plane. The dorsal curve begins each time at a lower spot and ends each time at a higher spot than the dorsal curve of the preceding animal; in other words, despite the interruptions the ascent of the dorsal curve is increasingly steeper. More accurately, if the beginning of the back near the tail is connected with the front end of the head angle, one obtains in the right animal a slanting line that runs in a direction opposite to that of the ascending group; in the middle animal, a horizontal which runs between the two slanting directions, and in the left animal, a slanting line that runs in the same direction as the ascending group. Thus the direction of the ascent is developed in opposition to a neutral middle. The relations between the curves of the back and the abdomen of the three animals differ in a corresponding way. This confirms the view that the whole group represents the transformation of an internal opposition into an external opposition including an intermediary phase of equilibrium.

A new phase is begun in the lower row, which presupposes the whole development of the upper row and goes beyond it, a fact most clearly demonstrated in that each individual bison is here no longer a new beginning but all are subject to a common concave-convex curve. The divergence of both outlines and the presence of complementary curves gives this row an opposite character; here the development goes from the external to the internal. Thus the inner form of the whole composition turns into its opposite at exactly the point where the outer composition emphasizes the connection between the two rows by placing them one above the other. However, the composition is based not only on the difference and connection between the rows, but above all on the opposition between the numerous small bison arranged in rows, bison with a close earthy look, short-legged massiveness, dull, frightening but impotent bulk on the one hand, and the large hind with its concentrating force as the axis, with its comprehensive distant look, its long-legged capacity for running, its spirited, conscious, majestic gracefulness and tenderness, on the other hand. This dominant opposition is also expressed formally. The proportions fix the distances, concentrate everything around the hind, articulate the groups in the whole, while the positional relations insure the victorious superiority of the hind: the bison of the lower row, with one exception, begin underneath the abdominal curve of the hind, and only one of them reaches the beginning of the hind's spine; the position of this bison is emphasized by the fact that it is placed between the two rows and

thus represents them both to the large animal. In the upper row only one bison reaches above the beginning of the head but not above the line of vision of the hind. If the violence of the opposition is clear, its nature is indiscernible, because the artist depicted a final situation: a solemn procession of bison which has the effect of a surrender to the hind. The motivation and explanation present at Altamira are lacking here: the force that makes the bison weak, the struggle which externally connects them with the hind and its magic power, the direct opposition of physical force and spiritual power, are not shown. At Les Combarelles the conception is presented only as a formally articulate process, while at Altamira the content is unfolded into different stages, for whose diversity a unified compositional equivalent was found. This difference affects all the details. At Les Combarelles, the hind embodies the triumphant calm and serenity after victory; at Altamira, it represents the forward-striving and inwardly collected strength for the gauging of the magic forces. The opposing elements, instead of being merely juxtaposed are shown in action. But the earlier conception tells us as little as the later one whether the scene represents a hunting magic or an episode in the history of the clan. As there is not the slightest basis for the first interpretation, the totemistic-political one seems more plausible.

The other group at Les Combarelles, which is situated behind the so-called tunnel, (fig. 11) has no relation to Altamira as far as the subject-matter is concerned. The formal arrangement is interesting because here the row is either abandoned or supplemented by angles at each end. But even this assumption is subject to doubt, because three other bison which Breuil failed to indicate belong to the group. Nevertheless we have here a significant formal link to the group in the *Salle des Petits Bisons* at Font-de-Gaume (fig. 19). The content of this group has no relation to the Altamira fresco either, but the formal compositional relation is all the greater because here, too, a triangle standing on its apex is the compositional pattern of the whole. The horizontal position of the ceiling may have compelled the artist to work along two divergent diagonals, because thus the surface to be painted was increased without the need to resort to two frieze-like rows placed one above the other. Be that as it may, there are considerable differences, significant for the historical development of paleolithic painting, between the two triangles, which may to a great extent be connected with the difference of subject matter. But it is difficult to indicate the subject matter of the painting at Font-de-Gaume with sufficient concreteness, despite the strikingly unified outward form. It seems that the bison have two separate functions: to fight against the horses (and oxen?) and to undertake a ritual action connected with the fight, in a procession-like movement—this is suggested by the “anthropoid” profile mask. If one disregards the fragment of a large bison under the apex of the triangle, parallel to its left side—a striking analogy with the isolated leading bison at Altamira—one may say that the artist of Font-de-Gaume had less artistic freedom than the artist at Altamira. He kept strictly to both sides of the triangle, he started from the apex and placed three animals at each side. To the right all these animals point in one direction (toward the apex), but to the left in two opposite directions, perhaps because the isolated

animal is represented as moving away from the apex. In contrast to this, at Altamira only the left side of the triangle is full of animal figures in several parallel layers one above the other, while at the right side these figures are scattered. Because of the more rigid symmetrical arrangement of the Font-de-Gaume painting (at least in the fragmentary form in which it has come down to us), the difference between the beginning and the end of the composition is unrecognizable, while there is not the slightest doubt on that point at Altamira. At Altamira, the artist deliberately avoided making the animals meet at the apex of the triangle; here, he achieved the strongest possible concentration at one spot, and filled the space between the sides of the triangle in such a way that all the animals turn outwards to the right approximately parallel to the lower row. But since their heads turn in a direction opposite to the animal below them, a second center of gravity is created, with the two opposite directions made to cross each other in the second bison of the lower row. Thus both functions of the fight and the procession were combined in this one animal. The upper terminal line of the triangle is absent at Font-de-Gaume. This line is characteristic of Altamira, for it transfers the line element from the single animal to the whole of the composition and thus enhances the unity of the ceiling.

The history of the composition of the Altamira fresco, in so far as it can be traced on the basis of the existing fragmentary material, leads us to conclude that at Les Combarelles there is a close but vague relation between the contents of the various paintings and no relation between their very different compositional forms; at Font-de-Gaume, inversely, the forms are closely related, but the contents are not. Thus the artists of Altamira combined two originally distinct trends of development. This was not a mechanical connection of heterogeneous ingredients, but the content and form have each become richer and more concrete; and in this process they were adequately coordinated with each other in such a way that the form itself became content, and the content form. This development is of the greatest significance for the history of the human spirit; it shows us in what sense the history of art is possible as a science: as the history of the mutual approximation of content and form in such a way that the content grows increasingly more specific and concrete and the form more differentiated and more capable of integration. If Altamira thus proves to be a final stage of a development, at what point were individual animals first arranged so as to form compositional wholes? Does this point reach back beyond the Magdalenian period to the Aurignacian and thus into the beginnings of the later paleolithic period? At present the very young science that calls itself paleolithic archeology found the answer to this question in so far as painting on Spanish soil is concerned: in Covalanas (fig. 30). Since Covalanas belongs to the Aurignacian epoch, this would serve as an indirect proof of Zamiatnine's bold attempt to reconstruct the reliefs of Laussel as a single composition.

* * *

Paleolithic art is as distant from us as it is close to us. Because we are separated from it by an estimated 12,00 to 15,000 years, we are confronted with a great number of facts that for the time being we are unable to read or interpret. Thus pseudo-scientific pride could accuse

this art of being mute and brand it with the mark of primitiveness, that laziest excuse of humanistic science in the period of monopoly capitalism, intended to conceal the lack of ideas and their deterioration in a whole historical epoch. But this art, if correctly appraised, can help to liberate historical thinking from the metaphysical and dogmatic attempt to create something *ex nihilo*, an attempt which is based on elevating a limited historical form to the rank of a universal and fundamental criterion. On the other hand, paleolithic art is close enough to us to make us feel the unity of mankind and reduce the seeming difference between history and prehistory. This difference is theoretically justified only by the fact that so-called prehistory has no written tradition, that is to say, no historical documents we are able to read. Then, as today, man was oppressed by man; then, as today, art represented the wishes and interests of the ruling classes which possessed the spiritual and material tools and weapons. It is because prehistory is not yet ended but can be said to be entering upon its last stage, that paleolithic art is again so tremendously effective today. The great force of this art appeals to our consciousness of power over nature; it is pervaded with a strong sense of the reality of the outer world, with which today we have only functional relations; it expresses a sexuality both strong and controlled (and it must not be forgotten that for the last two hundred years sexuality has been the focus of all escapist thinking in our civilization). This art expresses man's tremendous potentialities which transcend the will of the individual and of society, and seem to operate like a natural law against man's freedom; finally this art expresses the beginning dissolution of an enormously complex world which sank into superstition—and our own epoch is in the throes of a similar process. Much has happened since the Old Stone Age, and the world has changed completely. Of all the great discoveries that increased the power of human society in its struggle against nature, paleolithic man probably knew only fire. He himself invented the bow; the inventions of the plow and steam-engine came later. But while paleolithic man roamed about restlessly looking for food within a limited area, today we dominate the whole planet only to see our food withheld from us by monopolies. Paleolithic man was and modern man is enslaved to a master class in process of social disintegration; this common destiny partly explains the present impact of paleolithic art.

However, this art is also effective because of its timeless qualities. As few other arts did, it overcame its historical conditions and spoke a universally human, universally understandable language. True, many paleolithic paintings still escape clear intellectual interpretation. Few of us know that many bonds link us to the paleolithic age. When wandering from cave to cave, in books or in reality, who knows (like the Abbé Breuil) that we are following the path of the "pilgrims of St. James," and that the roads of the Middle Ages were the roads of the paleolithic herds and hordes? Many Frenchmen still call their beloved *biche*, which is the French word for "doe"; but few know that this pet name once denoted Woman, the great magic Being, a clan which in its femininity combined wisdom and a warlike spirit and from which derive the Amazon, Hagia Sophia and the witch, the different stages of whose long history are marked by the names of Hippolytus and Hercules, Penthesilea and Achilles,

Thomyris and Cyrus, Thalestris and Alexander. When reading Leonardo's descriptions of the wonderful virtues of elephants few suspect that this long enumeration is perhaps based less on observation of nature than on a historical tradition which originates in the special position of the mammoth clan, and which, true enough, we can only guess at rather than describe exactly. Few of the learned physicists and mathematicians who admire Einstein's discovery of the dependence of mathematics upon the electromagnetic and gravitational fields (a discovery which, incidentally, was anticipated by Hegel) know that paleolithic man had been familiar with an analogous dependence, long before the Greeks had founded the autonomous mathematical science. Finally, few of those who every day use the term "hand" in connection with verbs denoting taking in possession ("raise one's hand against," "force one's hand," "lay hands upon," etc.) suspect that this use originates in the magic significance of the hand in the paleolithic age, and that the historical cause of the golden section can be found there, too. Of course, there is a great difference between our use of the hand and the paleolithic's. In the eyes of paleolithic man, taking possession by the hand and slaughtering were identical, and he did not conceal this. Today taking possession of things is done with money, and slaughtering is veiled behind various ideologies. In the Old Stone Age, the artist was a sorcerer, a privileged member of his clan; today, the artist is a pariah, an outcast forced to live on the margin of society. In paleolithic art horses and bison represented man and society. Géricault, too, painted horses not merely out of love for sport. Comparing the horses at Font-de-Gaume with those of Géricault (*Derby d'Epsom*), we can see not only the progress that has been made since the Old Stone Age in the representation of space and in composition, but also the Faustian relation of the finite individual to the infinite universe and the division of modern man into being and thinking, consciousness and unconsciousness, etc.—in brief, we can see social isolation and madness as the acquired fate of the artist.

The study of paleolithic art should serve as a reminder to us that it is high time to put an end to the prehistory of man and to begin a new era, in which the human race will consciously make its history. "What's past is prologue."

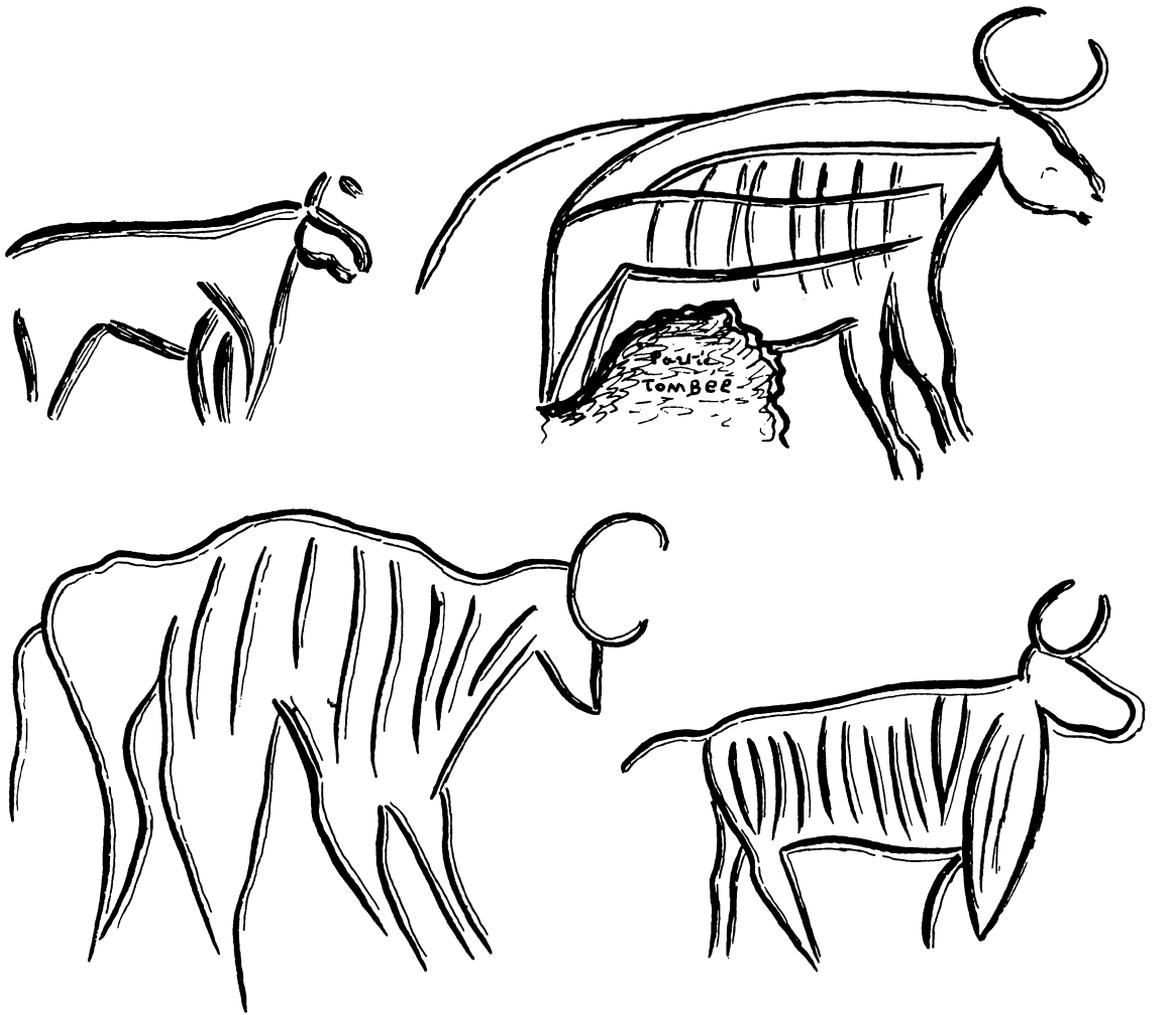


Fig. 1

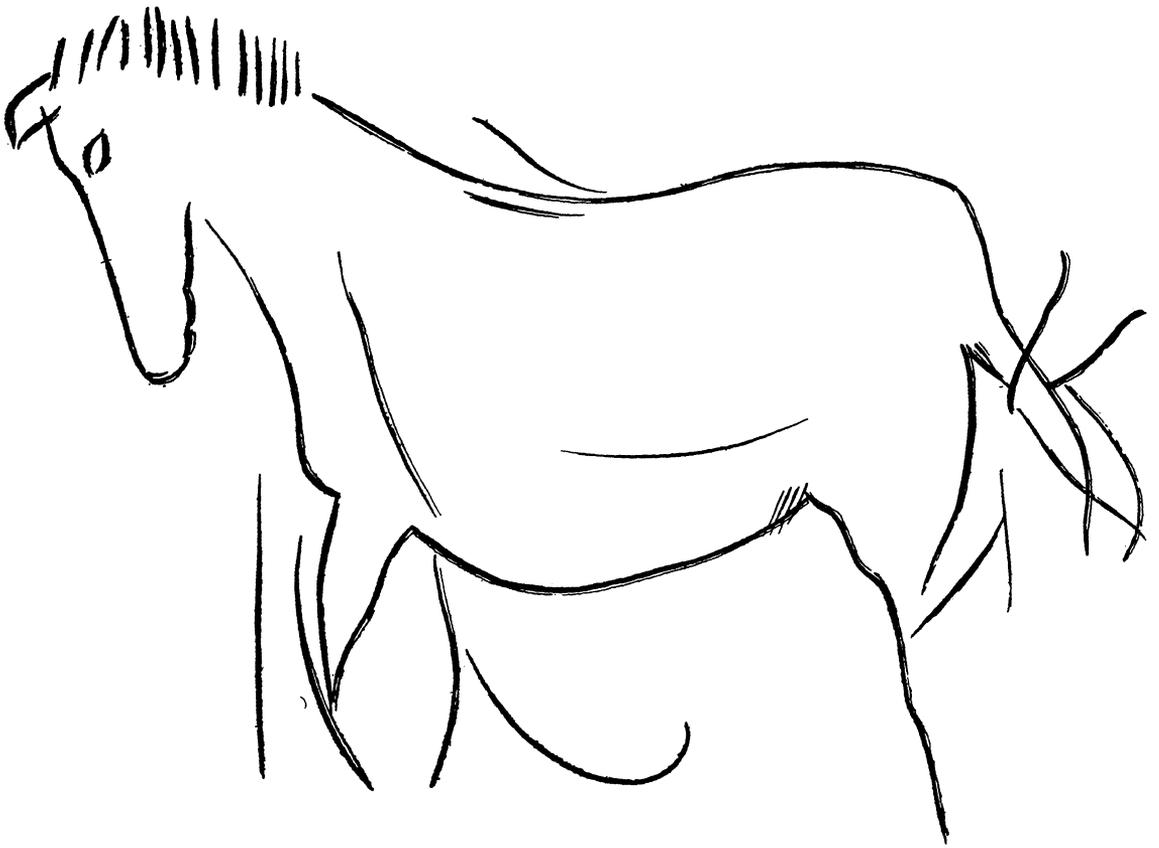


Fig. 2a

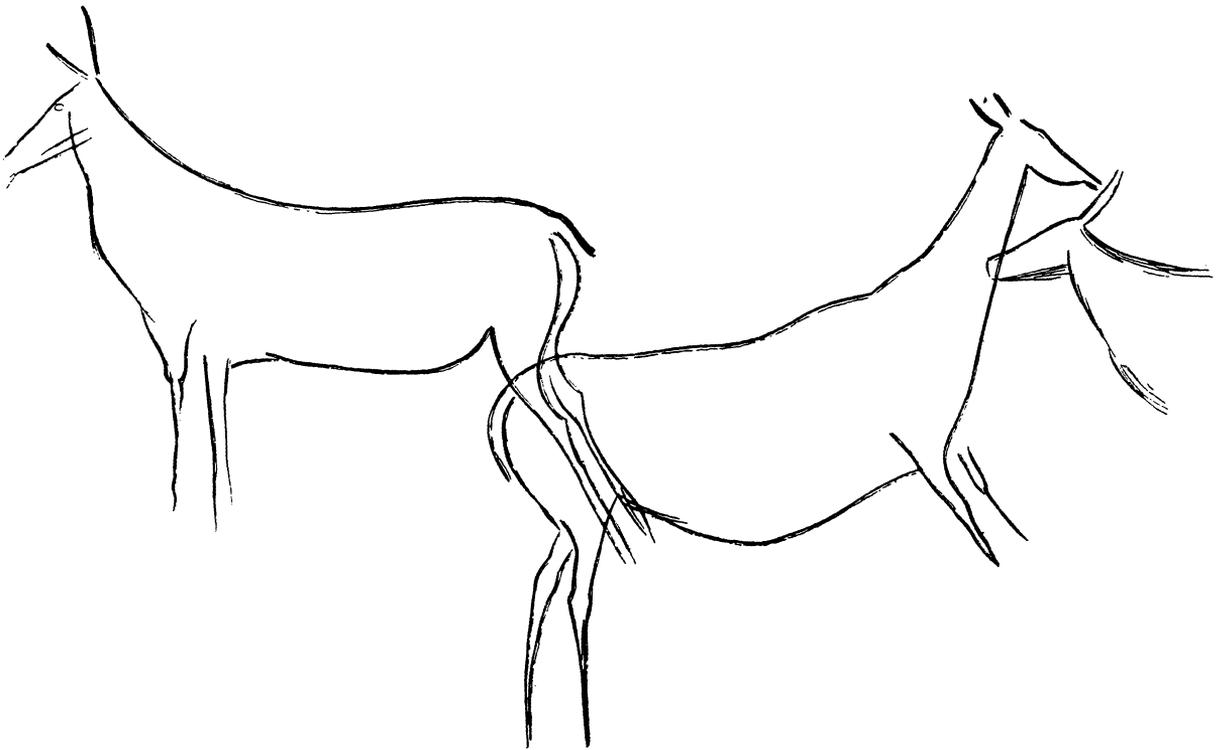


Fig. 2b

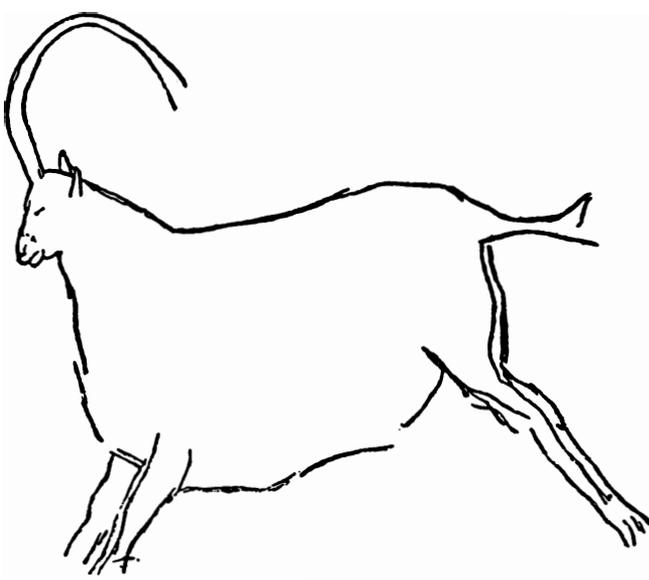


Fig. 3a

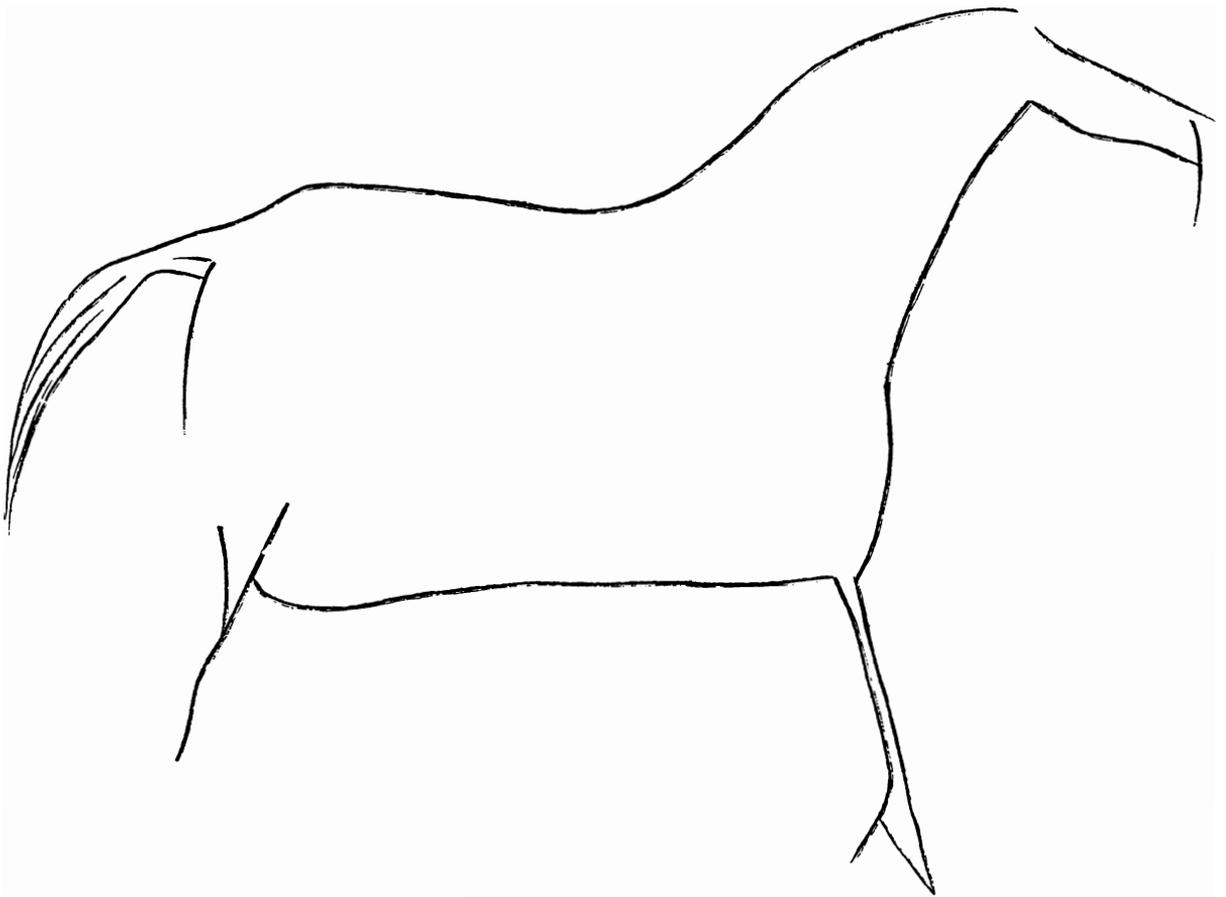


Fig. 3b



Fig. 4

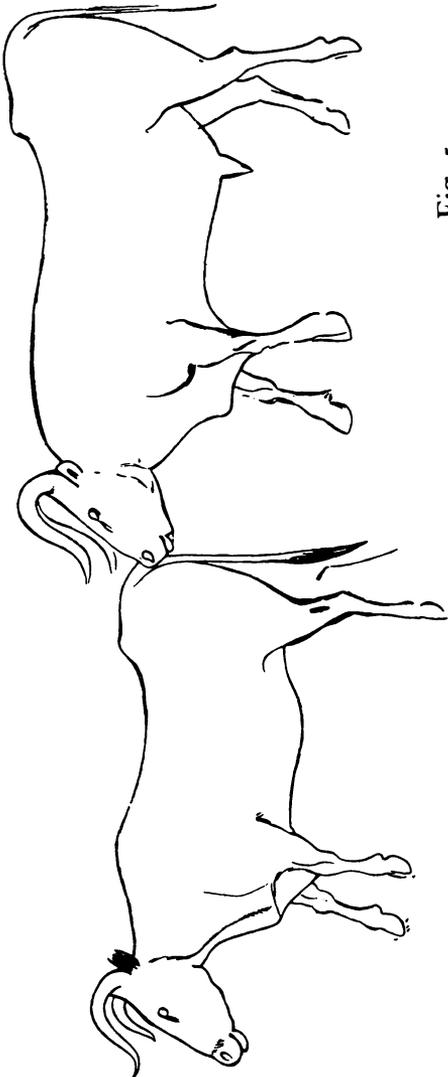
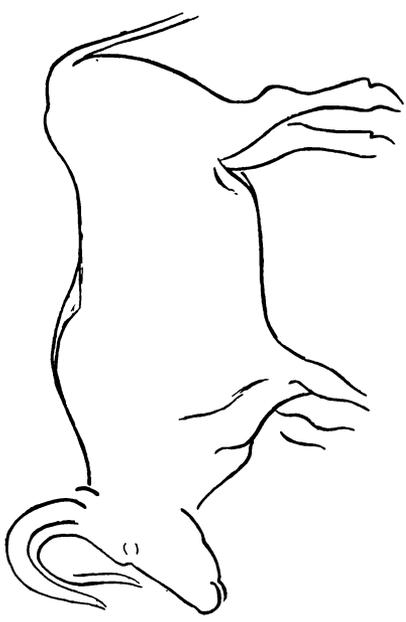


Fig. 5

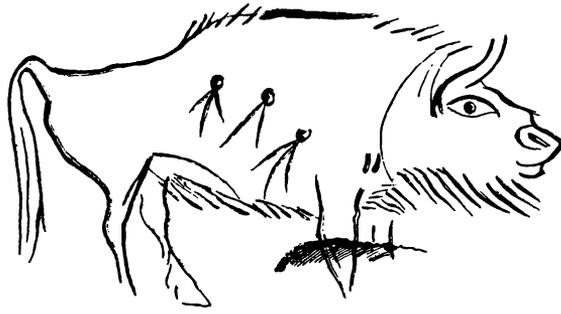


Fig. 6a

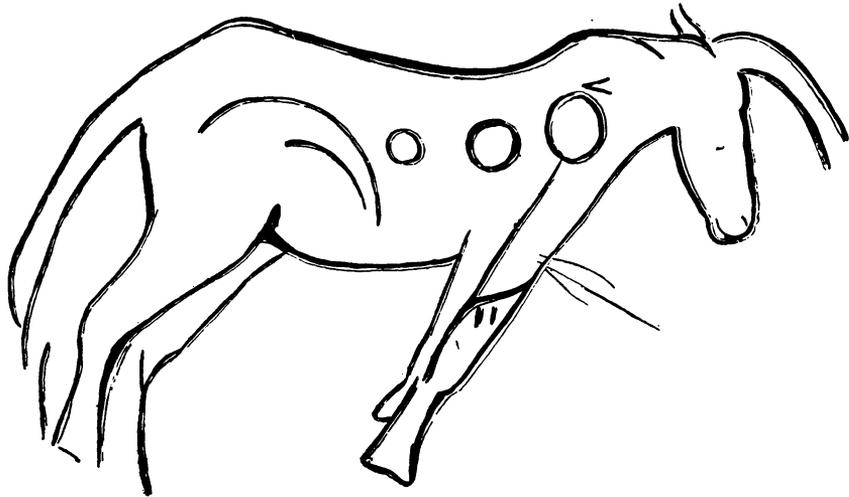


Fig. 6b

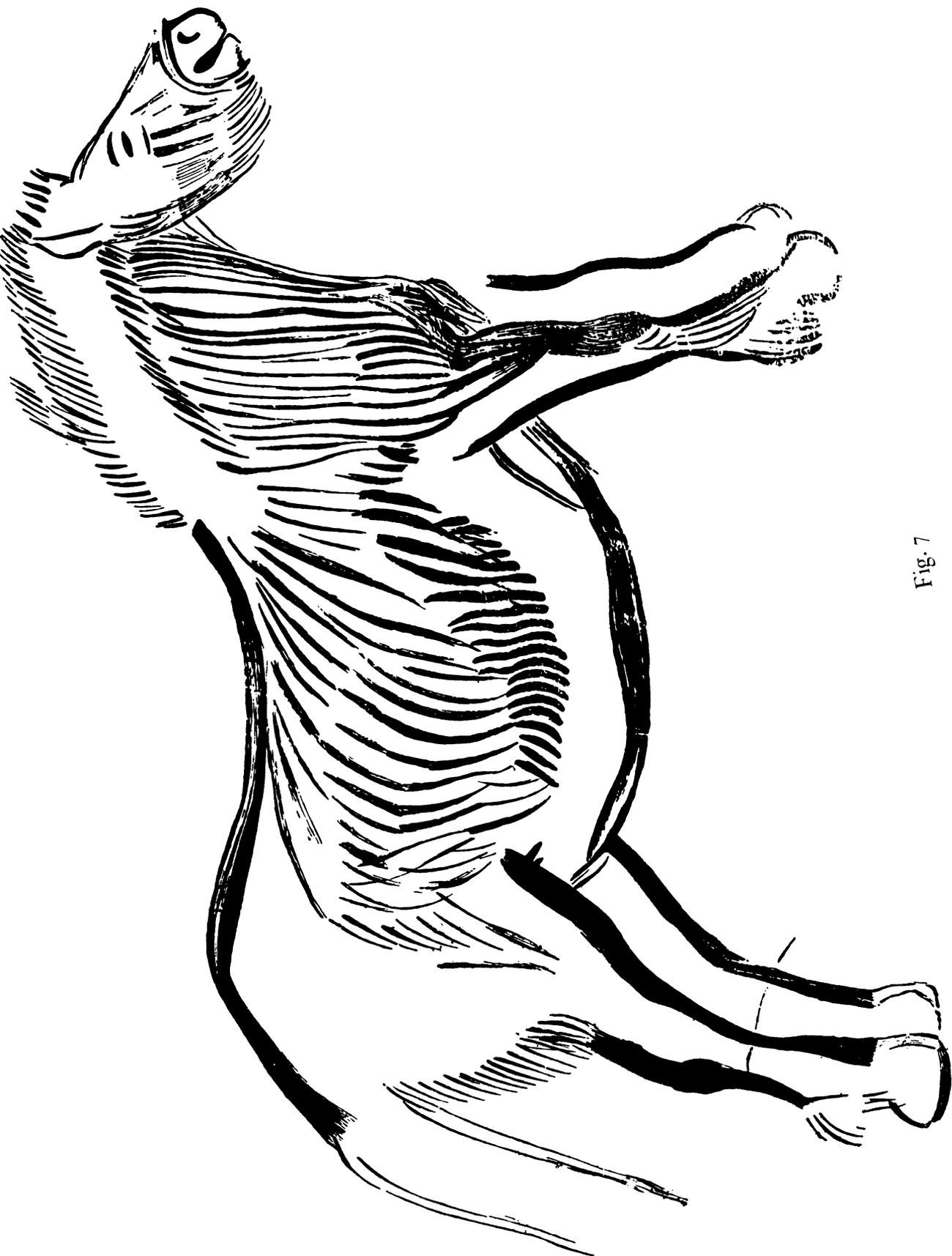


Fig. 7



Fig. 8

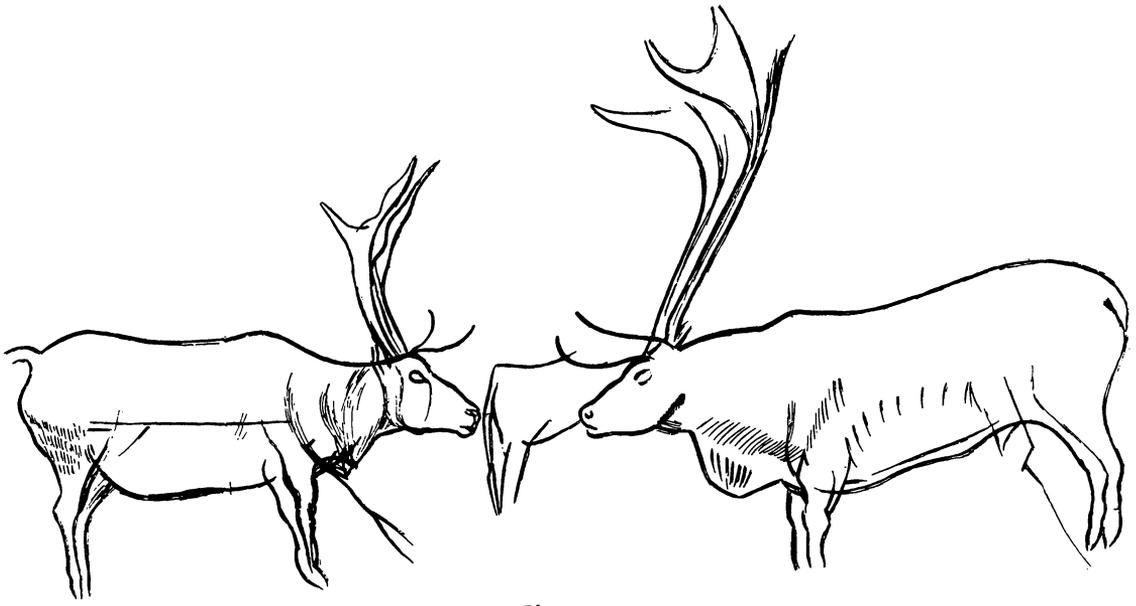


Fig. 9

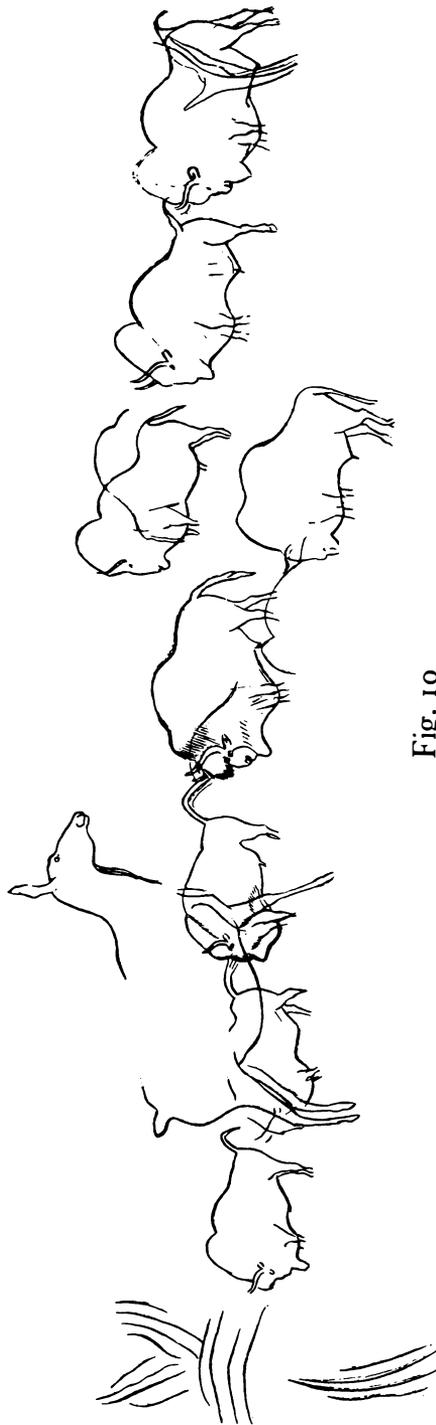


Fig. 10

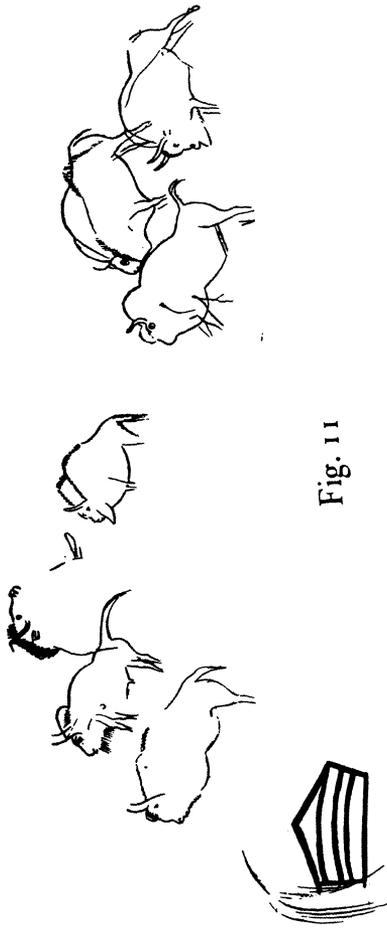


Fig. 11



Fig. 12a

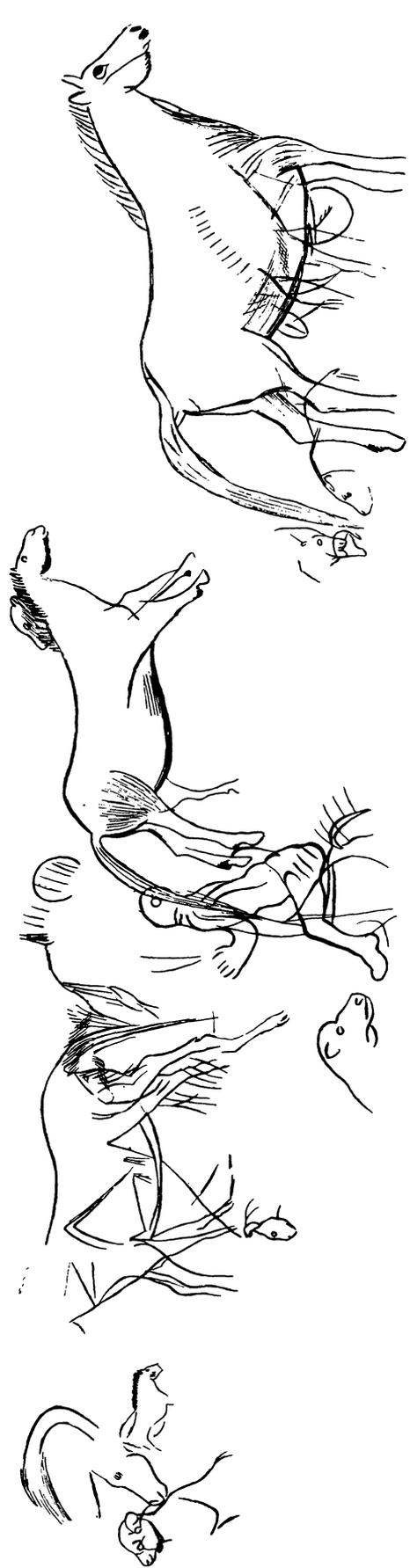


Fig. 12b



Fig. 13

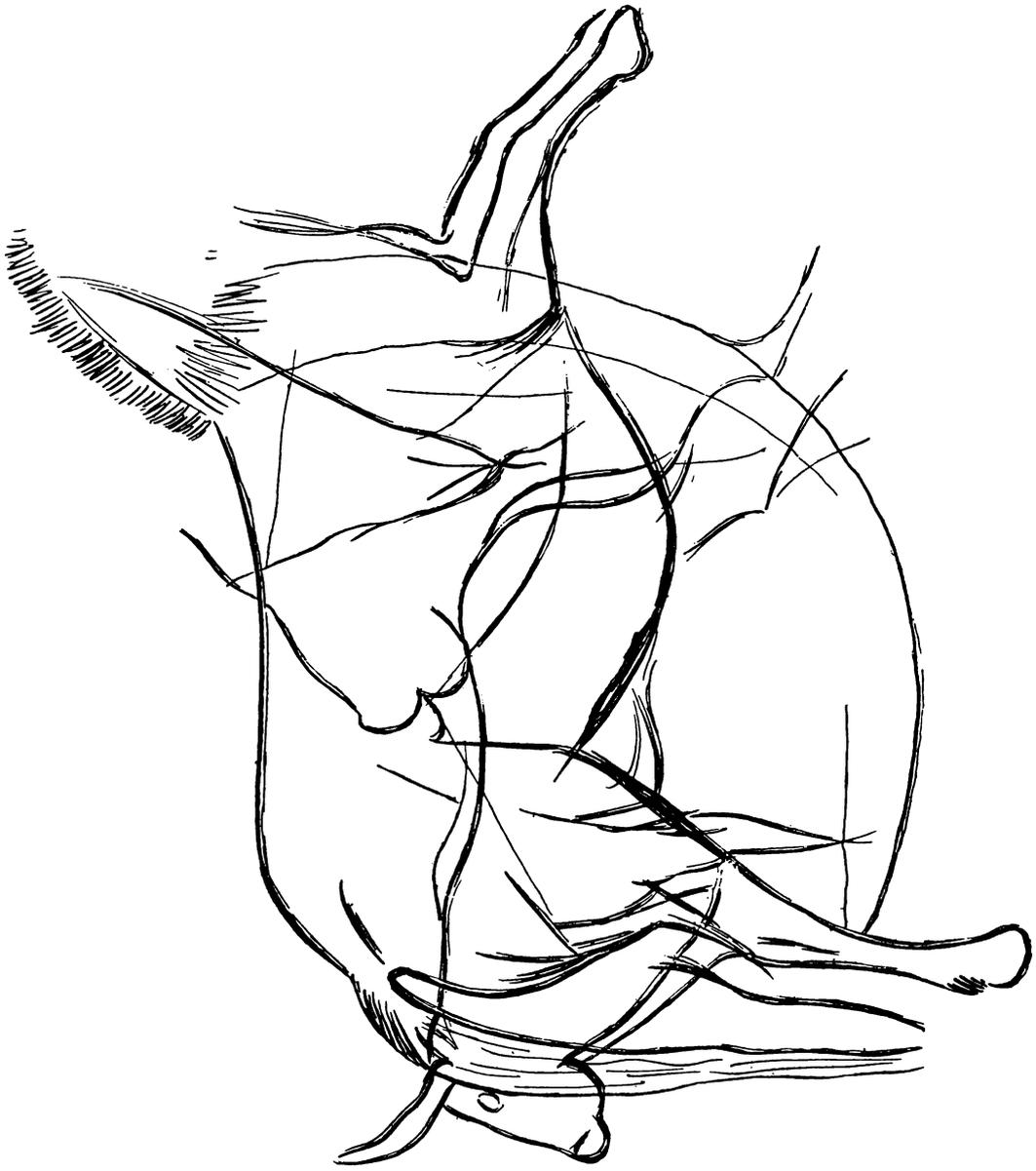


Fig. 13

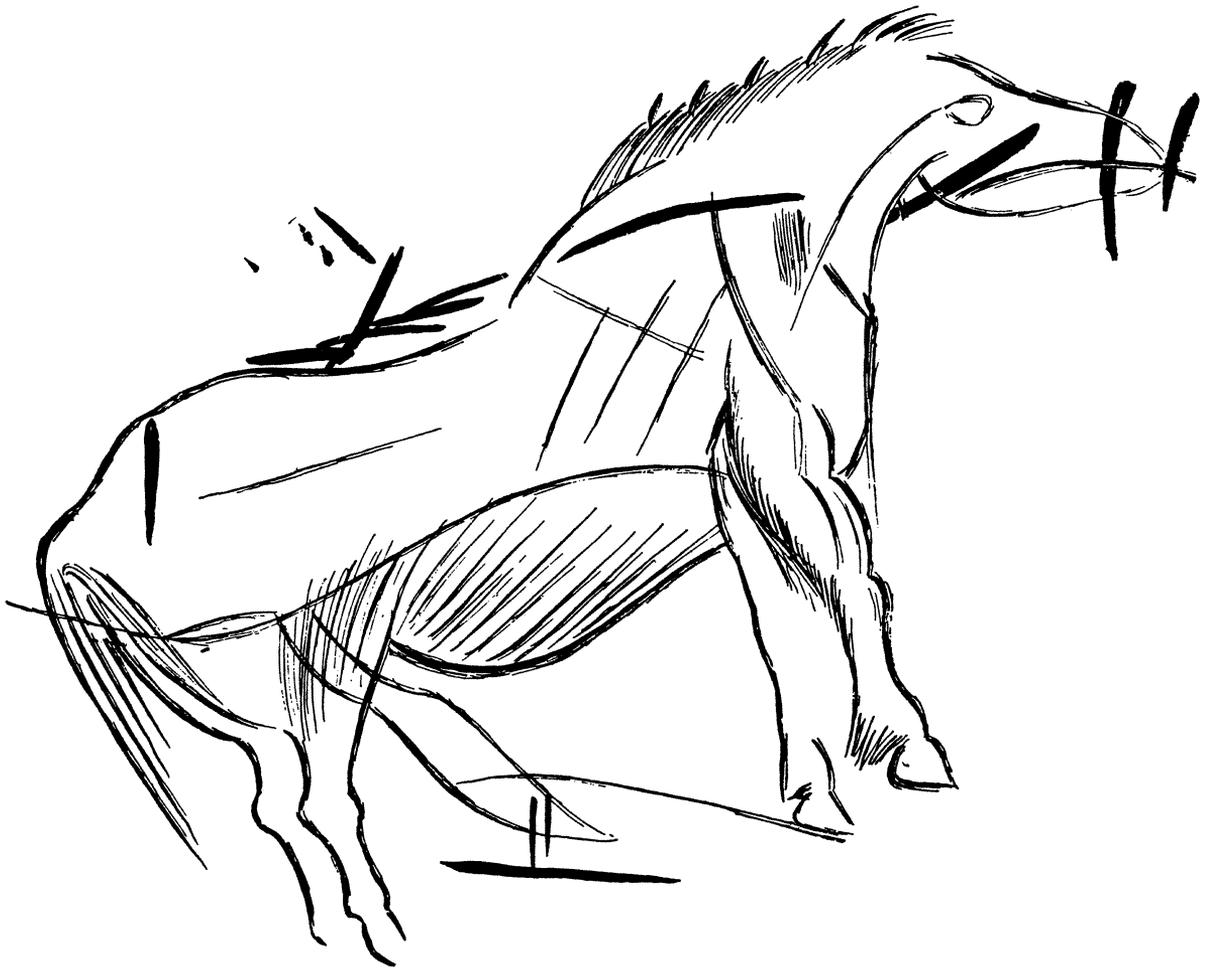


Fig. 14



Fig. 15a

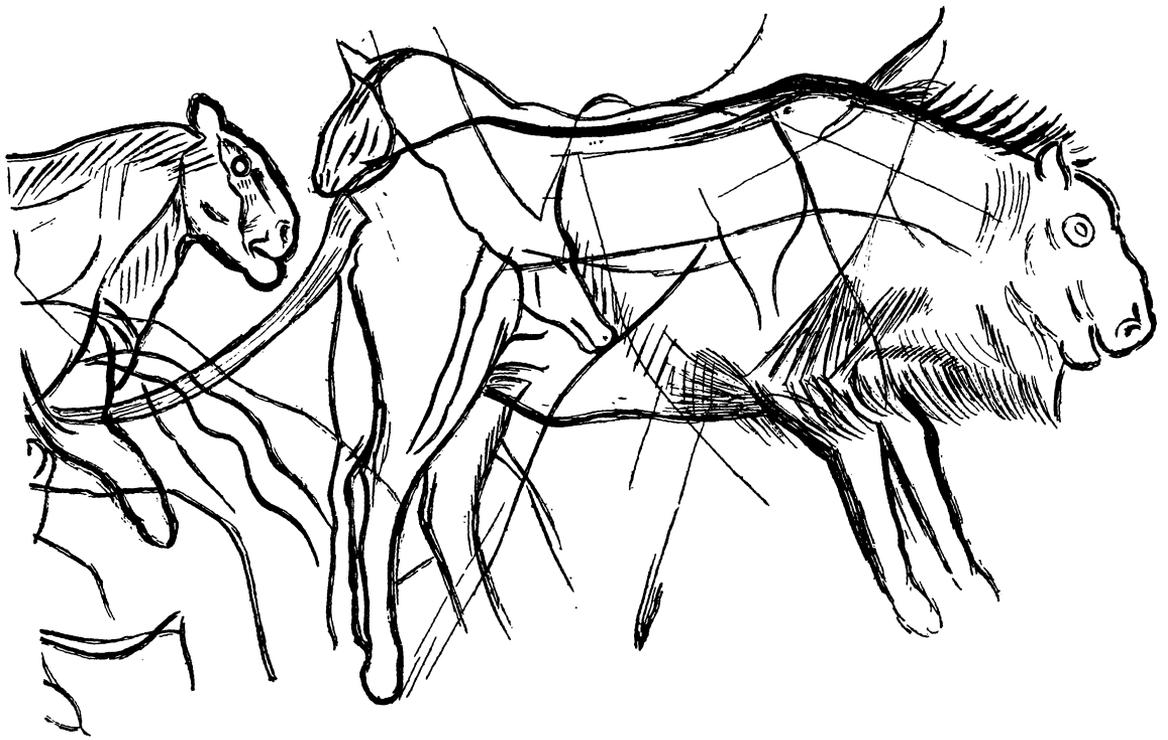


Fig. 15b

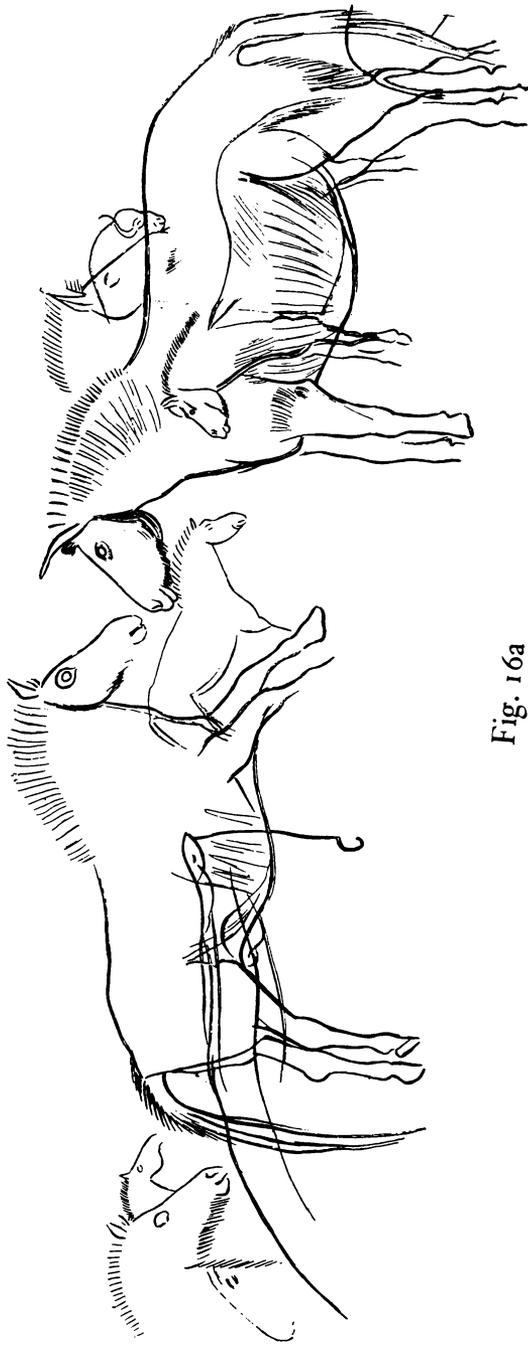


Fig. 16a

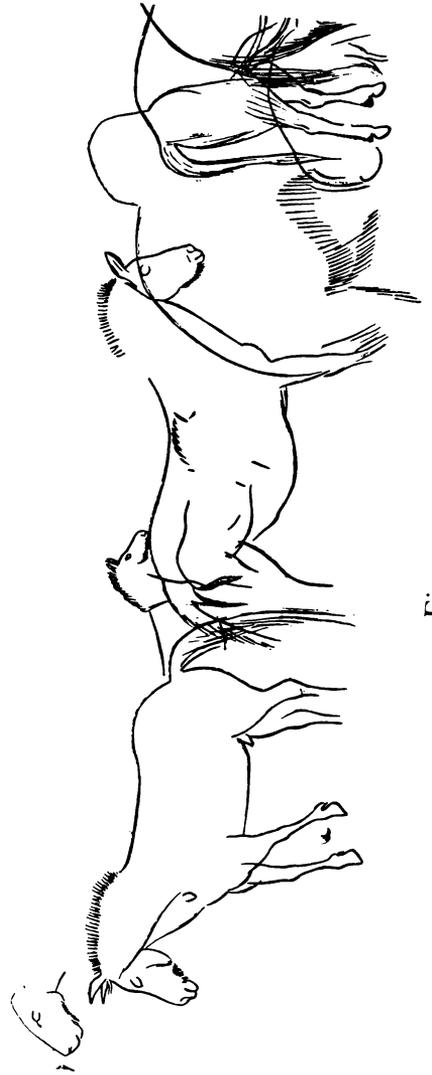


Fig. 16b



Fig. 17

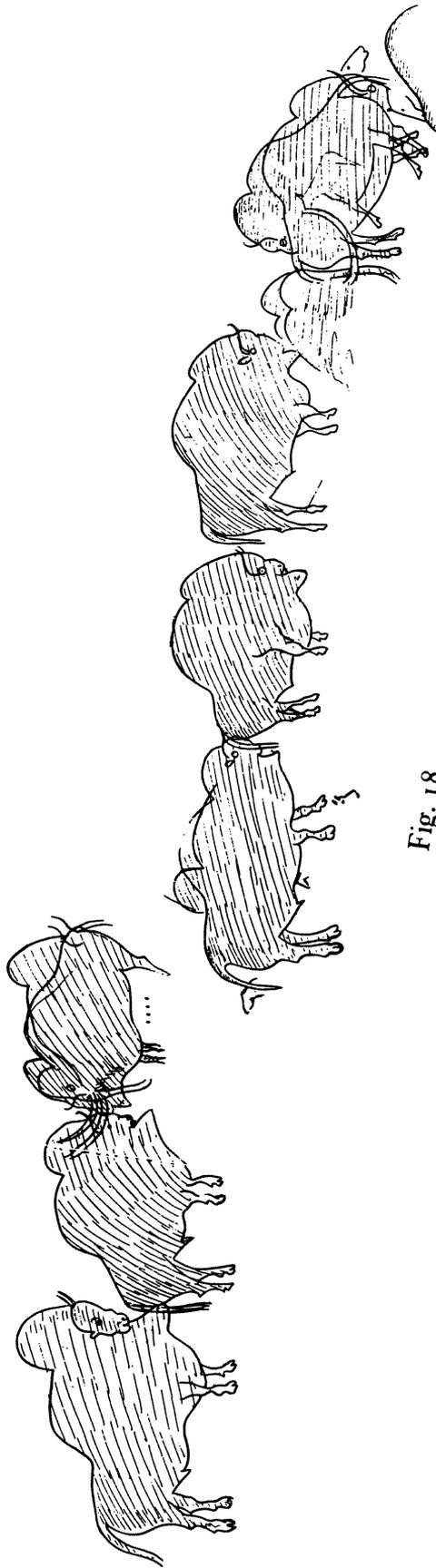


Fig. 18

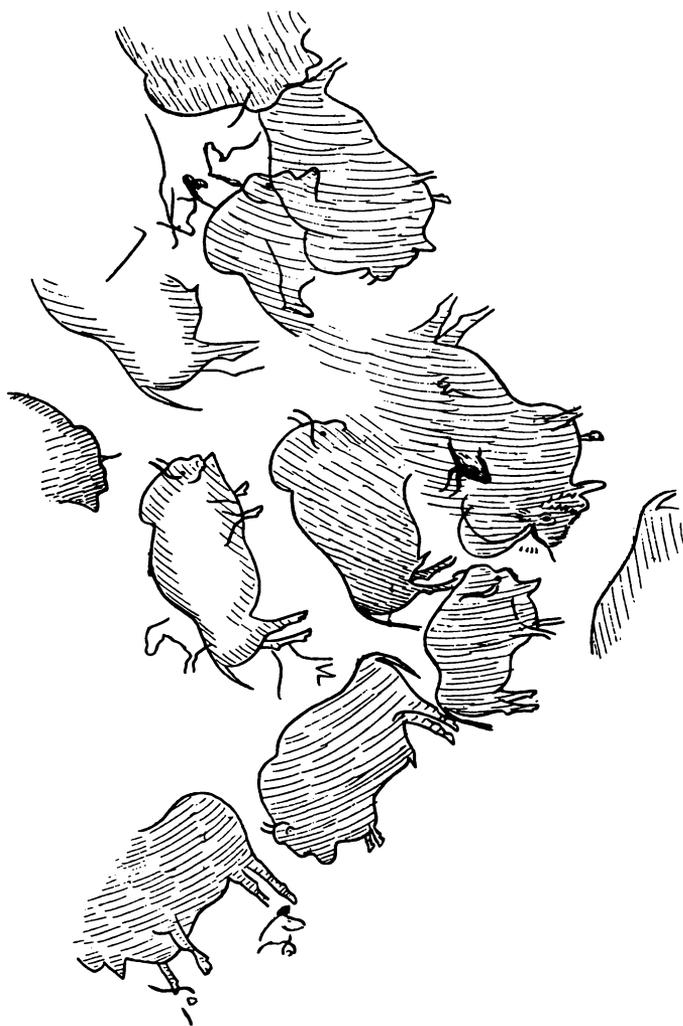


Fig. 19

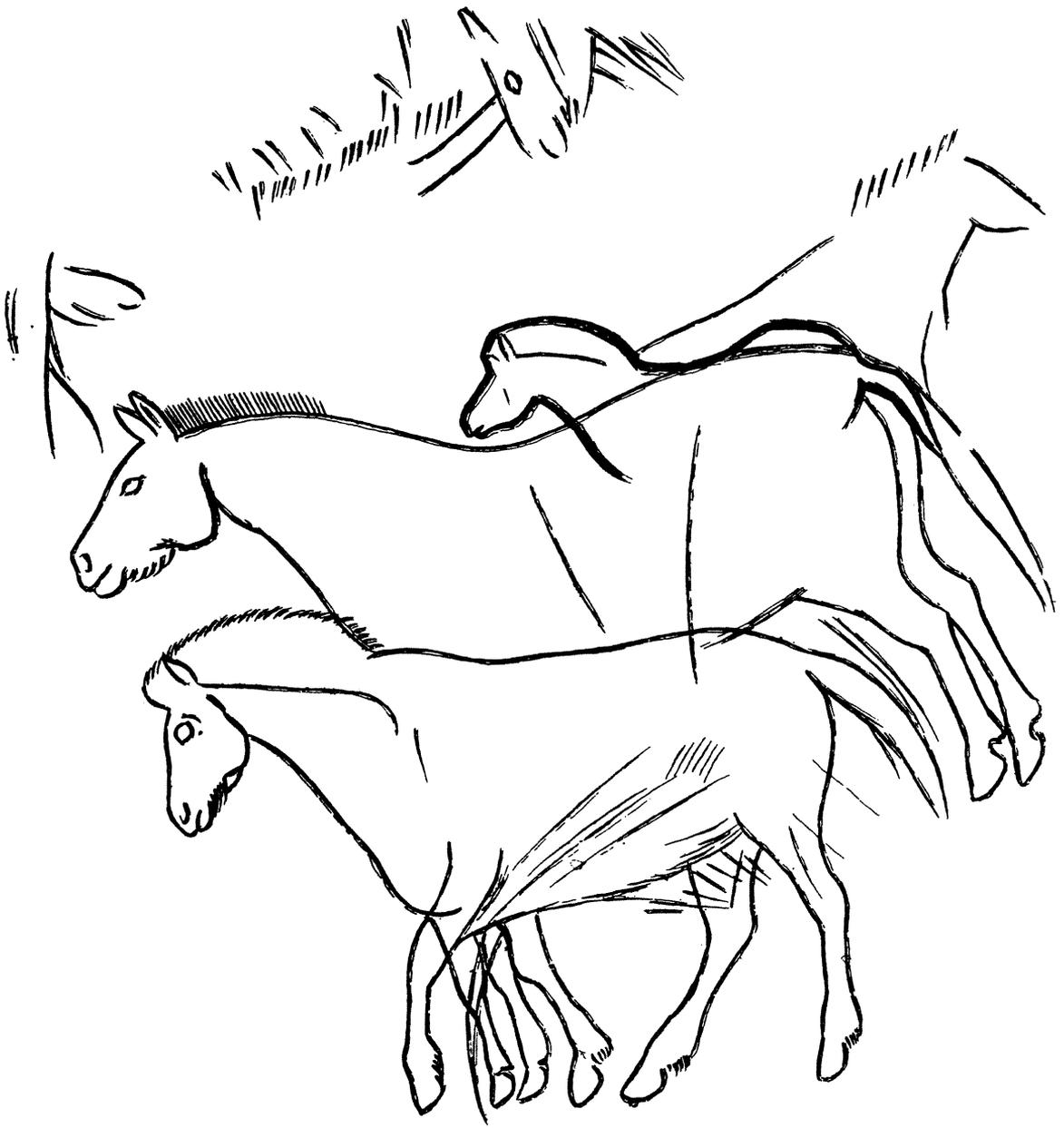


Fig. 20a

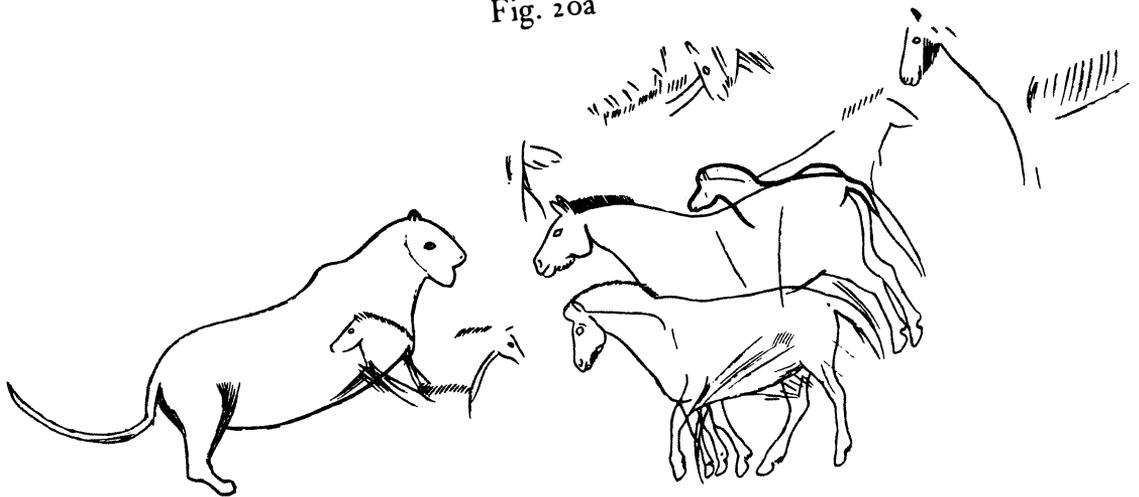


Fig. 20b



Fig. 21

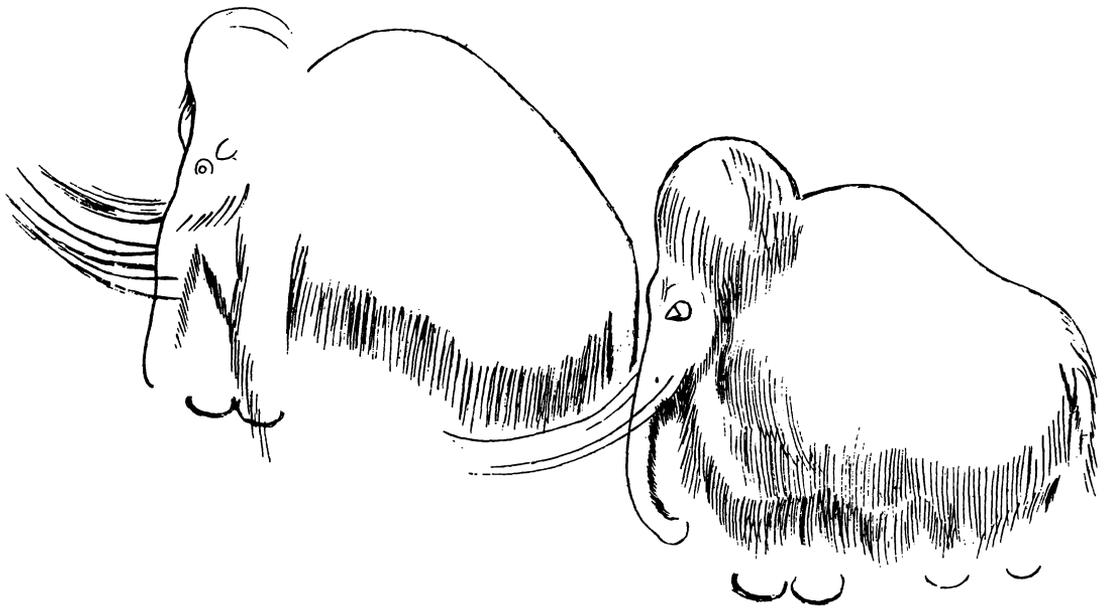


Fig. 22a

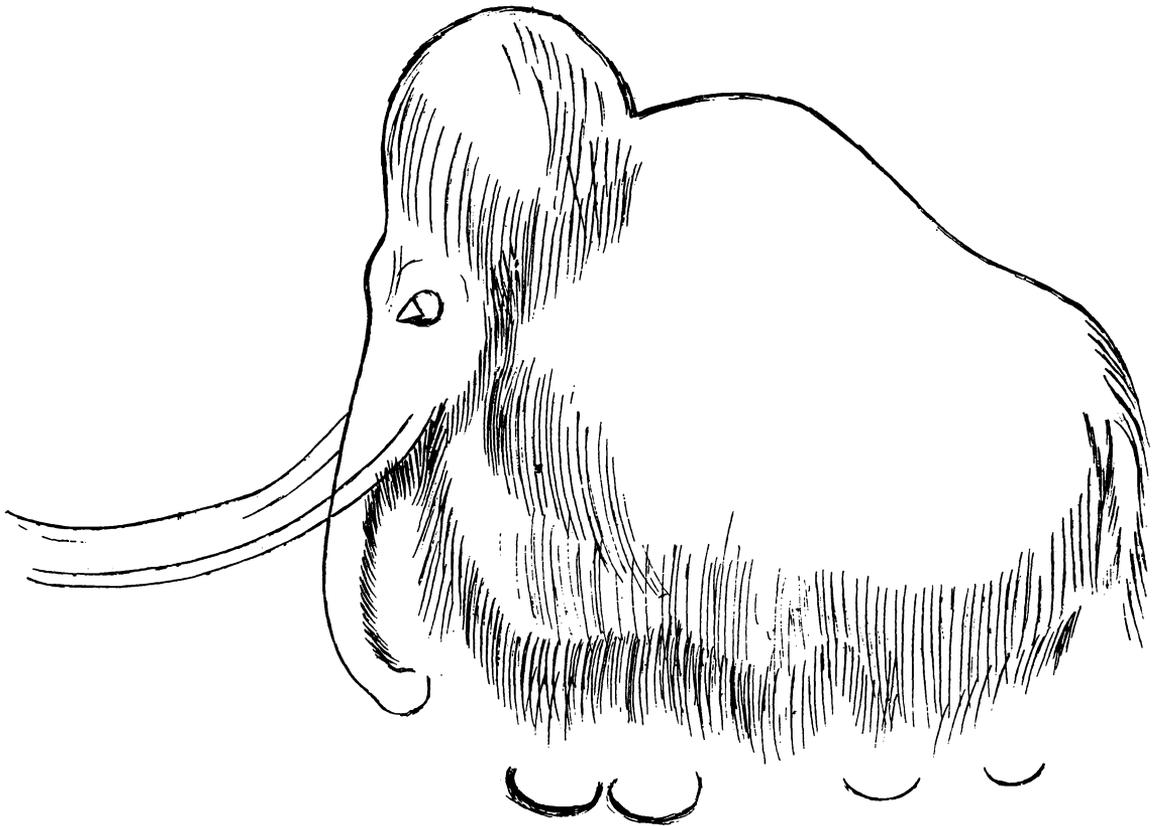


Fig. 22b

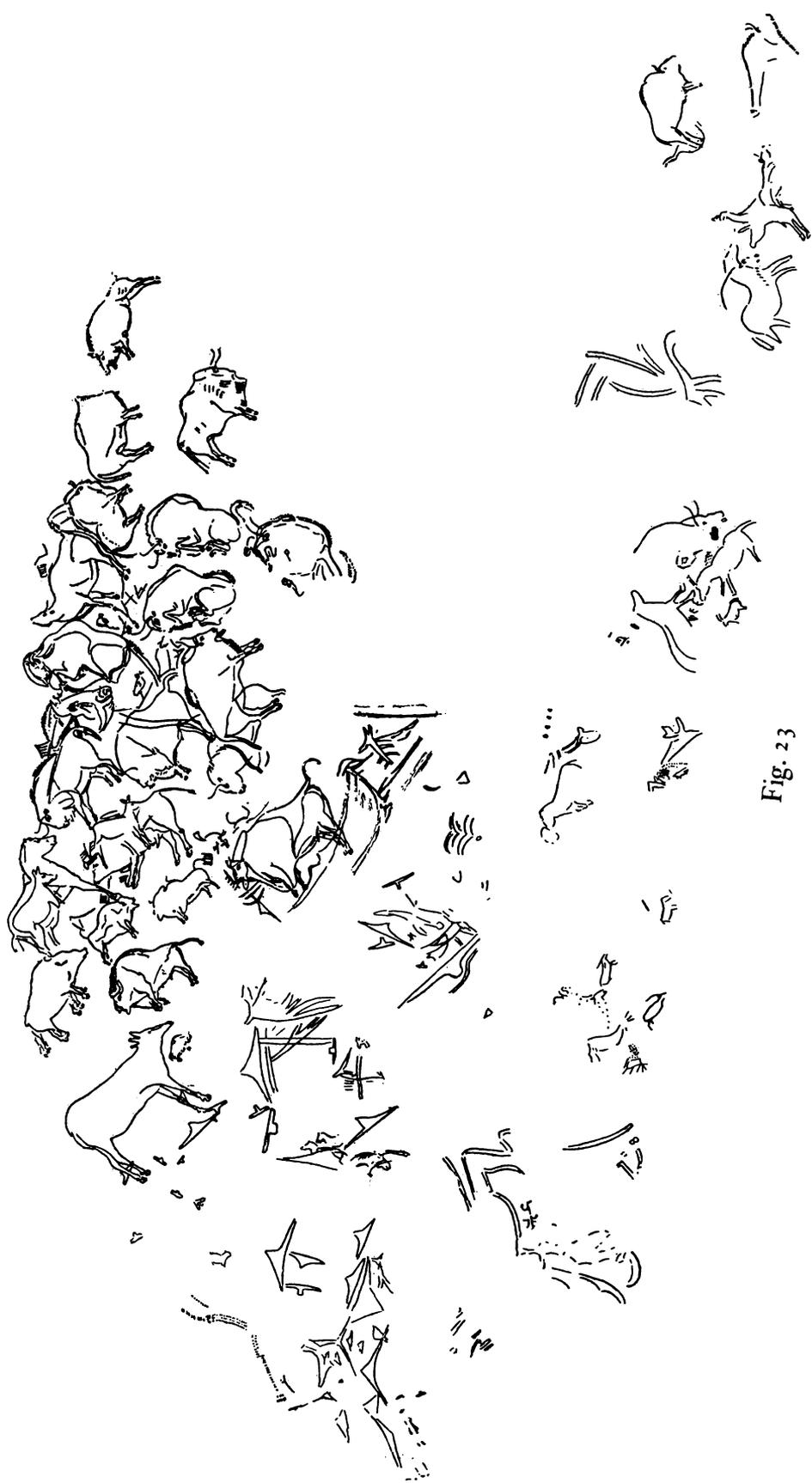


Fig. 23



Fig. 25

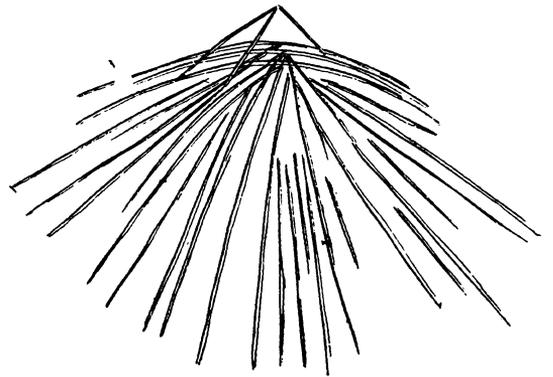
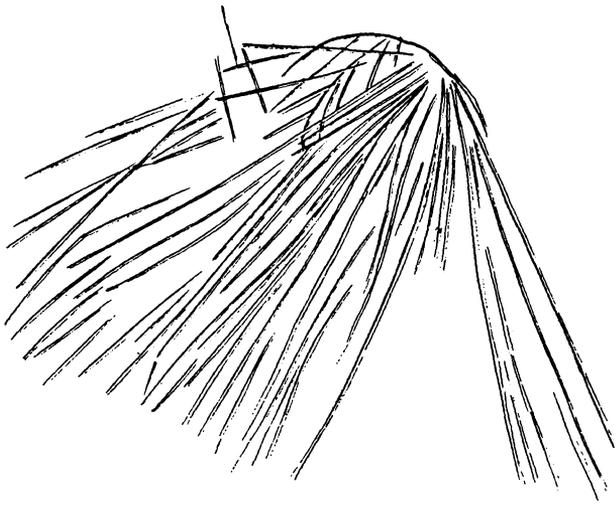
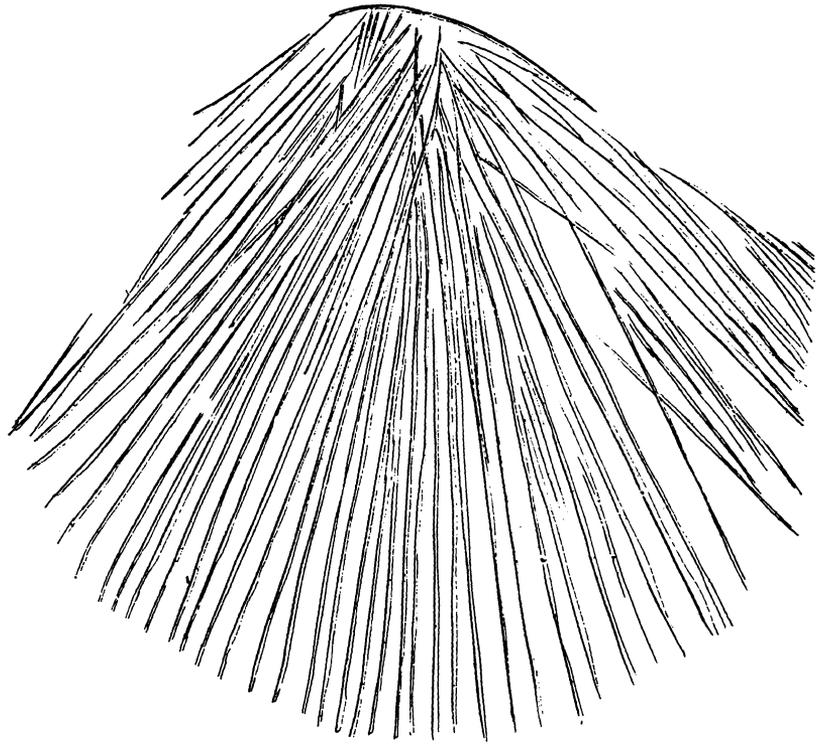


Fig. 26

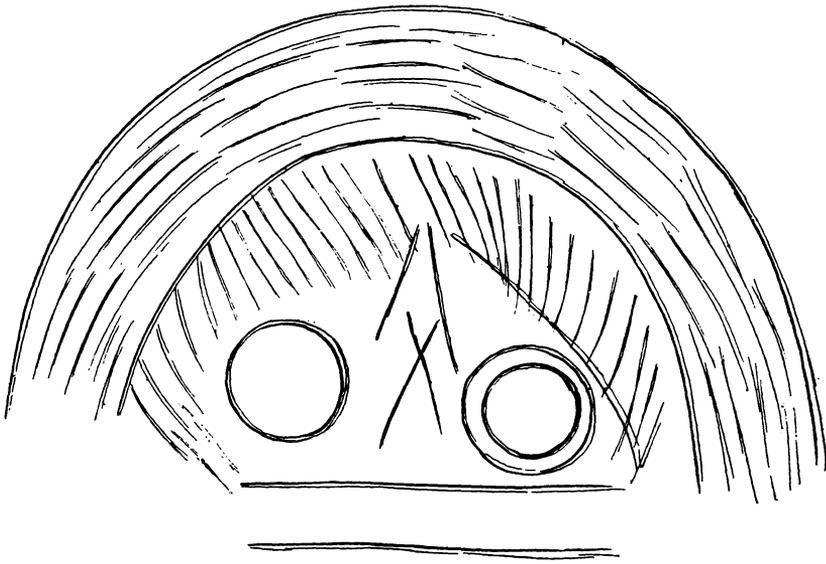


Fig. 27a



Fig. 27b

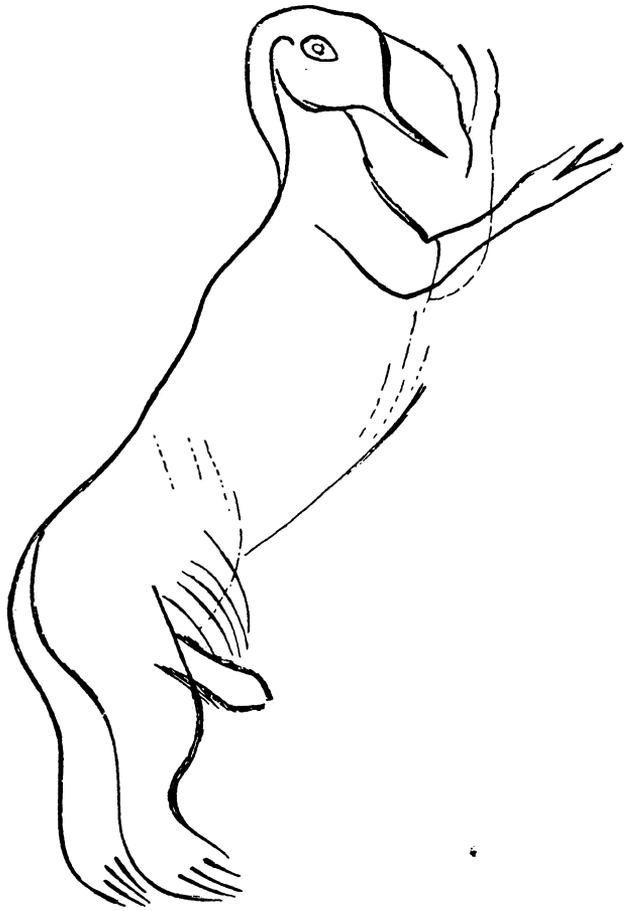


Fig. 28

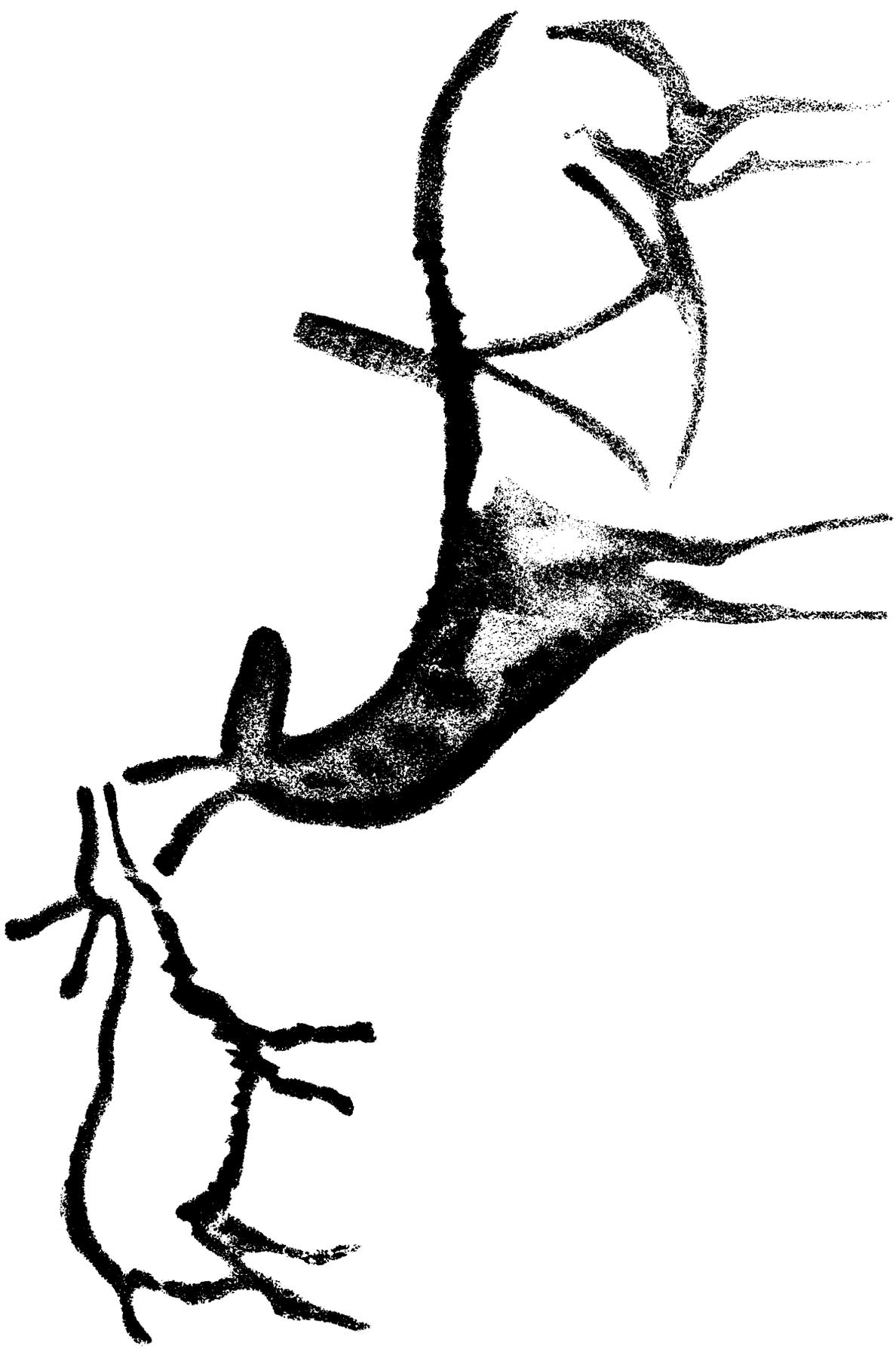


Fig. 29

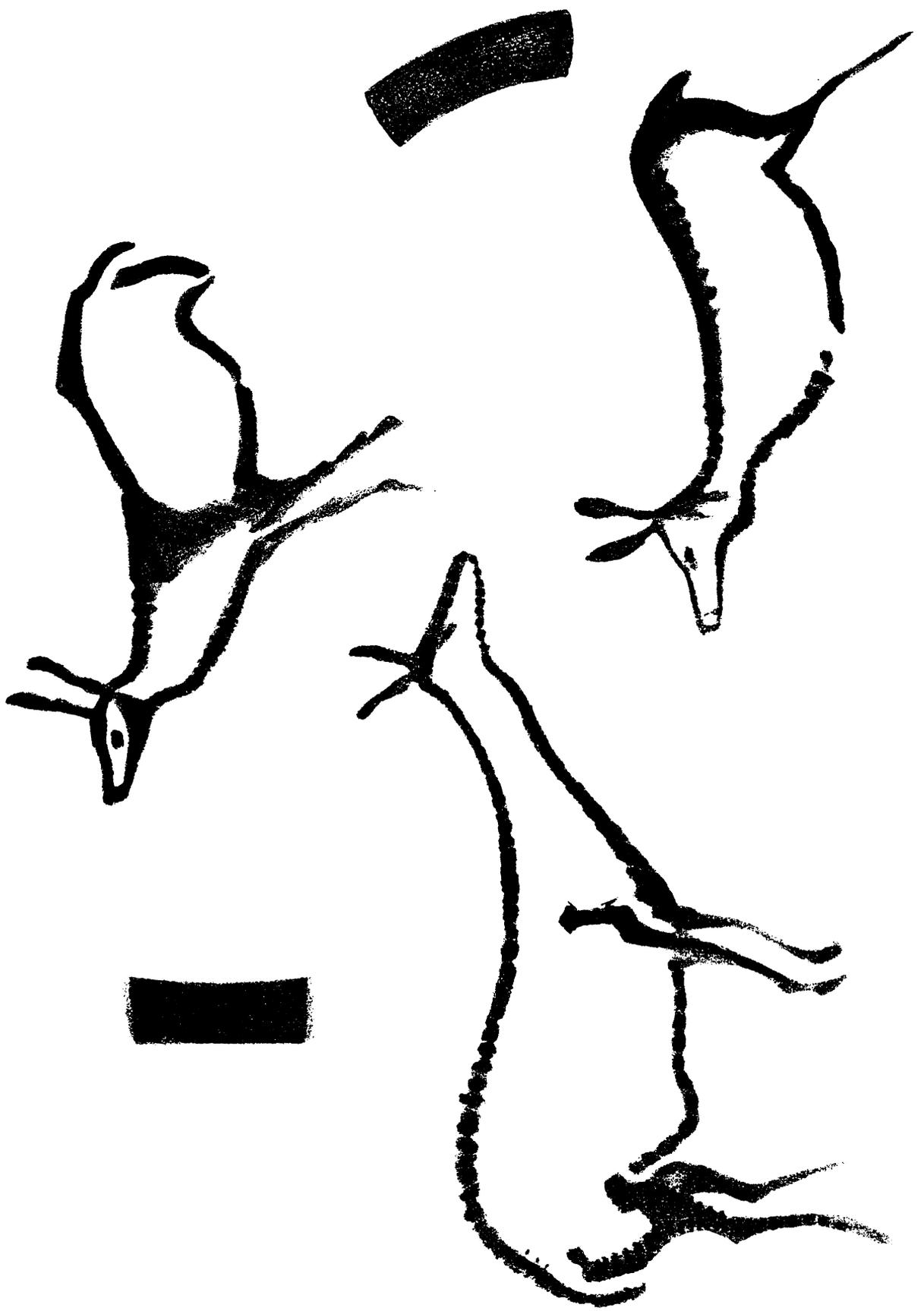




Fig. 31



Fig. 32



Fig. 33



Fig. 34



Fig. 35

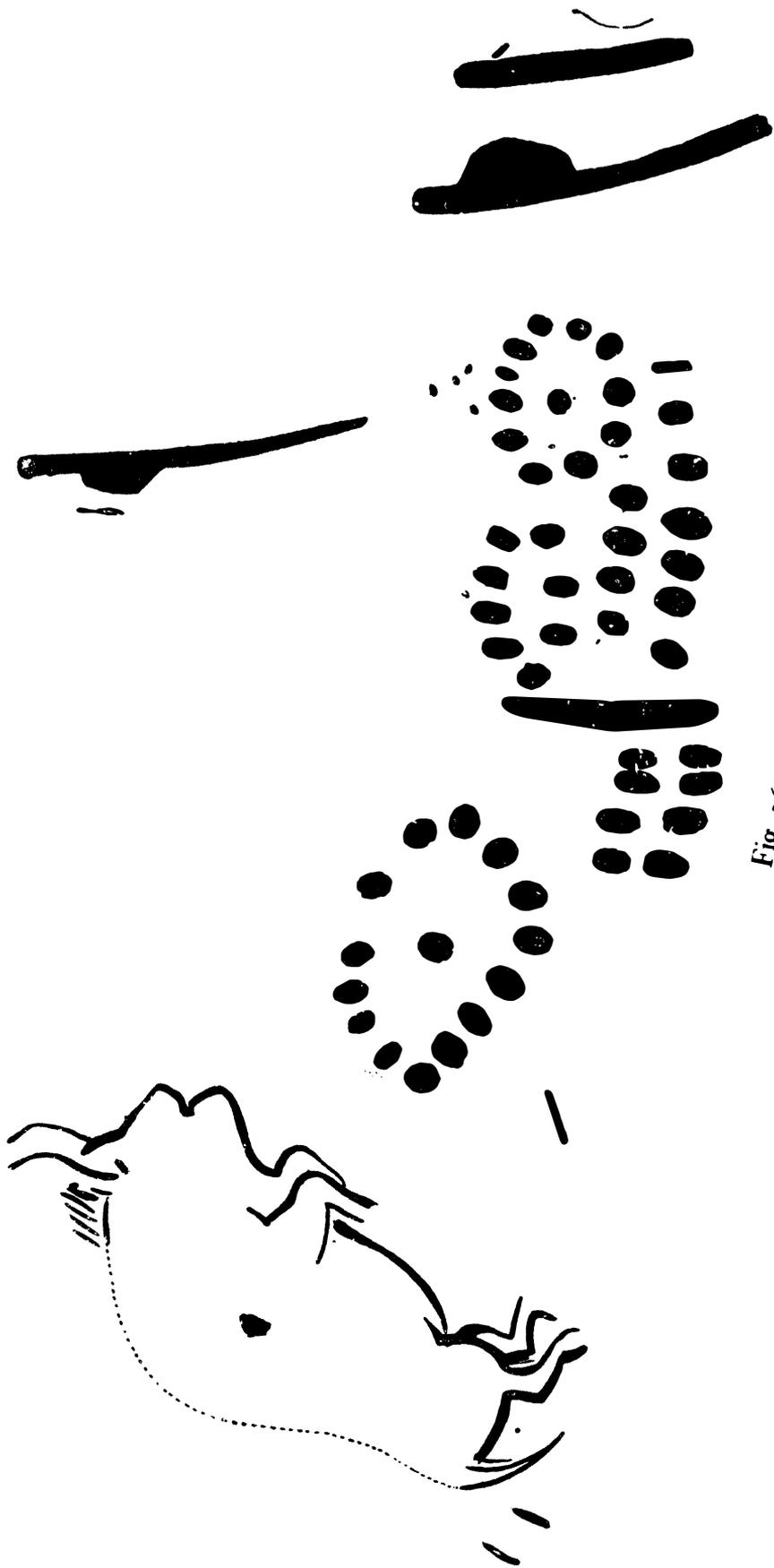


Fig. 36

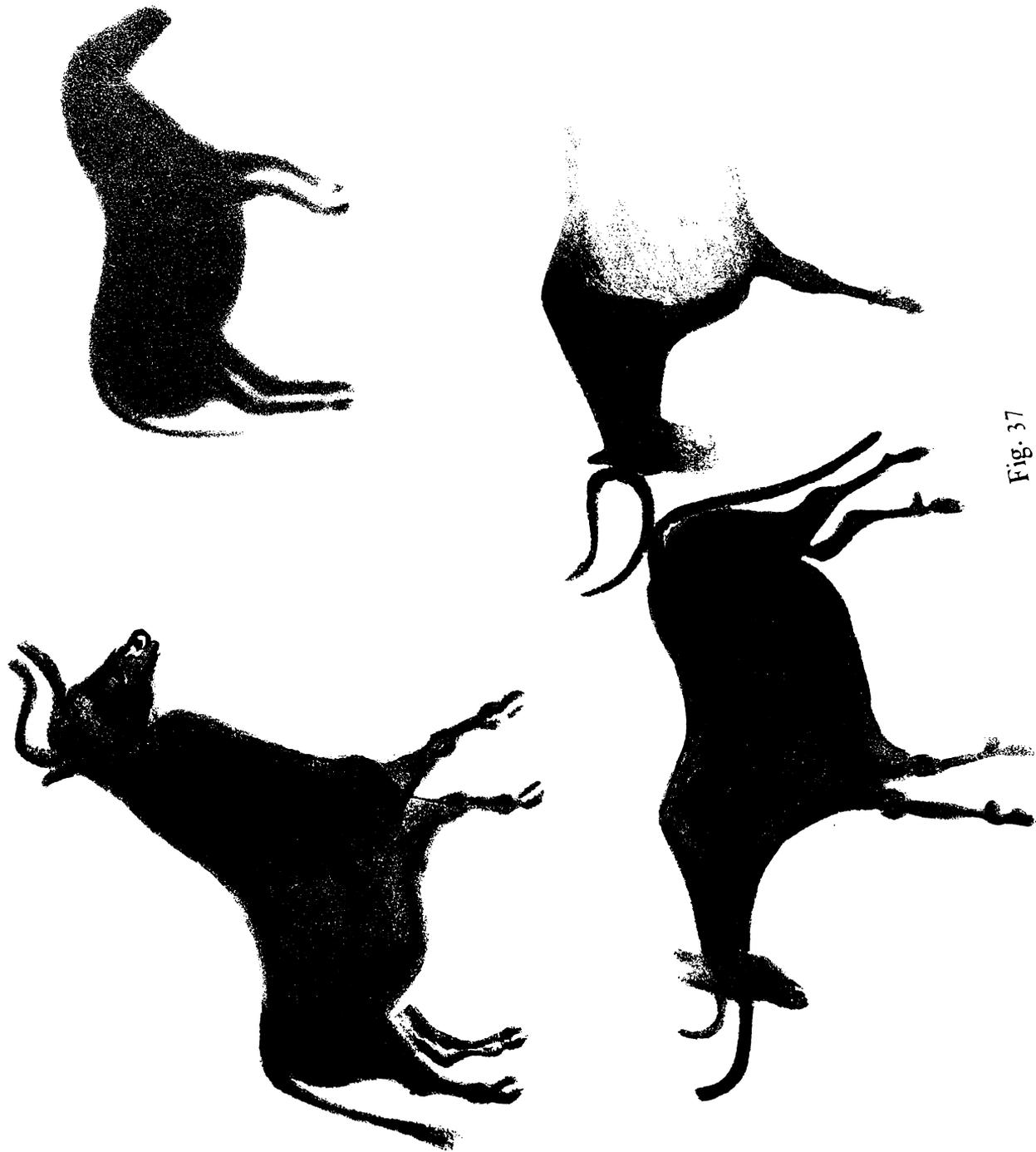


Fig. 37



Fig. 38



Fig. 39

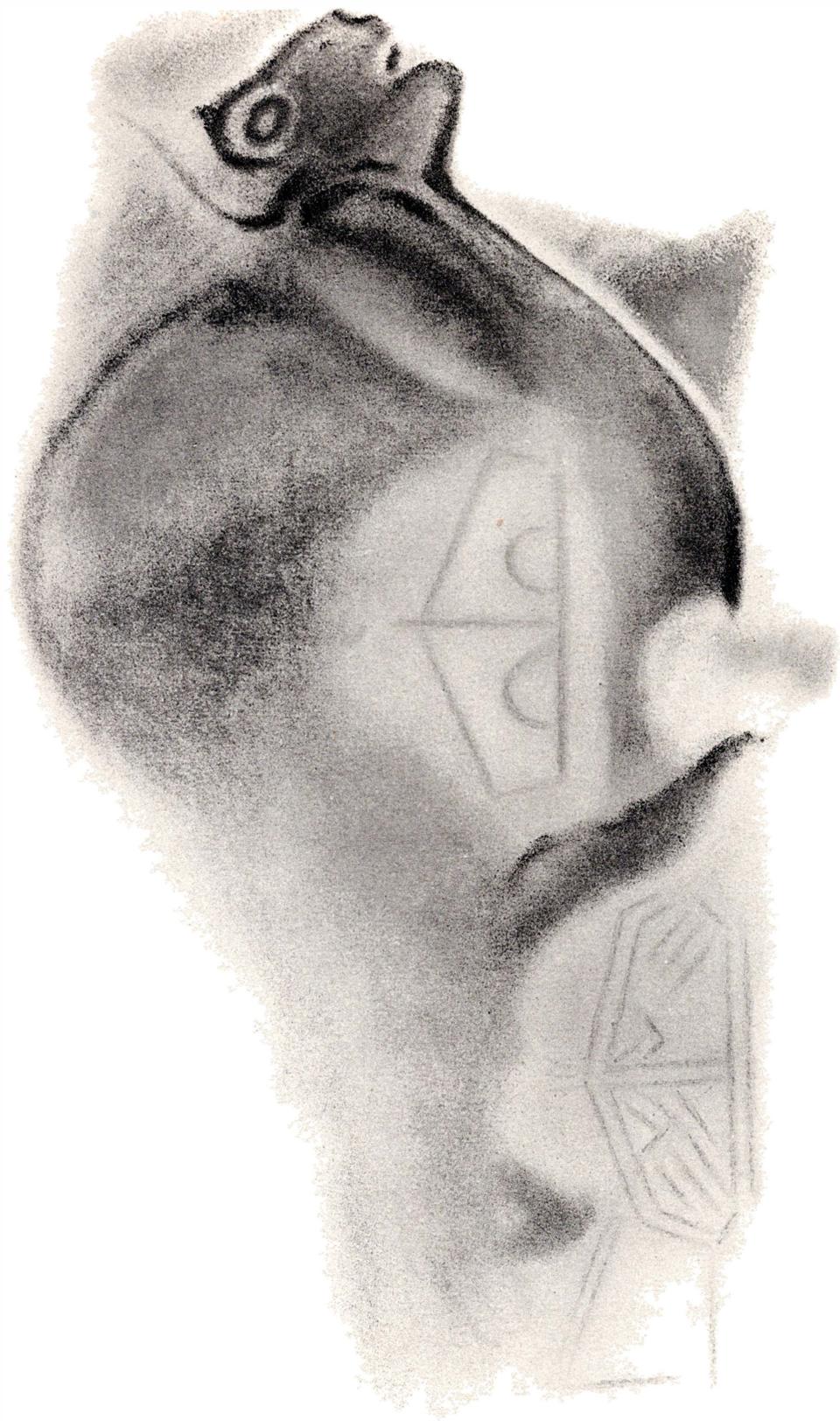


Fig. 40



Fig. 41

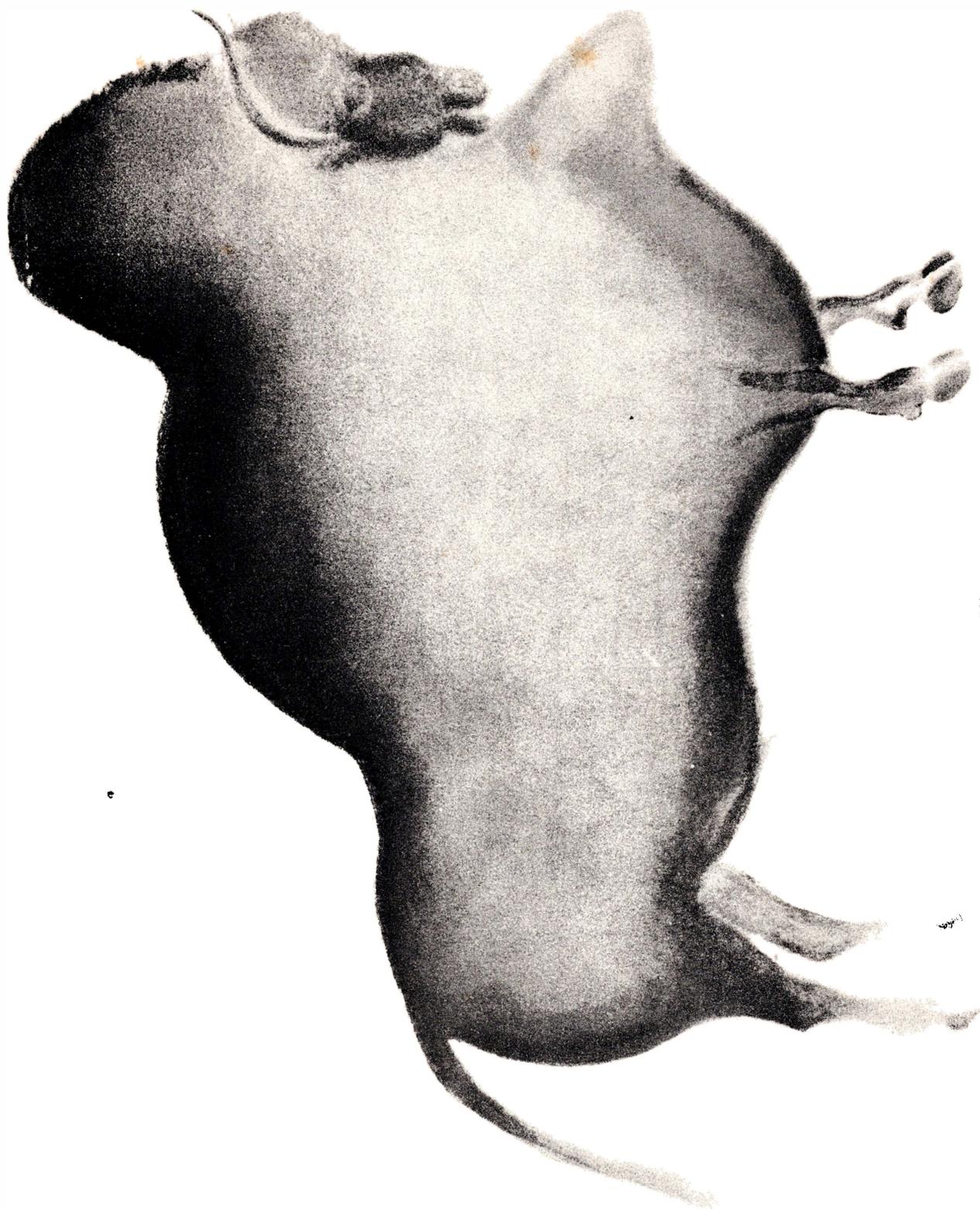


Fig. 42



Fig. 43



Fig. 44



Fig. 45



Fig. 46



Fig. 47



Fig. 48