

THE CAVE OF ROUFFIGNAC

by

LOUIS-RENÉ NOUGIER

and

ROMAIN ROBERT

*Translated by David Scott
from the French*

ROUFFIGNAC, OU LA GUERRE
DES MAMMOUTHS

EN
784
.3
.P6
11613

LONDON
GEORGE NEWNES LIMITED
TOWER HOUSE, SOUTHAMPTON STREET,
STRAND, W.C.2

CONTENTS

I

THE PREHISTORIC ERA AT ROUFFIGNAC

	PAGE
Rouffignac at the time of the Great Cave Bear	3
Rouffignac at the time of the Mammoths	12
The Woolly Rhinoceros (<i>Rhinoceros Tichorhinus</i>).	29
The Companions of the Mammoth and the Rhinoceros	36
The Missing Animals	51
Traces of Man	64

II

THE HISTORY OF ROUFFIGNAC

From François de Belleforest (1575) to Louis Moreri (1725)	73
Joseph de Chancel (1730) and the Marquis de Miremont	81
The Plan of 1759 and the Chevalier de Barry	93
Rouffignac in the Year Sextile XI of the French Era	99
In the time of Martel	112
The little Cave-Explorers	119

III

THE DISCOVERY OF ROUFFIGNAC

26th June, 1956	127
First Attacks, July 1956	140

	PAGE
"Slavish Copies"	148
Practical Jokes	155
Scientific Peace Restored	171
The Forgers Unmasked	189

IV

APPENDIX OF DOCUMENTS ON ROUFFIGNAC

Annexed Documents	193
Comparison with Altamira	194
Declaration by the Abbé Henri Breuil, of the <i>Institut</i>	195
Second List of Works of Art in the Cavern of Rouffignac in Périgord	198
Declaration by Professor Paolo Graziosi, of the University of Florence	199
Letter to Monsieur Séverin Blanc, Regional Director of Antiquities of the Dordogne	200
The Abbé Breuil's Report	201
Declaration by Professor Martin Almagro of the University of Madrid	217
First Declaration, made by Professors Almagro and Graziosi on their Visit to Rouffignac, September 12, 1956	218
Second Declaration, made by Professors Grassé and Leroi-Gourhan on their Visit of September 12, 1956	220
Declaration by M. Norbert Casteret, September 12, 1956	220
Report of Professor P. P. Grassé, Professor at the Sorbonne, Member of the <i>Institut</i>	221
Report of Professor Paolo Graziosi to the Department of Architecture	224
Report of Professor M. Almagro, of the University of Madrid	229

LIST OF ILLUSTRATIONS

	<i>Between Pages</i>
1. Entrance to the Cave of Rouffignac	22-23
2. Plan of the cave drawn in 1759 by Gabriel Bouquier	22-23
3. Title page of <i>The Great Historical Dictionary</i> , published in 1725, in which the Rouffignac paintings are mentioned	22-23
4. A piece of text from an 18th century book, in which reference is made to the cave and its paintings	38-39
5. The engraved "Mammoth of the Discovery", June 26th, 1956	38-39
6. The Great Fosse. Professor Nougier is measuring drawings which are being photographed by M. Romain Robert	38-39
7. The Abbé Henri Breuil under the Great Ceiling	54-55
8. Under the great ceiling: the Abbé Breuil with Louis-René Nougier and Romain Robert	54-55
9. The Great Mammoth Frieze. Left to right: Professor Nougier, Romain Robert and Professor Graziosi	54-55
10. The Abbé Breuil and the two authors before the Press Conference at the Musée de l'Homme	70-71
11. In front of the Great Mammoth Frieze: Professor Martin Almagro, of Madrid University, with the authors	70-71
12. Professor Almagro examining the last mammoth in the Great Frieze	70-71
13. An excellently drawn mammoth, particularly the prehensile extremity of the trunk	86-87
14. A mammoth under the Great Ceiling	86-87
15. Professor Grassé taking a sample of clay. On the right is M. Charlot, professor of the School of Physics and Chemistry	86-87
16. Serpentine drawings on the Serpents' Dome	86-87
17. A serpent to the left and an anthropomorph to the right on the Serpents' Dome	102-103
18. Anthropomorphic figure on the Serpents' Dome	102-103

ILLUSTRATIONS

Between Pages

19.	The two fighting mammoths in the Two Mammoths' Gallery	102-103
20.	Deeply engraved mammoth on the left side of the Sacred Way	118-119
21.	The Paolo Graziosi rhinoceros engraved on the roof before the Breuil Gallery	118-119
22.	Entrance to the Henri Breuil Gallery	118-119
23.	The Breuil Gallery: the family of three rhinoceroses	134-135
24.	The Breuil Gallery: the mother "Dubois" rhinoceros	134-135
25.	The Breuil Gallery: the father rhinoceros at the end of the frieze	134-135
26.	The Breuil Gallery: detail of the head of the "Dubois" rhinoceros	150-151
27.	The Breuil Gallery: horse's head, painted on a flint "kidney", using the natural relief	150-151
28.	The Breuil Gallery: two herds meeting on the Great Mammoth Frieze	150-151
29.	The Breuil Gallery: the two mammoths over which the 18th century "Barry" inscribed his name	150-151
30.	The Breuil Gallery: the last mammoth of the Great Frieze	166-167
31.	The Breuil Gallery: two anthropomorphs engraved on the ceiling of the extension to the gallery—left, Adam; right, Eve	166-167
32.	The Breuil Gallery: the Mammoth Patriarch	166-167
33.	The Sacred Way: the leader of the left-hand herd on the engraved panel of the Five Mammoths	166-167
34.	The Sacred Way: a large mammoth engraved on the ceiling	182-183
35.	The Great Ceiling: a painted bison on the left; a bison partly painted and partly incised on the right	182-183
36.	The Great Ceiling: a large painted horse, 7 ft. 6 in. long	182-183
37.	The Mammoth with the Roguish Eye. This drawing in the extension of the Sacred Way is fifteen hundred yards from the entrance to the cave—the farthest in of all the drawings	182-183
38.	The Great Ceiling: detail of the hind legs of the large painted horse	198-199
39.	The Great Ceiling: right-hand cornice—the "Dalbavie" ibex	198-199

I

THE PREHISTORIC ERA AT
ROUFFIGNAC

ROUFFIGNAC AT THE TIME OF THE GREAT CAVE BEAR

A mantle of Ice

About 40,000 years ago a thick sheet of ice lay over Europe and followed its northern fringes, overflowing the limits of the future Baltic Sea.

In the west, hills, plateaux and old Hercynian mountain masses lay under a rigorous climate, held as in a vice between the great glaciers of the North and those from the Alps abutting on the plain of Bavaria or dying out on the Fourvières ridge above Lyons. Icy winds blew fiercely from the heart of Europe, bringing Arctic conditions.

This was a powerful and active age, during which our soil was formed and moulded in the shapes which were to become familiar. The mountain heights sank, worn down by eroding torrents. Morainic deposits covered thousands of square miles along the fringes of glaciers, spreading over deeply frozen lands. The last hollows of the great valleys were scooped out, or their last terraces built up. Fine loess dust, carried by the continental winds, covered like a veil the lower levels of the countryside.

The west changed steadily to take on new and final shapes. And the living world changed in time with the mineral world, but in the opposite sense. The cold and mossy tundra, with its sparse vegetation and frozen swamps, took the place of an earlier Mediterranean flora such as fig-trees, Canary laurels, broad-leaved spindle-trees and Judas-trees. Gales, even more than cold, attacked trees, which could gain a footing only in sheltered areas or in the more clement lands near the Atlantic or southwards.

The great straight-tusked elephant, the hippopotamus and the terrible sabre-toothed tiger disappeared, yielding place to species better able to face the new rigours of the climate, such as the woolly rhinoceros, with its divided nostrils, the mammoth and the great carnivores: cave lions, hyenas and cave bears.

"The most bear-like bear"

The cave bear, which was the commonest carnivore of the last Ice Age, known to geologists as the Würmian era, was the most bear-like of bears. It was very large, about one-third larger than the present-day brown bear. When standing upright it reached a height of over 6 ft. 6 in. It was a heavy beast, with a well-rounded brow, a rather large head, massive, powerful arms and short, sturdy thighs. It had a very different "line" from that of the present-day bear, for the body was dominated by the forepaws and shoulders, and these were accentuated by the heavy head, lowered to sniff at the ground.

The creature was to be feared for its sharp claws, six to eight inches long, and for its long canine teeth, both upper and lower, which rubbed together as it chewed. None the less, it had the habits of a home-keeper. The "most bear-like bear" was above all a cave bear. It sought its vegetable food in the tundra or on the plain, but as winter drew near it liked the warm seclusion of the caves. There it found the protection of Mother Earth from damp winds and extreme cold. It sought a winter shelter in the deep caves and hibernated there until spring, with its life and loves, came round again.

During the winter the bear went to sleep, saving his energies and practically doing without food. Only his thirst had to be slaked, and the bear's retreat is always a damp cave, where water oozes from the walls or a stream flows underground.

North-east of what was to be called later the Eyzies-de-Tayac district, the cave bear frequented the Combarelles glade, a narrow cleft 230 yards long and averaging six feet in width. In the north-west he was particularly fond of the Cro du Cluzeau, which was to be Rouffignac.

The Cro du Cluzeau

The Cro is a great cave with a total depth of nearly six miles, three-quarters of which was big enough to accommodate the tribe of bears with ease. The original opening, in the Ice Age, was no doubt as high as it is today, but wider. It was the only entrance, and it quickly led to a network of great galleries with a complex plan. After a distance of several miles these galleries become diversified, fork and fork again, ending in a maze of underground passages which become steadily narrower and lower.

The main structure of the Cro consists of a large east-to-west gallery with an eastern and a western branch. The east-to-west

gallery and the western branch form a sudden right-angled bend at the south-west end of the great underground system. This arm of galleries used to communicate with the open air through a chimney or vertical well, thirty to ninety feet deep, emerging on the limestone plateau beneath which the Cro lies.

Today this chimney is blocked, but it is possible to make one's way slowly along winding galleries marked at their angles by cones of gravel, pebbles and iron-stained sand. These various materials have slid gradually down from the surface of the plateau to the world underground. They are the traces of a powerful stream of water which used to sweep the surface, plunge into this chimney and spread throughout the depths in the shape of a delta, forming an underground Mississippi in miniature. There is a striking similarity between the course of the Cro and that of the greatest river in the world. But the former Cro watercourse was destructive, while the Mississippi is creative. The former is negative: a reversed reproduction of the latter.

From this peculiar chimney it is easy to follow the two great arms of the underground torrents; the right arm forms the eastern branch, while the more powerful arm forms the great western branch. In fact, the entrance to the Cro is merely the natural exit of one of the secondary torrents, forming a branch of the underground delta which returns to daylight after covering about one-third of a mile in the depths. The Cro network was already formed in the last Ice Age. It was to be filled up slowly by clay formed by decalcification and by matter which infiltrated from the surface. The busy water continued to delve, to dig and to dissolve, farther and farther towards the lower levels.

The main galleries are as much as 15 or 30 ft. wide, with roofs of varying height, rising to 30, 45 or 60 ft. or sinking as low as 6 ft. and sometimes less than 3 ft. And in the outer fringes of the underground delta the galleries become corridors, the corridors become flues, and the flues shrink to impassable fissures.

The Cro, a "Pyrenean cave" in Périgord

Extending as it does for about six miles, an exceptional distance in the Périgord district, the Cro du Cluzeau is more like the caves of the Pyrenees; it is also reminiscent of the great cave of Niaux, with its extensions to the caves of Sambart and Lombrive, a system which also covers several miles. Combarelles and Font-de-Gaume are typical "Pyrenean" labyrinths. The Cro du Cluzeau is a deep cave which has strayed into Périgord. Is not this fundamental natural

anomaly one explanation of the fact that the Cro was not found by the people of Périgord, but was rediscovered by men from the Pyrenees? In Périgord, the archaeologist is an explorer of narrow corridors a few hundred yards long. The Pyrenean archaeologist is an explorer of wide galleries several miles long. Human traces, drawings and paintings are quite differently distributed in the two districts, and at different depths. The prehistoric drawings of La Mouthe begin 93 yards from the entrance; those of Font de Gaume at 65 yards and those in the Combarelles corridor at 120 yards. No doubt these drawings and paintings are far in by comparison with the 800 yards of bare walls that must be passed at Niaux in order to admire the frescoes in the Black Hall.

At the Cro du Cluzeau you must traverse at least 100 yards to reach the great mammoths on the "Red Ceiling"; 650 yards along the "Sacred Way" to see the Rhinoceros frieze; 800 yards to see the animal groups on the "Great Ceiling", and nearly 1,000 yards to view the "Mammoth with the Roguish Eye".

In the eastern branch of the Cro, again, you must follow nearly 500 yards of winding galleries to reach the Red Ceiling of the Snakes.

The two anthropomorphs facing each other in the continuation of the Breuil gallery and the last mammoths painted in a terminal chamber of the western delta are between 1,000 and 1,200 yards from the entrance. Even so, you must take care not to lose your way in the maze of galleries, but take the shortest path. One mistake may easily double the distance to be covered.

No doubt, it is easy to understand why the explorers of Périgord had neither the patience nor the courage to push on so far underground in their search for traces of man which are usually exposed to view in the open air. Périgord is essentially prehistoric; it is essentially accessible as well. This very accessibility provided an excuse for neglect in these easy conditions. Necessary as they proved, these excuses might have eased the local explorers' recognition of the true fact in the first place, and their confession afterwards. Instead, they roused all the more bad feeling as the goal had been missed so narrowly, and that to a point at which no excuse will serve to cover so blameworthy a failure. The Cro was a "Pyrenean" cave in Périgord. It kept its secret for the Pyreneans.

The first occupants

Hundreds or thousands of the great cave bears were the first occupants of the Cro du Cluzeau. As winter approached, long

lines of bears went underground. Plump, with thick, shining coats and tense masses of flesh under the fat, they wandered through the long galleries in search of resting-places. The mother bears, heavy with the promise of offspring, scratched the yellow, slimy clay to make their nests and give birth to their young, in the first winter months, in the warmth of the cave. The holes are irregularly spaced in the galleries: they are true "bears' nests", 9 to 12 ft. across and 3 ft. deep, and there are hundreds and thousands of them.

The walls of the galleries, and sometimes their roofs, consist of regular strata of smoothly rounded flints, encrusted in the miry clay. These twisted "kidneys", often reddish brown in colour, form natural friezes which heighten the whiteness of the limestone. But the kidneys are sometimes cracked; then they break up and fall to pieces. They fall on the clay and roll into the great suction funnels formed by the underground waters, where they pile up. They also roll into the bears' holes, and their sharp edges must have made the animals very uncomfortable, no doubt. One can imagine, when the nest became uninhabitable, the bear moving out and digging a new one. The number of "bears' beds" at the Cro indicates a huge animal population, but it proves also that the bears liked comfort. How many journalists, when they visit the cave, appreciate the scene as it was when the tenants leaped from hole to hole, with backs bent and heads ducked?—for the ceiling was near and hard and sometimes studded with uncomfortably protruding stones.

During the first few months of his life the cub, no bigger than a large rat, was suckled by his mother, who lapped the water dripping from the walls or trickling intermittently along the galleries. At the age of one, he would spend another winter in the cave, as he cut his first set of adult teeth.

The scratching season

In the spring the bear tribe became active; the old animals exercised their claws while the young tried theirs. And in the galleries, leaping and jostling, the bears sharpened their claws. The marks remain today on the soft limestone walls; they stretch, innumerable and vertical, to the extreme ends of the deepest galleries. Claw after claw, claw against claw, the whole rock is chiselled, incised and torn. Some marks appear at levels which show where a platform, long since collapsed, used to stand. At a great fall of rock, which stretches beyond the chimney into the western branch, slabs from the roof cover the bears' floor. Smooth and perfectly horizontal sections of the vault show that the fall was recent. But

the bears also passed over the fallen blocks, and a second belt of claw-marks makes a sharply-cut frieze at a good height. In their thousands and their millions the claw-marks are distributed over the cave. The science of scratches, like every modern science, requires the use of cunning mathematical formulae. Science can be said to exist only where there are cumulative graphs and curves. We did not wish to leave to others the tedious task of counting these bears' claw-marks accurately. We do not claim to have arrived at the *exact* total of 13,524,978 scratches! But in a spirit of pure scientific discovery, we will allow any duly qualified specialist to repeat the count, in our presence, of course. Indeed we feel a certain diffidence in suggesting a total of 13,524,978 marks, not because we think we should have missed any—we count carefully—but because we are adding together the claw-marks of the great cave bear and those of his successor, the Arctic bear.

It is true that the diagrams in vogue among certain specialists in prehistoric science make no distinction among the stone tools left by man, between scrapers and polishers, spikes and graving-tools. All we have done is to add up scratches which were all made by *bears*. They exist even on the horizontal sides of the vaults, often deeply cut by an enormous leap or reaching up of the animal. Some of the incisions are ten or fifteen millimetres deep, and the traces of the weight-carrying claws show us the power of the leaping animal and the size of his paws. Gaps in the prints indicate a loss of balance. A bear reared up against this wall; he fell into a nest near-by, and the traces of his clumsy fall are there, almost eternal, 30,000 years old. On the floors of the galleries the clay still bears deep scratches filled with the fine manganese dust that drifts in the air underground: even more filled with it than the scratches on the roofs, dark though these are. And often, a few inches away, a prehistoric graven drawing, the outline of a rhinoceros, is similarly dusted. Were these marks and the bears contemporary? Some of them certainly were. Later, studies will be made of these scratches and of the question whether they belong to *Ursus speleus*, the Cave Bear, or *Ursus arctos*, the Brown Bear. These researches are complicated by the scratches made by young bear cubs; it will be difficult to distinguish between the print of a little great bear and that of a big little bear! Great days in prospect for new and solemn controversies. . . .

However that may be, bears' claw-marks lie over graven or painted lines, while some graven or painted lines lie over claw-marks, clear proof that the prehistoric artists and the bears were more or less

contemporary. One would like to think that this co-existence does not imply that man and bear lived together; but many animals are shown in their winter coats—those of the very season when the bears sought shelter in the Cro du Cluzeau. Several potholes in the western gallery, too large for a bear to "nest" in, show signs of long, vertical scratches, that is, of long sliding on the clay.

Phosphates and human or animal occupation

The clay which lines the great galleries of the Cro is enriched by large quantities of phosphates of animal origin. These phosphates come from the decomposed corpses of animals or from their secretions. In some corridors even the bones have rotted and left phosphates of lime. Quite provisionally, the quantity of bear-earth at the Cro may be estimated at about 30,000 cubic yards. Allowing an average of 200 lb. of phosphates per cubic yard of earth, the phosphates concealed in the cavern would amount to 2,000 tons. It has been calculated that the cavern at Mixnitz in Styria (Drachenhöhle), one of the best-known bear-caves in the Alps, contained only 50 tons!

By analysing the phosphate content of the soil we can identify the most highly impregnated galleries, which must have been those most densely populated by the bears.

A more detailed examination will contribute to a solution of the question, once greatly discussed but practically settled today, "Did Palaeolithic men hunt the cave bears?" There are large deposits of crushed and broken bones which appear to be bears' bones. But these discoveries are exceptional today. A narrow corridor in the great branch of the Cro, about 1,500 yards from the entrance, yielded an exciting discovery: along the left-hand wall were claw-marks deeply scored in the brown clay, the claw-marks of a great cave bear; and opposite them, along the right-hand wall, the intact canine tooth of a great bear, still lodged in the clay. This clay, when carefully detached, provided a negative moulding of the tooth.

When foundations were made in July 1956 for the new wall at the entrance, which was built to prevent trespassing in the cave, the digging down to the rock yielded two teeth of *Ursus arctos*—the present-day bear. At present we have no sign that bears were hunted in the galleries of the Cro du Cluzeau. There are no bears among the animals drawn or painted in the cave; but man, no doubt, was not completely absent.

Here is Man, the Neanderthal

The entrance to the cave, which was open at the last Ice Age, was slowly filled by human detritus, the litter and cooking refuse of the many occupants of the porch or outer cave, and by the natural débris slipping down from the higher levels. When the entrance was enlarged in 1938 a sort of trench was dug in this embankment, giving the Rouffignac porch its present appearance. And the diggers, working under the direction of M. Charles Plassard, the landowner, were certainly puzzled by the remains of bones, innumerable flint implements and many fragments of pottery they turned up with every spadeful. They were disturbing prehistoric layers, never suspecting that they were destroying the material archives of their distant ancestors in Périgord! The most deeply buried flints gave proof of the earliest human occupation. The surface layers yielded fragments of large urns and relics of the various Bronze and Iron Ages as well as huge pieces of Roman amphorae, turned on the potter's wheel, with their deep, regular and beautiful grooves.

There were still many things about prehistoric archaeology that M. Plassard did not know. But he had a keen desire to satisfy his own curiosity and to understand. Very carefully, he had all the flint chips, all the bone fragments and all the potsherds gathered. Packed in boxes, these relics awaited the discovery of Rouffignac.

In June 1956, for the first time since they were put away, the specimens were unpacked with more care than they had known when they were first unearthed, some eighteen years earlier. In the turf-covered yard of the farmhouse of l'Egal we laid out these treasures, which had miraculously escaped when a traffic platform was built up in front of the cave. Artificially, no doubt, but with fair accuracy, the stratigraphy of the Rouffignac remains and the successive stages in the occupation of the porch were traced.

The place was inhabited almost without interruption from the Ice Age to the Roman era. Moving back through the ages we found fragments of amphorae identical with those at Vésone, the black pottery with Greek decoration of Tena and Hallstatt, brown, hand-made fragments decorated in relief from the Bronze Age or Chalcolithic ware ending as it does at the Roque Saint-Christophe. Finally, we found the cutting instruments used by men in the Reindeer Age, and the flint implements of Neanderthal men, who were contemporaries of the great cave bears. These medium-sized fragments are still rough. Few among the pieces we have kept have been polished. Scrapers and blades of thick triangular section are

not very strong evidence from which to identify definitely a human occupation belonging to what is called the Mousterian civilisation, which is displayed in two cave openings above the Vézère, between Montignac and Les Eyzies. The Mousterian culture at Rouffignac will no doubt be linked with the near-by deposits at La Ferrassie. New excavations in the future will furnish useful details, obtained with all desirable care. A digging deeper than the present entrance may even reveal still older archaeological levels. We shall see.

For the moment at least, these Neanderthal men, with their "strong, heavy frames, bony heads and powerful jaws showing the priority of purely vegetative or bestial functions over those of the brain" are the first discoverers of Rouffignac.

ROUFFIGNAC AT THE TIME OF THE MAMMOTHS

A Lord of Ages past

Even more than the reindeer, the mammoth has remained the symbol of vanished weather conditions. His great size, his long hair, his trunk and long, curving tusks have fixed his place in our imaginations and he suggests Prehistory and the climate of the last Ice Age as the camel suggests sand and the burning desert. The mammoth has become a creature of legend, to be found in prehistoric iconography for over 20,000 years. The first known drawing of a mammoth came from an engraved ivory found in a cave in the Dordogne by Lartet and published in 1865. Forty years later Abbé Henri Breuil, by his admirable records, made known the mammoths of the Combarelles, which became classic from then on. The mammoth can also be reconstructed from his bones, and there are very few small provincial museums which do not proudly display in their show-cases, or built up on a base and held together with wire, some precious osteological specimen. The museum at Foix, in the Pyrenees, has three-quarters of a mammoth standing against the end wall of its main hall.

Knowledge of the larger bony parts of the mammoth, such as tusks, molars, femurs, etc., is very old, and popular credulity has attributed strange origins to some. Often these respectable bones, thanks to their size, were taken for sacred relics. In 1789 the monks of St. Vincent carried a mammoth's molar in procession to bring down rain, calling it a "bone of the Holy Lord". But the alleged origins were usually more profane, and mammoths' bones passed for those of the giants of legend. It was not until the 17th and 18th centuries that they were recognised as the remains of vanished animals which once lived on our soil. Some southern archaeologists (and by no means the least among them) occasionally took them for skeletons of Hannibal's elephants, used by him in the great invasion of 218 B.C. But the discovery of "real mammoths", preserved in ice, the natural cold storage of Siberia, brought

Europe its most detailed knowledge of this fabulous extinct quadruped.

The frozen Mammoth

As early as the 17th century, at the time of the first emperor of the usurping Manchu dynasty, descriptions could be read in China of Siberian mammoths which described them as "underground rats of the north" but made it clear that these rats were as big as elephants. In 1692 Witsen published an account of his "extraordinary and adventurous journey to Tartary and the north-east", in which he described the discovery of complete mammoths' bodies. The first discovery of a mammoth to be exploited scientifically was made in 1799 on the banks of the Lena river delta. Here an enormous block of ice enclosed the entire body of a mammoth.

A botanist named Adams learned of the discovery through the sale of the tusks in the market at Irkutsk and decided to go to the spot. He only just managed to recover the head, with one eye and one ear, and "the lower parts of two legs still sunk in the frozen earth". Dogs and beasts of prey had devoured the rest. The skeleton, almost complete, was sent to St. Petersburg in 1806, mounted there and shown in the "cabinet of curios" founded by Peter the Great, which was the precursor of the Zoological Museum of the Academy of Sciences. It was only in the 20th century that a new discovery at last yielded a mammoth's body in good condition.

In April 1901 the governor of Irkutsk notified the Academy of Sciences of the discovery among the fossilised ice of the Berezovka, the right-hand branch of the Kolyma, a river flowing into the Arctic Ocean. An expedition, of which E. W. Pfizenmayer has left us an attractive account, was organised. The mammoth's corpse lay on a slab of fossilised ice on the river bank, which had crumbled, partly exposing the well-preserved body. The ice of the exposed surfaces was brownish and pierced by long-shaped air bubbles, but the deeper layers were more compact and transparently clear. This was the true fossil ice of the great Ice Age. The mammoth had fallen into a deep crevasse, and the permanent sheet of ice had kept it intact until our time. No doubt the crevasse had been hidden under a surface layer of earth which had yielded under the mammoth's weight. Wedged between smooth vertical walls of ice, the mastodon had tried in vain to get free, and his forelegs were outstretched in a last effort. But he died of suffocation, with several broken bones, buried under masses of earth brought down by his fall.

A Mammoth's menu

His death was sudden, for unchewed fodder was found on his tongue and between his molars. "The imprint of the edges of the teeth could be clearly seen on the scraps of vegetation wedged between the molars."

Among the remains of food in the stomach, 30 lb. of "prehistoric plants" were recovered. By identifying them it was possible to establish the exact diet of the Siberian mammoth, and it is likely that it hardly differed from that of the western mammoths, including our mammoths at Rouffignac. Now that we know what our mammoths in the cave had to eat, they seem nearer to us and more living.

The plants the Siberian mammoth grazed on along the banks of the Berezovka are to be found today in the same place. There are several kinds of sedge, the yellow Alpine poppy, the bitter *Ranunculus* or buttercup, a gentian and an orchid.

Many of these plants have found refuge in the west, on the upper slopes of the Alps and the Pyrenees. They are residual flora, once the food of animals now extinct. A plant is more tenacious of life than an animal, less hunted and less destroyed by man. And the Alpine gentian takes on a new scent when we know that it was once cropped not only by M. Séguin's little white goat but, long before that, by some mammoth of the Ice Age. I keep pressed in a heavy archaeological tome some blossoms of *Dryas octopetala*, gathered on the heights of the Wildkirchli, above the Alpine bear-cave at St. Gallen. These two are precious relics of the glacial flora that reached this place.

The Mammoth is revived

The animal was soon laid bare, with little damage from beasts of prey and dogs, though its flesh was still appetising. "The well-preserved meat of the forelegs, haunches and hind-quarters was interlarded with thick layers of fat. As long as it remained frozen it had a fresh and appetising dark red colour, like frozen beef or horse-flesh, but with much coarser fibres." But the explorers dared not taste mammoth steak. This was a pity, for we should like to have had their impressions of the taste, even if they found the dish horrible. There is no reason why a man of the 20th century should not eat the three roasts which were choice dishes in the far-off pre-history of 20,000 years ago: mammoth, reindeer and bison. This would call only for a journey and a good digestion—a trip to Siberia,

if another mammoth is found there, as it is bound to be; an excursion to Scandinavia to taste reindeer and a crossing of the Atlantic to end up with roast bison. Up to now I have tasted only reindeer: a reindeer killed in north Norway, frozen and sawn into pieces before being sent to market at Bergen. It had a pleasant flavour, like a chamois of the Pyrenees. Hunters along the Berezovka had much less far to go to enjoy the "game trinity of the quaternary age", if it is true that hunters reached those parts. Not far from the mammoth, the explorers found a bison and a reindeer.

The carcass was so well preserved in the ice that a large quantity of coagulated blood was recovered and a laboratory analysis established "the blood relationship of the mammoth with the Indian elephant".

A second mammoth, discovered shortly afterwards on the banks of the Sanga-Yurak, fortunately yielded parts complementary to those of the Berezovka mammoth, giving a picture of the lord of ages past.

Portrait of the Lord of Siberia

Though he is the great elephant of the cold lands, the mammoth is no monster in size and he has a balance of form and dimensions resulting in an animal completeness not without beauty. The mammoth's skeleton found at Steinheim in a quaternary layer older than our specimens at Rouffignac, stands about 12 ft. high from the ground to the top of the shoulder-blades. The Siberian mammoths, though nearer to ours in time in spite of the geographical distance that separates them, are also about 12 ft. tall and 13 ft. long from the tips of their tusks to that of their tails. But as in the case of the human race, there are great differences between individuals and between the sexes. It is interesting to note that the basic measurements of the Berezovka mammoth are closely related to those of some of the Rouffignac specimens. In the Henri Breuil gallery the great frieze shows eleven mammoths majestically lined up in two groups, seven facing left and four facing right. Owing to the fading of these paintings, which were made 20,000 years ago, it is not always possible to take *all* the measurements. The upper part of the rock, which is very damp, has preserved the pictures in detail. At the middle level, which is dry and very chalky today, many features have disappeared. Fortunately the mammoths' legs have been preserved at the lower level, and this makes it possible to measure their height.

Mammoth No. 5—we must number them, since there are so

many—is 56 cm. (22 in.) high, or 59 cm. (23 in.) from the top of the skull to the lower end of the foreleg, and 82 cm. (32 in.) long, from the tips of the tusks to the rear edge of the thigh. The tail no longer shows, or it lies flat against the rump. If we multiply these basic measurements by 5 we shall get 2 m. 80 cm. (9 ft. 2 in.) and 4 m. 10 cm. (13 ft. 5 in.), exactly the dimensions of the Berezovka mammoth. Thus mammoth No. 5 at Rouffignac is an exact one-fifth scale model of the Siberian companion!

All the mammoths of the balanced Rouffignac frieze are not identical, but it may be supposed that the differences correspond with natural variations. The "portraits" in the frieze, no doubt, have no absolute anthropometric—or may one say "mammothometric"?—value, but their excellent drawing, their firm and accurate line, their intense life and the happy proportions of No. 5 are so many arguments in favour of the unknown artist and so many reasons for placing implicit faith in his work. There is no reason why the great mammoth frieze of Rouffignac should not be accepted as a one-fifth scale reduction of a group, recorded for all time.

Mammoth No. 6, who comes before the prototype, is distinctly larger. The tusks have faded, but we have enough detail to reconstruct his true dimensions: 3 m. 80 cm. (12 ft. 5 in.) high and 4 m. 50 cm. (13 ft. 1 in.) long. Mammoth No. 9 may have measured 2 m. 85 cm. (9 ft. 8 in.) high and 4 m. 75 cm. (15 ft. 7 in.) long. The solitary old leader who sadly ends the great frieze must have been over 16 ft. long.

A Mammoth's head

The mammoth has a large, powerful head, emphasised by a thick neck springing from a massive body. The head forms a regular hump, rather higher than that of the shoulders. The latter is prolonged and supported by the long, sharp flanges of the dorsal vertebrae. This hump must have been covered with fat in the autumn, when the animal was well fed. In winter it enabled him to live on less food when snow covered the ground. The eye was small—it is often cunningly drawn in the paintings—and was hidden under definitely jutting brows, which were very characteristic. The line of the forehead continued towards the trunk only after the swelling brows. Painters and draughtsmen always note it carefully. The trunk has a thick pelt along its hinder surface, though the front seems smooth. At its tip are prehensile lips, clearly shown on a mammoth painted on the "great ceiling" of Rouffignac.

Finely curved, spiral tusks give the mammoth his majestic air. Here again the Siberian mammoths bring us valuable data, for their tusks are much sought after for ivory-work. "Harvesting" mammoth tusks is one of the traditional resources of the primitive Siberian economy. At the beginning of summer, in the great thaws, river banks are undermined and washed away, and mammoth tusks and rhinoceros horns are uncovered. Then mammoth teeth are traded from market to market, and sometimes bones as well.

China and the Dragons

In China it is the custom to buy dragons' teeth and dragons' bones in the chemists' shops, for everything is traced to the dragon, which is the national symbol. As G. H. R. von Koenigswald, the man of the Pithecanthropus, humorously tells us, you can buy these precious "medicines" wherever you have a prescription and plenty of money in your pocket. "Everything that comes from the body of so powerful an animal is bound to be a very potent drug and to fetch a high price."

But these "dragons' teeth" are not those of the legendary monsters at all. They are the fossilised teeth of all sorts of mammals. More than 100 species have been counted. Among the chemists' jars of Peking and Hong Kong you will find the teeth of "Sinanthropus" and also mammoths' tusks which are admired as dragons' bones. As long ago as the 12th century, the Chinese encyclopaedia *Ta-Kuan-pen-tsao* spoke of the medicinal properties of dragons' bones. The bones were brought down by the Hoang-ho river in the spring floods. The Ordos gorge, a defile dug by the river in the mountains north of the Great Wall, was known as "the Dragon's Gate". This was where the "burrowing rat" lived: that rat, as big as an elephant, which was no other than the mammoth.

More intensive "harvesting" of mammoth tusks began in the middle of the 18th century, and complete expeditions were undertaken which discovered islands like the Liakhov Isles in the Arctic Ocean, north of Siberia. Liakhov pioneered the wholesale trade in fossil ivory. During the summers of 1882 and 1884 a mission led by Dr. Bunge brought back 2,500 tusks.

The finest tusks examined by E. W. Pfitzenmayer at Bulun, near the mouth of the Neva, at the beginning of this century "described an almost perfect circle, with a slight spiral tendency, for two-thirds of their length. Each tusk was 2 m. 79 cm. (9 ft. 1 in.) long, measured along the outside of the curve, and 38 cm. (just under

15 in.) in circumference at the base. Each of these specimens weighed 32 kg. (70 lb.)."

If the reduced scale of one to five is accepted as constant, the last mammoth on the great frieze at Rouffignac had tusks 4 m. (13 ft.) long on the outside of the curve. This figure approximates to the size of the finest and biggest-known mammoth tusks. The same author reports an exceptional tusk from which a fragment 35 or 40 cm. (14 to 16 in.) long was missing at the base and another small fragment at the tip. "Although it was incomplete, this tusk measured 3 m. 74 cm. (11 ft. 2 in.) and weighed 109 kg. (nearly 240 lb.)." In any case, the outside length of the tusk was greater than in the "lone mammoth" of Rouffignac. In his two tusks the Siberian giant carried at least 250 kg. (550 lb.) of ivory!

The Mammoth's Fleece

The discoveries of frozen mammoths and prehistoric drawings and engravings confirm one another and help us to give the hairy picture of the mammoth which is now classical and popular. He had a heavy fleece formed of long, stiff, coarse hairs (the outer coat) and a woolly layer of hairs which were shorter and finer but much denser. The whole formed a double protective coat which retained air. The long hairs measured as much as 45 cm. (17 in.). Generally rusty brown in colour, they varied on different parts of the body and also in different seasons.

The outer hair was longer on the chest and neck, back and flanks. This appeared in the mammoths drawn or painted at Rouffignac. When we examine the one-fifth scale drawing of the lone mammoth on the great frieze, it is interesting to note that the long hairs on his chest, enlarged to their natural size, would be, at the most, 48 cm. (19 in.) long, compared with 17 in. for the Siberian animal. This no doubt confirms the accuracy of the prehistoric artist, as he well deserves to be called.

It confirms the truth of his proportions, but does it not do much more? The vertical streaks of manganese only suggest the fleece, for the artist has painted but few, but they are in exact proportion to the creature's body. Is not this minute sense of proportion—accurate to a mammoth's hair's-breadth, one might say—the sign of a complete art, of unrivalled sureness and accuracy in drawing, of a deep power of suggestion with the simplest possible materials: a rocky wall, a thick stump of manganese, a small oil lamp? . . .

For precision does not destroy "life", and our mammoths at Rouffignac are living things.

Art and Accuracy

They certainly represent a very high level of art, perhaps the highest ever reached. But above all they remain human works. They are rendered personal and reveal the hand and touch of the artist. If all the mammoths of the great frieze are by the same hand, like those in the end chamber of the west branch at Rouffignac, others have different qualities. Those on the "great ceiling" aim much more at effect. Their lines are less pure, and they are sometimes overcharged with detail. No doubt they are of a more recent school. And the most spectacular are not always the most accurate. One mammoth on the left, a little before the "great ceiling", makes a striking effect, but according to Professor Grassé he has not the rightness and precision of his brothers of the great frieze. On the other hand, a mammoth to the right of the "great ceiling", who might be considered rather naïve from an aesthetic point of view, is scientifically accurate. This is the one who has a clearly-drawn two-lipped tip to his trunk, and—passing to the other extreme—a remarkable formation of the anus, like a sort of lid for protection from the cold. This opercule is a fundamental feature of the mammoth; the Cabrerets mammoths have it, and this is one of those minute and little-known details that might easily escape the attention of a forger. Now, the Rouffignac mammoths, whenever the drawings are sufficiently detailed, wear this feature with elegance. We shall long remember the admiring, joyful and exultant exclamations of the great anatomists: "Oh, have you seen his anal opercule! Wonderful! Marvellous! How can it be a forgery, with such a feature?" Ah, anal opercule of our Rouffignac mammoths! You protected them from the cold and you protect us from wounding scepticism. Thank you!

The real Battle of Mammoths

The rhinoceros has his family life, but the mammoth's life is communal. Like his fellow-pachyderm and near relation, the elephant, he lives in powerful groups under the guidance of his "old leaders". The glades which run today from Manaurie towards the Vézère valley must often have echoed, in the past, with the heavy, slow and methodical passing of the herds. A painting or a drawing bears witness to the existence of an extinct animal species just as well as the presence of bones, but the two kinds of evidence are not of equal value. The second is natural, while the first is the result of human choice, but both are equally subject to the chances of discovery. It

would be vain to argue the point whether it is more arduous or more praiseworthy to discover a mammoths' "cemetery" or to find a gallery with mammoth paintings. Alluvial deposits and even caves in the Dordogne have yielded mammoths' tusks, or at least fragments of them, and molars either whole or often divided into natural chips. Artists and artisans of the upper palaeolithic period worked on mammoth ivory as the Samoyeds of Siberia did thousands of years later. Traditions persist. Not only did the mammoth live in the Dordogne: he had a large place in its life. And here the graphic evidence of Rouffignac is vital. It would be, as it always is, risky to draw conclusions about these distant civilisations, but the mere number of mammoths in the Rouffignac galleries can only show the considerable part played by this animal in palaeolithic life, at least for the tribe that inhabited the Cro du Cluzeau.

People thought in terms of mammoths at that time. That, no doubt, was because they saw mammoths and lived among them. And the painted herds are only a reproduction of the living herds, and perhaps they were painted only that the herds might live. Often the valleys must have echoed to their slow, heavy, deliberate passing. Like the elephant, no doubt, the mammoth followed his nose. He might be a symbol of conscious rectitude, though rather in vain, for nature has taught certain animal species, including man, the advantages of a devious path.

It must have happened very often that two herds met, and each wanted to push ahead. Then each leader would overthrow any obstacle in his path, whether it were a native hut, a thicket or the living bodies of other mammoths. And then the fight began.

The valleys of Manaurie rang with these battles of giants; with long, shrill trumpeting, the loud clash of tusks and heads, the wet, heavy sliding of flesh on the soil. But the curving tusks interlocked and would not be freed. Crouching face to face, pushing with their hind-quarters, butting with their short brows and brandishing their trunks, for minutes on end, the great beasts matched one another, staring with their small, round eyes. The real battle of the Rouffignac mammoths is recorded in the caves. It is still impossible to say how many times we can find the theme of battle suggested by mammoths in single combat.

The Great Frieze

The most spectacular encounter is that depicted in the great frieze in the Henri Breuil gallery: that of seven against four. Seven mammoths face left, marching on the four who face right. They

come one behind the other, close together near the head of the column, more widely spaced towards the rear, where, even among mammoths, the least brave will be found. Near the centre, the right-hand group, which is the larger, includes some mammoths side by side; their features overlap. One is in the second row, passing others as he hurries to the leaders' point of contact. The duel will become unequal.

As you emerge from the Sacred Way, the light of your acetylene lamp reveals a new mammoth at every second or third step. Slowly—for the bear-holes, flints and slippery clay will reduce your pace—slowly you light up one as another disappears into the shades. The new beast vanishes also, yielding place to a third, and so on, until the fight appears. And the frieze goes on, with these combatants, until the magnificent lone mammoth is reached.

Fifteen yards of mammoth frieze! You draw back now, taking care of the holes, and try to illuminate the whole scene, waving your heavy lamp, but you do not succeed. You may direct your quivering light on this section or that, or on the clash depicted in the centre, but some part of the picture is always in shadow, and that is as it should be. The mammoth frieze of Rouffignac passes into the shades and marches on, as though infinite and eternal.

In the raw, white light of the cinema operators' floodlights the whole wall and ceiling are illuminated, and the two herds meet as one. There is no more mystery, but the splendid vision will remain for ever graven on your memory. You hold your breath in religious awe, in intense communion with those fellow-men of 20,000 years ago who seem to come to meet you. Your blood throbs faster and more loudly in your temples, and you seem to hear the deep galleries re-echo to the mammoths' heavy tread.

The Battle Theme

The struggle of mammoth against mammoth is not always shown on such a scale as in the great frieze. The large panel of mammoth drawings on the right-hand wall of the Sacred Way, beyond the Breuil gallery, shows only two groups of two. The leader of the left-hand group is admirably preserved and not disfigured by sacrilegious modern scrawlings. He is one of the finest mammoths in the cave.

With his high, rounded head and sloping back, wrapped in his long, stiff hair, and his hairy trunk rolled up, he gives you a melancholy look. With wrinkled brows and curved tusks pointing to his forehead, he awaits the enemy. A band of wavy lines crosses his

carcass from head to belly like a French Town Councillor's sash. Is he a mammoth chief?

Between him and his opponent is a baby mammoth, with a lumpy forehead rather out of proportion, like those children who seem to have a long head, shaped like a sugar-loaf. His eye was clearly defined under the arching brow, and there is plenty of hair on his trunk. The scene lacks violence and rather resembles a family group. In any case, it makes a perfect picture. The two opposing leaders leave an empty, triangular space under their curving tusks, and the young mammoth fills this space. The whole is a wonderful example of pyramidal composition.

There are many more opposing groups on the left-hand wall of the Breuil gallery.

"Charlotte" and the Patriarch

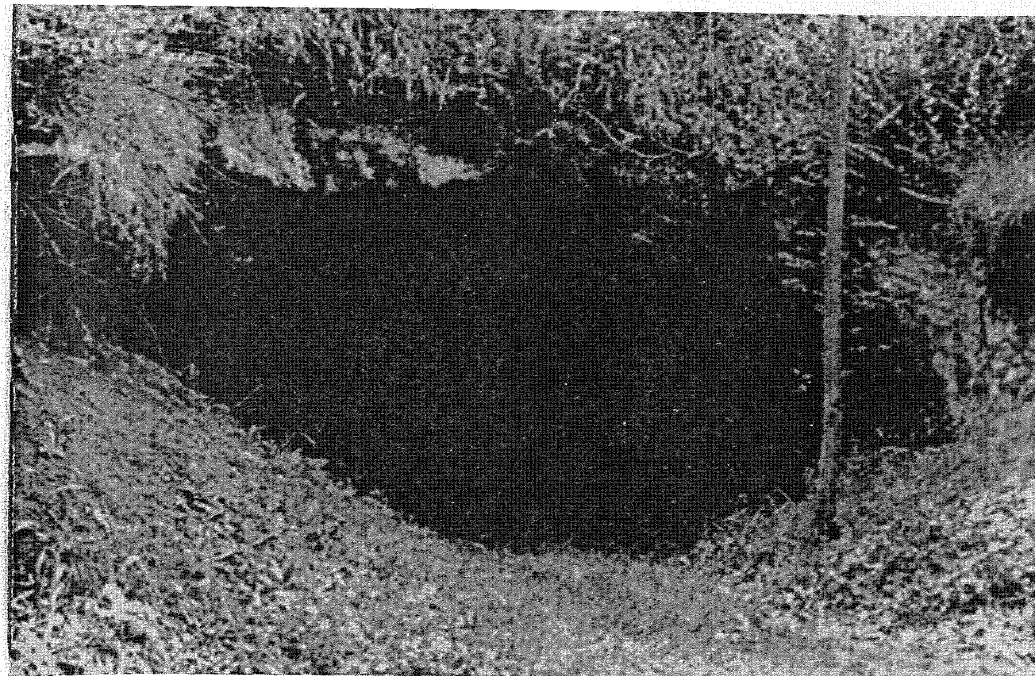
At the end of the gallery we find Charlotte—a sweet name for a robust and powerful mammoth, given to her no doubt by some underground Werther longing to fix his passing human feelings for eternity.

Charlotte faces left, driving another mammoth, happily anonymous, before her (or before him). And this mammoth meets another facing right. Farther on, towards the Sacred Way, three mammoths facing left (one in the background overlapping the two in the front row) meet two more facing right. Still farther on, the theme is treated systematically. Here the "Patriarch", an old male with powerful tusks, is on the move. His features are deeply graven. His body is 70 cm. (27½ in.) long, and the span of his tusks, from his eye to their points, is 40 cm. (nearly 16 in.). Keeping the same proportions, a "patriarch" 3 m. 50 cm. (11 ft. 6 in.) long, in the natural state five times the size of his portrait, would have had tusks about 11 ft. 6 in. long, and a mammoth 4 m. 20 cm. (13 ft. 9 in.) long would have had tusks measuring 3 m. 75 cm. (12 ft. 4 in.). The data found in the case of the "lone mammoth" hold good.

Claude Barrière, who took part in the minute inspection of the gallery, made an interesting observation. The wall is not flat but forms a series of concave arcs separated by ridges which may be described as "ribs". Twice in three groups two mammoths face each other from each side of a "rib".

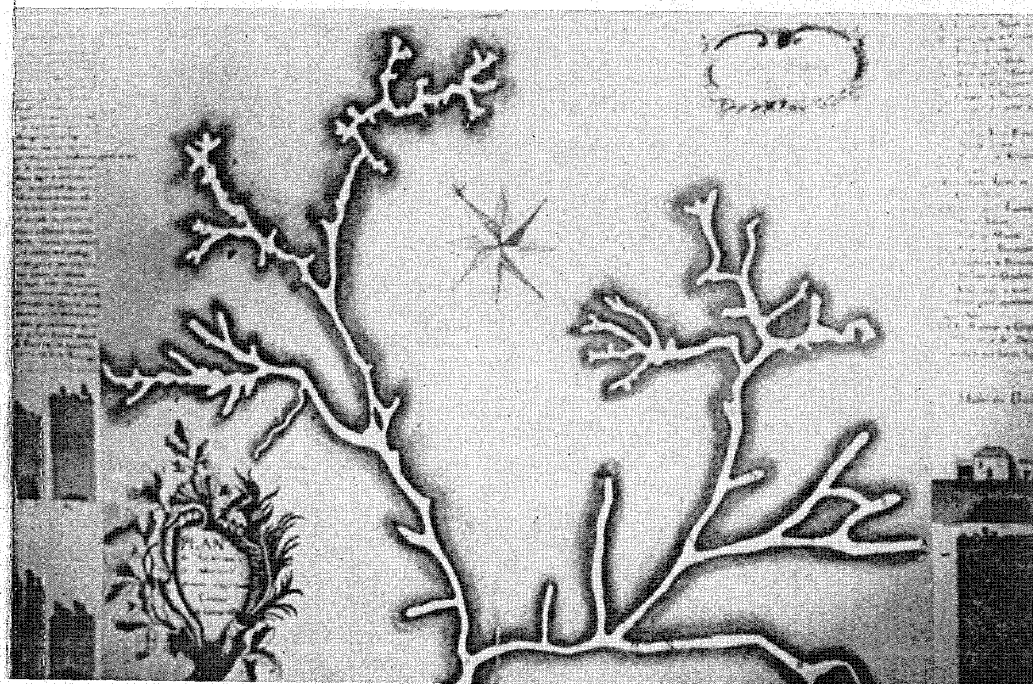
The mammoth hunt?

Was the mammoth hunted? He would have made a choice dish



1. Entrance to the Cave of Rouffignac

2. Plan of the cave, drawn in 1759 by Gabriel Bouquier



LE GRAND
DICTIONNAIRE
HISTORIQUE

OU
LE MÉLANGE CURIEUX
DE
L'HISTOIRE SACRÉE
ET PROFANE:
QUI CONTIENT EN ABREGÉ
L'HISTOIRE FABULEUSE

Des Dieux & des Heros de l'Antiquité Payenne:

LES VIES ET LES ACTIONS REMARQUABLES

Des Patriarches des Rois des Juifs des Papes des Saints Martyrs & Confesseurs des Peres de l'Eglise;
& des Docteurs Orthodoxes; des Evêques; des Cardinaux & autres Prelats celebres; des Mercuriales
& des Schismatiques; avec leurs principaux Dogmes.

Des Empereurs; Des Rois; Des Princes illustres; & des grands Capitaines:

Des Auteurs anciens & modernes; Des Philosophes; Des Inventeurs des Arts; & de ceux qui se font rendus recommandables
en toute sorte de Professions, par leur Science, par leurs Ouvrages, & par quelque action éclatante.

LETABLISSEMENT ET LE PROGRES

Des Ordres Religieux & Militaires; & LA VIE de leurs Fondateurs:

LES GENEALOGIES

De plusieurs Familles illustres de France, & d'autres Pays:

LA DESCRIPTION

Des Empires, Royaumes, Republiques, Provinces, Villes, Isles, Montagnes, Fleuves, & autres lieux consi-
derables de l'ancienne & nouvelle Geographie: où l'on remarque la situation, l'etendue & la qualité du
Pays; la Religion, le Gouvernement, les Mœurs & les Coutumes des Peuples: On l'on voit les Dignitez,
les Magistratures ou Titres d'honneur: Les Religions & Sectes des Chrétiens, des Juifs & des Payens: Les
principaux noms des Arts & des Sciences: Les Actions publiques & isolemnelles: Les Jeux, les Fêtes, &c.
Les Edits & les Loix, dont l'Histoire est curieuse, &c.

L'Histoire des Conciles generaux & particuliers, sous le nom des lieux où ils ont été tenus.

Le tout enrichi de Remarques, de Dissertations & de Recherches curieuses, pour l'claircissement des difficultez,
de l'Histoire, de la Chronologie & de la Geographie. tirées de differens Auteurs, & servans
de Dictionnaire Critique de M. Bayle.

Par M^r LOUIS MORERI, Prêtre, Docteur en Theologie.

NOUVELLE ET DERNIERE ÉDITION REVUE, CORRIGÉE ET AUGMENTÉE

TOME V.



A PARIS,

Chez DENYS MARITTE, rue S. Jacques, au coin de la rue des Noyers,
à S. Augustin & à l'Écu de Venise.

M D C C X V.

AVEC APPROBATION, ET PRIVILEGE DE SA MAJESTÉ.

for a palaeolithic menu, which consisted largely of meat. At first sight it seems difficult for a man to stand up to a mammoth. Even with his height of 6 ft., Cro-Magnon man was clearly overshadowed by the 9 ft. of the animal and might seem crushed by his weight. Could bone weapons such as assegais made from reindeer horns penetrate a hide nearly an inch thick, lined with a subcutaneous layer of fat $3\frac{1}{2}$ in. thick? Eleven inches of "dead ground" had to be pierced before any effective penetration, and how much more before any vital organ was touched? The mammoth could be attacked only with a long wooden pike, hardened by fire at the point and perhaps wielded by several men. But then, think of the fury of the beast as it charged the Cro-Magnon hunters! Can we suppose that they used less direct methods? African native elephant-hunters use a boar-spear and, risking their lives, stalk the animal to stick it into the soles of its feet. Then the elephant, a lordly tramp, limps on for hours and days, followed by a human pack, before it finally goes mad and dies.

Other clever natives are masters of the trapper's art. On the Upper Nile they suspend a heavy wooden stake, tipped with a spear-point, over the elephants' path. The whole is connected with a cord that spans the track, and when the elephant disturbs the cord he pulls a trigger and the pylon pierces his skull—or misses him. Palaeolithic man knew ropes, as he knew many other things, but we shall never know whether he was as cunning as the natives of the Upper Nile.

In other parts of Africa a sharp stake is planted, point upwards, in a pit covered with branches through which the elephant may fall. But a mammoth-pit would have to be very large: six to ten feet deep at least, to trip the animal, and at least 15 feet wide to prevent him from climbing out. Altogether, a capacity of 65 to 95 cubic yards would be needed to immobilise the beast. Imagine the efforts required to dig such a pit! In soil which might be deeply frozen, it would be impossible; impossible in limestone, too. And in loose soil, what a task for men to scoop out the earth with their hands, or even using bisons' shoulder-blades as spades! Is it not strange that no trace of a pit this size has ever come down to us? A scene of this kind is represented in miniature in the Natural History Museum at Toulouse, in a show-case at the end of the Cartailhac gallery, using terra cotta or breadcrumbs for earth. The scene is rather picturesque. The mammoth, who evidently is destined to provide the main dish of a meal, is being harassed by a crowd of little pygmies who dance round him, brandishing spears and assegais

3. Title page of *The Great Historical Dictionary*, published in 1725, in which the Rouffignac paintings are mentioned

very bravely when they are at a distance and have nothing to fear. These pygmies, of course, are men. In the dust of the show-case, which obliterates details, the group resembles a scene from the adventures of Gulliver in Lilliput. But mammoth-hunting has not been proved and is hardly accepted as a fact, any more than hunting for the palaeolithic bear. Whether mammoth meat was included in the diet of palaeolithic man is another question.

Mammoth cemeteries

The loess at Predmost in Moravia contains several hundred mammoths, 300 according to some, 1,000 according to others, together with bones of horses or reindeer, thousands of stone or bone implements and even works of art carved on mammoth ivory. Predmost is a field of mammoth remains and archaeological deposits covering several types of civilisation.

Some hold that the mammoths were hunted and that Predmost was a sort of killing ground, a great hunting rendezvous. Others believe that the Predmost herds fell victims to some natural cataclysm, perhaps a terrible blizzard. Afterwards, men gathered to make use of the victims, remove the tusks, cut up the bodies for the long bones or shoulder-blades or perhaps even eat the meat.

Predmost has been described as a gigantic refrigerator on which men drew as it thawed, just as the Tungus tribes keep frozen mammoth-meat in Siberia for their dogs, and sometimes for themselves. The changes of climate of the quaternary epoch are still too little known in detail for us to form a definite opinion.

What was the "true" temperature in the Dordogne country at the time of the mammoth, and especially the "true" temperature of a given soil? The Vézère valley is open to Atlantic influence, but in Périgord local conditions have more effect than elsewhere. The sheltered valley and the plateau, the upper or lower course of a stream, each has its own climate, and to the present day the Sarladais has an average temperature in January of only 0 to 4° C. Climate, rather than soil, determines a way of life and suggests occupations.

Did the climate of that time make it possible to dig trap-pits? Or would the weighted traps depicted in certain drawings at Font-de-Gaume have been enough? We must also examine the theory that there was a natural decimation or even an annihilation of mammoth herds. Man has often benefited by remarkable chances in the course of his long development; often, too, he has failed to stand the test and has sometimes disappeared locally. The finding of a mammoth's corpse, fresh or preserved under snow, must have been

a chance in man's favour. And man must have done all he could to multiply such chances.

Reasons for art

Another problem is the reason why paintings and drawings were made. Their artistic value is undoubted, but is this art not a supplement, a free gift added to an imperious obligation? There is not a vital reason for what we call by the convenient term of "prehistoric art". Just as the American Indian, in somewhat similar artistic activities, draws no distinction between material life and thought, between reality and the stuff of dreams, so palaeolithic man sees reality and its representation with equal vividness. For him it would be vain and inconceivable merely to represent an object in a picture. That is the way of civilised man, who delights in the appearance of reality. That is why what we call "art" today is so much detached from ourselves and from all that is human. That is why we see faces with two noses, full-face portraits with one eye only, side views with two! The pure profile of our Rouffignac mammoths is more human than the humans of today. For primitive man, dream and reality have the same force, the same presence. He understands the act of creating an object or a being and giving it, or restoring to it, real life through its outline. For him "art" is life. For us, often, art is a game, and if some artists are talented and "play the game" they are not always the most conspicuous. The prize goes to him who exploits the game, giving two noses to a man's face.

To the palaeolithic mind, the act of drawing or painting the coveted animal on the wall is a true act of creation. The representation itself is not essential; what matters is the act of representing, of drawing or painting. And this act of creation, in the true and strong sense of the term, well matches the eventful way of life of these Tamerlanes of the chase.

To own mammoth, to exploit this mine of flesh and bone and ivory, they must draw mammoth and paint mammoth. To multiply the mammoth herds in the sunlit dales of Manaurie, the limestone walls of Rouffignac are covered with mammoths. I remember the first census, taken on July 17, 1956, during the visit of Abbé Breuil.

What a lot of Mammoths!

One of us walked on the right, inspecting the walls; the Abbé on the left, the side of the heart; the "fourth man" in the centre, facing

the damp wind of the cave, to examine the roofs, and I myself a few paces behind, finding it difficult to keep up with them, for I was writing down the count. "Two mammoths to the right, two..." "Three mammoths to the left, three..." "One in the centre, one..." "Five to the right, five." Thus the line of counters advanced, exploring the depths, while the scribe became involved in his calculations: "28... 35... 42... 55... 61... No, really, there are too many!" This lavishness had its meaning. The men of Rouffignac longed for mammoth, for they needed mammoth, they lived on mammoth, and they drew it, or rather they created it on their walls in their drawings and engravings, that their valleys might be filled with a host of pachyderms.

Did they hunt them? In pictures of the bisons and ibexes they hunted we find magic arrows and votive lines piercing the animal. There are never any arrows on the mammoths: they are always unscathed.

We have noted the frequent association of pot-holes in the Breuil gallery with the pictures of mammoths. These natural depressions lead to a lower level, to the perennial flow of waters, far below. Might they not suggest trap-pits, and should we not see in this connexion a rite preparatory to the trapping? The hollow below and to the right of the great frieze of painted mammoths, and the first hollow on the left-hand wall, which is connected with an engraved mammoth, seem examples worth remembering. One fact, however, is not explained.

The "lone" mammoth is not falling into the nearest hollow; he turns his back on it. Indeed, he seems to escape from it. The mammoth engraved opposite also gets out of the pit instead of seeming to fall into it.

In this connexion, how can we fail to recall the old legends that speak of "rats as big as elephants, rats that live underground and die directly they come into the open air, or the light of the sun shines on them?"

When they found, at the thaw, a mammoth killed by a blizzard, brought to light by a landslide, did not primitive men think the mammoth lived underground?

You may prefer to think, and this is equally credible, that there is no connexion between the starting-points of the pot-holes in the galleries and the drawn or painted mammoths. The holes are holes, and the mammoths are mammoths. That is all.

A fine bag

A shoot in the Rambouillet coverts always ends in a fine display of game. The finest, no doubt, were those to be seen at the beginning of the century in the woods at Fontenailles, when the Comtes Greffulhe had been shooting.

The biggest bag of the early palaeolithic era is to be seen at Rouffignac. The mammoth is the show-piece, taking first place both for his weight and for his numbers. The list compiled on July 30, 1956, yields these figures:

"Red Ceiling" gallery:	5 mammoths out of 5 animals
"Two mammoths" gallery:	2 mammoths out of 2
1st Section of the Sacred Way:	
—before the Breuil gallery:	7 mammoths out of 9
—Henri Breuil gallery:	25 mammoths out of 31
2nd Section of the Sacred Way:	7 mammoths out of 9
—up to the "Great Ceiling":	14 mammoths out of 43
"Great Ceiling":	
—last section, from the "Great Ceiling" to the last drawing known up to now, the "Mammoth with the Roguish Eye":	10 mammoths out of 14

And the general list gave 70 mammoths out of 113 animals represented. The percentages show the predominance of the mammoth:

100%, 100%, 77%, 83%, 32%, 71%, and 61% of the total.

For numbers alone, Rouffignac is the true mammoths' cave. Recent investigations have added to the original figures, for 91 mammoths were counted in September and more than 100 in October, scattered through five or six miles of galleries, but we can arrive at a definite total only by a systematic census, carried out gallery by gallery. For instance, the "Red Ceiling" gallery contains six, not five. A mammoth at the far end, on the left, was not noticed in the first extensive visits. Others glimpsed in a hasty exploration of the eastern branch have not yet been counted exactly. The deep gallery of the stream holds others, and so do the far ends of the Henri Breuil gallery, in which is the "mammoth of the niche". For the moment, only the Henri Breuil gallery has been completely examined. Let us recall the original figures:

Paintings:	11 mammoths.	1 horse.	3 rhinoceros.	
Drawings:	14 mammoths.	1 horse.	—	1 bison.
TOTAL:	25 mammoths.	2 horses.	3 rhinoceros.	1 bison.

And here are the corrected figures after several minute inspections with the help of various experts (MM. Charles and Louis Plassard, Françoise Dejean, Claude Barrière, Jacques L. R. Nougier).

Paintings:	11 mammoths.	1 horse.	3 rhinoceros.	
Drawings:	19 mammoths.	1 horse.	1 rhinoceros.	2 bison.
TOTAL:	30 mammoths.	2 horses.	4 rhinoceros.	2 bison.

The percentage of painted mammoths becomes 73%, that of drawn mammoths 82%, and in the whole of the Breuil gallery 78% of the animals depicted are mammoths.

Yes, for numbers alone, Rouffignac is certainly the mammoths' cave. This does not mean that it was reserved for mammoths only, but that is another story.

THE WOOLLY RHINOCEROS (RHINOCEROS TICHORHINUS)

The Woolly Rhinoceros

Since the dawn of the quaternary era, the elephant and the rhinoceros have been accustomed to live together. The ancient elephant and Merck's rhinoceros, two "warm" species, are often found side by side, and as the climate becomes colder the mammoth and the rhinoceros are natural neighbours. Both have thick coats and deep layers of fat to protect them from the same icy cold. The Siberian refrigerators have yielded rhinoceroses just as they have yielded mammoths. The rhinoceros in this case is the "cold" species, *Rhinoceros tichorhinus*, the Woolly Rhinoceros, also called "the rhinoceros with divided nostrils" because it has a strong bony partition inside its nose to support the great curved horn. The Siberian rhinoceros reaches a height of 5 ft. 3 in. at the shoulder, with a length of 11 ft. 6 in.

If we compare these average measurements with those of the rhinoceros pictured at Rouffignac we shall find some interesting data. Thus, the third rhinoceros in the now famous (not to say notorious) frieze is in the proportion of 1 to 3.5 with the Siberian rhinoceros. On the natural scale the Rouffignac rhinoceros would measure 1 m. 54 cm. (5 ft.) high at the shoulder, with a total length of 3 m. 57 cm. (11 ft. 8 in.) from the tail to the tapered end of the great frieze. The reduction in the two cases is very exact, but different. The mammoths have been reduced more, to one-fifth full size. Deep minds might draw great and weighty conclusions from this. It may be simpler, and just as profound, to note that the rocky wall allowed only of paintings and drawings averaging 60 to 80 cm. (24 to 30 in.) high. The artists had only this limited belt of smooth wall to use; the flint "kidneys" above it and the natural concavity of the wall below it made painting and drawing there impossible. They therefore reduced their animal models, and reduced the mammoth most, because he was bigger than the rhinoceros. Even good sense could prevail in the palaeolithic age, which

incidentally has been declared "superior" in an age when western art is considered supreme.

The chief feature of the rhinoceros, the great horn, is more than a metre (3 ft. 3 in.) long in the known Siberian specimens. Measuring the great horn of No. 3 at Rouffignac we find it 4 ft. 1 in. long along the outside curve and more than 3 ft. long in a straight line from base to point.

The Rhinoceros Frieze

The first rhinoceros of the group is smaller, and his great horn is proportionately smaller still. It is one-quarter as long as his body instead of one-third. Is this difference due to age or sex? Is the leading rhinoceros a young one, followed by his father and his mother?

Elephants live in large herds which have a fixed order of march when they go to their drinking places in the rivers. The calves go first, followed by the mothers, who guide them gently with their tusks or trunks. The bulls come last and the "Patriarch" or old bull of the herd brings up the rear.

Rhinoceroses are less gregarious and seem to prefer family life. They go to the water-holes in pairs. It is probable that the females had the longest but also the thinnest and sharpest horns and used them to guide the young as they went ahead of them, preventing them from straying to one side, much as goose-girls guide their flock with a long stick threatening the flanks.

In the light of this touching scene, the rhinoceros frieze becomes clear: the first is the youngster, the second is his mother, who has, indeed, the longest and sharpest horn, also the thinnest at the base. We call this rhinoceros "Dubois" after a cave-explorer from Brive who, some years ago, saw fit to carve his name on her, careless of her value and purity. Dubois, then, is the mother rhinoceros.

And father rhinoceros brings up the rear, completing the family trinity. Chance plays odd tricks! When controversy was still raging about the fabulous cave, its detractors concentrated on the baby rhinoceros and refused to recognise him. They tore him from the bosom of his family and cast doubts on his paternity. But both violence and argument were useless, for the answer was there. Opposite the two fighting mammoths, but on the ceiling and on the right, are two excellent rhinoceroses. The first (to whose fame we shall return) is also a female; she is guiding the walk of a young one just in front of her. This youngster is notable for his two horns, which are deeply graven in the limestone rock. The rest of the

body is fainter, but it would normally lie partly alongside that of the mother. Abbé Breuil spent a long time craning his neck and straining his eyes before he ventured on a theory. Paintings and drawings of rhinoceros seem to be governed by the same family tradition: father, mother and child for the painted frieze, mother and child only for drawings. Besides their accurate and clinical observation, our quaternary artists had sociological sense. On one hand, they drew herds of mammoths; on the other, rhinoceros family life.

Hairy head or bald head?

Like his friend the mammoth, the rhinoceros had an ample coat: a double covering composed of long, stiff, close-growing hairs, very dark reddish brown in colour, and under them "a deep layer of black wool".

The longest hairs, measuring more than 8 in., grew on the lower part of the body and under the neck, according to the Rouffignac paintings, but the head, judging from a body found on a left tributary of the Lena river in 1771, bore hairs only 2½ in. long. Though his head stood well clear and was naturally closely cropped, the *tichorhinus* was by no means bald, as some have claimed. The rhinoceros drawn on the ceiling, to which we have referred, wears a very fine, clear mane and head-covering shown by small, regular strokes of the engraving tool. One of his plainest morphological features is the size of his hump, a reserve of fat formed on the withers. Here the hump is enormous; it juts right out. We find the same large lumps on the rhinoceroses in the family, especially the youngster and the father. Mother Dubois' hump is less full, for mothers are always worried, and they show it!

Though done in a different style, the rhinoceroses painted on the "Great Ceiling" also have humps. Once more it is confirmed that most of the Rouffignac animals are in their winter dress. They are coming to take up their winter quarters in the cave during the hard weather, and their humps are full.

The rhinoceros of Font-de-Gaume, on the contrary, is in summer dress. His body is long and slender, quite different from the rhinoceroses engraved on stones in the Colombière cave in the Ain department, and those engraved on flint slabs in the Trilobite cave at Arcy-sur-Cure. These "decorative" rhinoceroses belong to the civilisation known as Périgordian and are older than the Magdalenian rhinoceros of Font-de-Gaume. Are they, strictly speaking, of the same species? Perhaps not, but that did not prevent the critics of Rouffignac from proclaiming at the tops of their voices in

the streets of Les Eyzies, during the sensation at the beginning of August 1956, that the Rouffignac animals were "slavish copies of Font-de-Gaume", insisting, of course, especially on the word "slavish".

Rhinoceros hunting?

The rhinoceros appears very rarely in specimens of rupestral art. From south-west to north-east, he is found at Los Casares, Trois Frères, Gargas, La Mouthe, Font-de-Gaume, Combarelles and Lascaux, depicted with varying technique and in different chronological orders, and often alone or only two in a cave. Until now we only knew of about ten. The Rouffignac cave undoubtedly brings us the finest specimens of *Rhinoceros tichorhinus*, and the present count, which is still on the increase, gives the figure of nine animals. The mammoth gallery is also the rhinoceros gallery. The Breuil gallery contains the three fine painted specimens forming a complete family and one (unfinished) engraved specimen on the left-hand wall. In front of the "Mammoths of the Discovery" are two rhinoceroses engraved on the roof, and finally, three more are painted on the "Great Ceiling".

As in the case of the mammoths, we may say that Rouffignac alone contains about as many mammoths and rhinoceroses as all the other Franco-Cantabrig art caves put together. These figures clearly show the great iconographic importance of Rouffignac and place it definitely among the "Giant" quaternary caves, whose distinguished names are Altamira, Font-de-Gaume, Les Combarelles, Lascaux, Les Trois Frères and Niaux.

The aesthetic value of Rouffignac, though no doubt more subjective, is not less. It Rouffignac lacks the magic colouring that blazes at Lascaux and Altamira, it does have unequalled purity of line, both painted and engraved. Finally, by the number of questions it raises and by its still uncounted riches, it takes its place with ease in the front rank of such discoveries.

The world scarcity of rhinoceros is a valid argument against the theory that they were hunted. Their size, their violence and their furious charging must have made them awkward game. And if the rhinoceros engraved on a stone at La Colombière does have some curious, weighted arrows planted in his belly, these arrows may express a harmless wish rather than a real incident of the chase or a serious determination for the future. Palaeolithic sorcerers, like Paul Valéry, sometimes yearned for "an impossible goal". The three rhinos of the "Great Ceiling" are scattered there in the huge, disorderly

bestiary, but the three in the frieze and the two in the sector of the "Mammoths of the Discovery" depict mother and child. These are family groups. Is it too far-fetched to suggest that quaternary man at Rouffignac thought of a rhinoceros family when he wanted to evoke the pleasures of the hearth?

The Paolo Rhinoceros

No doubt it is not too late to come back to him. And he doubly deserves it: for himself as a rhinoceros, and for the well-merited tribute of the learned Italian prehistorian, Paolo Graziosi, an eminent quaternary specialist, who on being invited by telegram to visit Rouffignac replied simply "I'm hurrying" and hurried faster than his cable. While the little town of Les Eyzies ignored its new discovery, the humanist University of Florence brought confirmation. A few days previously, after a working and exploring visit of twelve hours, I returned to the cave with M. C. Plassard and we went up the "Sacred Way". After twelve hours without rest, our physical and mental reflexes had become a little less effective. My companion, who scrambled about in his cave with the agility of a cat, had taken a knock on the head from a jutting flint in the roof. I heard a dull thud like that of a wood on the board at the end of a bowling alley. The red blood trickled down over a fine ivory skull, reminding me of the scarlet "macaronis" in some prehistoric paintings. I was to make the same comparison a month later, when M. Plassard, his son, Louis, and I discovered the great red ceiling with its many interlacings, serpentine mouldings and other "macaronis" traced by a finger and standing out white on a crimson ground. But the inversion was complete: here was a vault, not a globe, red, not white, bearing lines which were white, not red. . . .

While we were coming back along the left side, and facing the "Mammoths of the Discovery" on the ceiling, we saw some deeply graven lines. Holding a lamp above our heads, we followed the lines: two diverging points were very clear. And near their junction, some fine but deep strokes suggested something like a ball of hair or feathers. We turned the lamp and twisted our bodies, and our empty stomachs felt like turning, too. With our backs to the wall, we seemed to see a great bird with its beak wide open, and farther along, on the left, a second bird suggested chiefly by his beak, which was also agape.

Birds of Legend?

We scribbled "Birds?" on a slip of paper and thrust the slip into

the end of a cleft stick. We would see about this later. We did see, not much later, and the explanation came with Professor Paolo Graziosi. There we were, twisting and turning, with heads in air, trying to solve the mystery of these two creatures that seemed to be apterixes, but could not be.

The outlines of the "beaks" were very deep and highly polished, and their depths were black. The lines forming the ball of hair or feathers were finer but just as smooth. They gradually faded as they drew away from the "beak", that is, towards the middle of the gallery. I must say that this fading away and this deep patina, this "dust of centuries", a very thick deposit of manganese as we knew later, aroused our enthusiasm much more than the mysterious forms we had to decipher.

These fading, glazed drawings gave irrefutable evidence of authenticity, and we filled our records with sure proofs to oppose to Périgordian scepticism. And in the middle of our discussion, Paolo Graziosi declared with Olympian calm, but with a touch of breathless excitement: "It's a rhinoceros!"

Good Lord, yes, it was a rhinoceros, a magnificent rhinoceros, and a *tichorhinus* into the bargain. . . .

For a moment, a geological silence reigned in the gallery. The soul of a rhinoceros passed by.

A baptism

Now our excitement mounted once more. "It shall be the Paolo rhinoceros!" Carried unanimously. The discovery was important. This was the first rhinoceros drawing found at Rouffignac. The assaults of ignorance had already been let loose against the painted "baby". Now, the new animal, who was engraved, had the same features: the shape and curvature of the horns (not the open beak of a bird), the massive shoulders, loaded with fat over the withers, the long, matted hair. The hind-quarters faded and disappeared towards the gallery.

The manganese patina showed that the discovery was certainly genuine. This authentic engraving helped to prove the genuineness of the painting. But, you may say, why did this magnificent rhinoceros prove so difficult to identify?

Take a photograph of the "baby". Take a photograph of the "Paolo". Turn the prints clockwise and look at them upside-down. (If the earth line is given you for upright animals painted on a wall you must find it yourself for horizontal animals painted

on a ceiling.) Turn your book, and you will see the curved and threatening beaks of two birds of prey!

Far from Rouffignac in time and space, natives of Siberia, the Jukaghirs, took these fossil skulls for those of fabulous, gigantic birds with which, no doubt, their ancestors had to compete for the game in their hunting grounds. But the Jukaghirs thought the rhinoceros horns were the gigantic talons of these birds of prey!

THE COMPANIONS OF THE MAMMOTH AND THE RHINOCEROS

The Bison

After the powerful mammoth herds and the one-child rhinoceros families, the largest animal contingent was that of the bison, though it is true they came only a little before the ibexes and the horses. Today mammoth and rhinoceros have disappeared. The bison has very nearly disappeared; a victim of mankind, he now owes to man his precarious preservation. The ibex and the horse, being less highly specialised in the "Arctic" way of life of the early palaeolithic period, are still alive, finding sanctuary in the mountains in one case and protection in servitude in the other.

Rouffignac plays the part of an underground Noah's Ark very well. It harbours mostly vanished species, just those which need a sanctuary.

None the less, the bison contingent comes far behind that of the mammoths, and that, although bison was classic game and a favourite dish with upper palaeolithic man. In his pictures the bison is often transfixed with strokes and magic arrows suggestive of the chase, as in the case of the many transfixed bison at Niaux and now in that of the bison of Rouffignac.

About one-third of the Rouffignac bison are engraved, while two-thirds are painted. One bison on the left-hand base of the great ceiling is even a curious mixture: his fore-quarters are painted and his hind-quarters are engraved. When the time comes to fix more exact dates for the drawings, he will certainly play an important part, for he will show a parallel between the "engraved" and "painted" styles.

The hunter-artist has drawn his bison with as sure a hand as that of his colleague at Niaux or his neighbour at Font-de-Gaume, near Combarelles. With the great, bulging brow, the very short neck and the large hump on the withers, the fore-quarters of the bison are always impressive; they give a sense of mass and power. This

power is, no doubt, further emphasised by the artist, who often dwells on the details of the broad and bushy mane. The curved horns are often unusually and dangerously slim, ending in the sharpest of points, most firmly drawn. Both in carving and in drawing, the excellent technique is best shown in the drawing of these points. Both sureness of eye and skill of hand are reminders of an advanced phase of the Magdalenian era. The chronologies of Rouffignac (which must certainly be quoted in the plural) have not yet been worked out, and they will need years of tracing, careful examination of superimpositions, and comparative studies.

The palaeolithic bison was bigger than that of today, as many bones found during excavations have proved. Hunted by palaeolithic man, still hunted by the peoples of the Bronze and Iron Ages, by the Germans and by the Celts, the bison abandoned the plains to find refuge in the forests, while their numbers dwindled from century to century. Twenty years ago the last bison were confined to certain forest lands in Poland and West Russia: to the Bielowicza Forest in the Grodno district, for example. Even so, bison had to be brought from menageries and private parks to restock the native herd from time to time.

Slow extinction . . . by Man

The extinction of the bison has gone on slowly and gradually since the upper palaeolithic period. The European bison never formed great herds like his cousin, the American bison. In 1832, on the prairie near Platt River, Captain Bonneville saw "a countryside absolutely blackened by innumerable herds", as far as eye could reach. In 1871, at a crossing of the Arkansas River, a herd of bison was estimated at 4,000,000 head. About the same time General Sheridan estimated a herd at more than 100,000,000 head after having made cunning calculations with his officers. These calculations first yielded 10,000 million bison, then 1,000 millions; eventually this was reduced to the "more modest" figure of 100 millions. A wonderful example of scientific method applied to living groups!

These vast American herds were exterminated in a few years. The bison stopped ships as they swam across rivers, they stopped the early trains as they crossed the tracks. Yet a few years later, after the War of Independence, the New York Museum had the greatest difficulty in finding a true stuffed bison for exhibition (1887-1889).

The railways brought the hunters, and the hunters brought their

long rifles, and the American bison, a new victim of civilisation, was almost banished from the continent. The bison of Europe suffered the same martyrdom, but more slowly, on a more "humane" and very "old European" scale. Their decimation was begun by the palaeolithic hunters in the ravines of the Manaurie and went on for the next 15,000 years. Driven from the plains and lurking in more and more limited forest lands, they disappeared slowly but surely. The rare survivors were those in eastern Europe, where the country was less peopled, less cleared, still forest-clad and little haunted by man. The struggle between the bison and man became fundamental. The latter would take the skin of the former for a shrinking profit. Times had changed indeed since the great days of Rouffignac, when the bison represented one of the steadiest market values.

All the Bison has is good

The bison yields several hundred pounds of excellent meat, which can be eaten fresh or dried (in the form of pemmican). His skin will make a tent for the bivouac, a bed at night or a cloak by day. Bison-skin, decorated and painted with hunting scenes—bison-hunting, of course—or pictures of General Custer hunting Indians, can be used as a newspaper or for records. The same skin can be made into footwear (moccasins), travelling-bags, or shields, for which the shape of the hump is particularly handy. It will make a saddle, too, or cover a canoe. Cut into strips, bison-skin will make lassoes to catch other bison.

Bison skulls will decorate Indian heads for ritual ceremonies designed to multiply the bison herds in order to massacre them. The shoulder-blade makes a spade, and the other bones can be fashioned into whistles, scrapers, spoons, needles, skewers or awls according to their original shape and the industry of the artisan. As for the horns, when worn by the lucky hunter or the sorcerer, they are symbols of power.

The mysterious "sorcerers" engraved in the Trois Frères cave also wear bison skulls and horns for ritual dances. More prosaically, the horns are used as hunting-horns or trumpets, or as receptacles for liquids and finally, in the last and most modern stage, for gunpowder.

Thread and rope can be made of the tendons, the hoofs yield glue and gelatine, the bladder can be used as a receptacle and the tail as a fly-whisk. The hair is useful for decoration or stuffings, and even the animal's droppings have their use when dried and burnt as fuel.

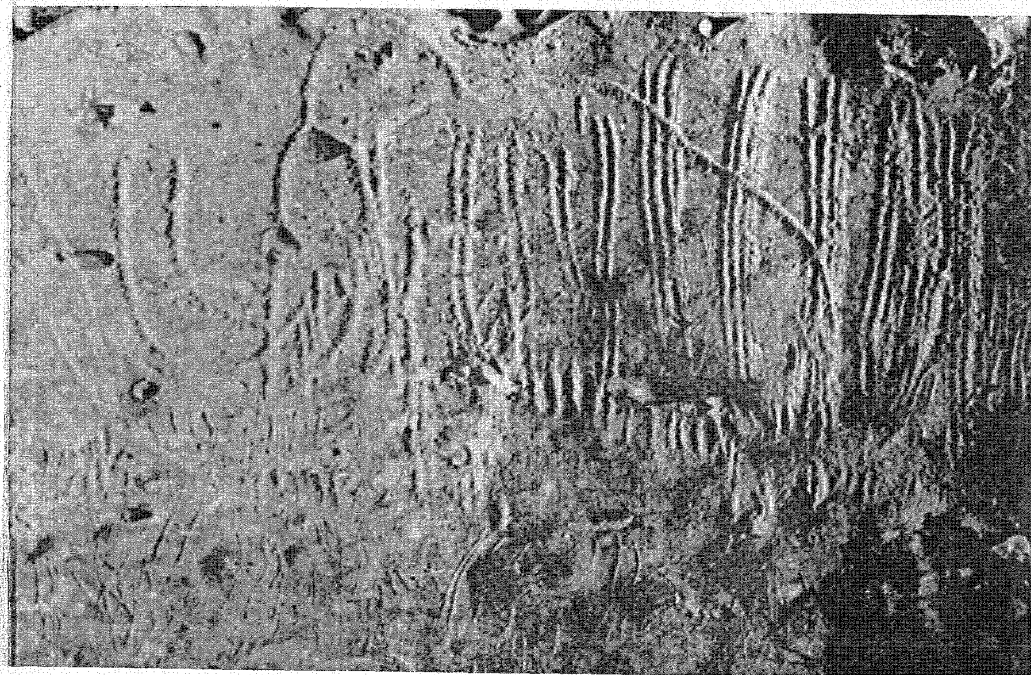
dire, avant le mois de Mai de l'an 570. Gregoire a
Tours, l. 4. Valois, de gest. Franc.

MIREMONT, bourg de France dans le Perigord
est situé sur une petite riviere qui se jette dans le Vezere
à sept ou huit lieuës de Perigueux, & à même distanc
de Bergerac. Ce bourg est remarquable par la cavern
de Cluseau, qui va fort loin sous terre. Les gens du pay
prétendent qu'il y a de grandes salles, des peintures &
des autels: ce qui persuade aux plus credules, que le
payens y faisoient des sacrifices à Venus ou aux dieux
infernaux.

MIREPOIX, ville du comté de Foix dans le hau
Languedoc, avec évêché suffragant de Toulouse, et
située sur le Lers à trois lieuës de Foix. Les écrivains La
l'ont nommée *Mirapicum Mirapiscæ, Mirapincum & Mi*

4. A piece of text from an 18th century book, in which reference is made to the cave and its paintings

5. The engraved "Mammoth of the Discovery", June 26th, 1956



The bison, a "universal" animal, was the victim of his usefulness. Primitive economy, sometimes called the Economy of Looting by ethnographers, made great gaps in his ranks. But if the bison vanished, we do at least know why. His extinction is not wrapped in the mystery which surrounds the total destruction of the mammoth and the woolly rhinoceros.

The Ibex

The "Great Ceiling" is the real gallery of the ibex. All the eleven specimens in the cave are there, and they are even arranged in groups on the right-hand vault and the left-hand springing of the vault. Is this a deliberate arrangement or a mere chance? The features are noted most minutely; heavy bodies with strong, well-planted legs, the neck hardly marked, the chin level with the back and the horns elegantly swept back in a magnificent pose.

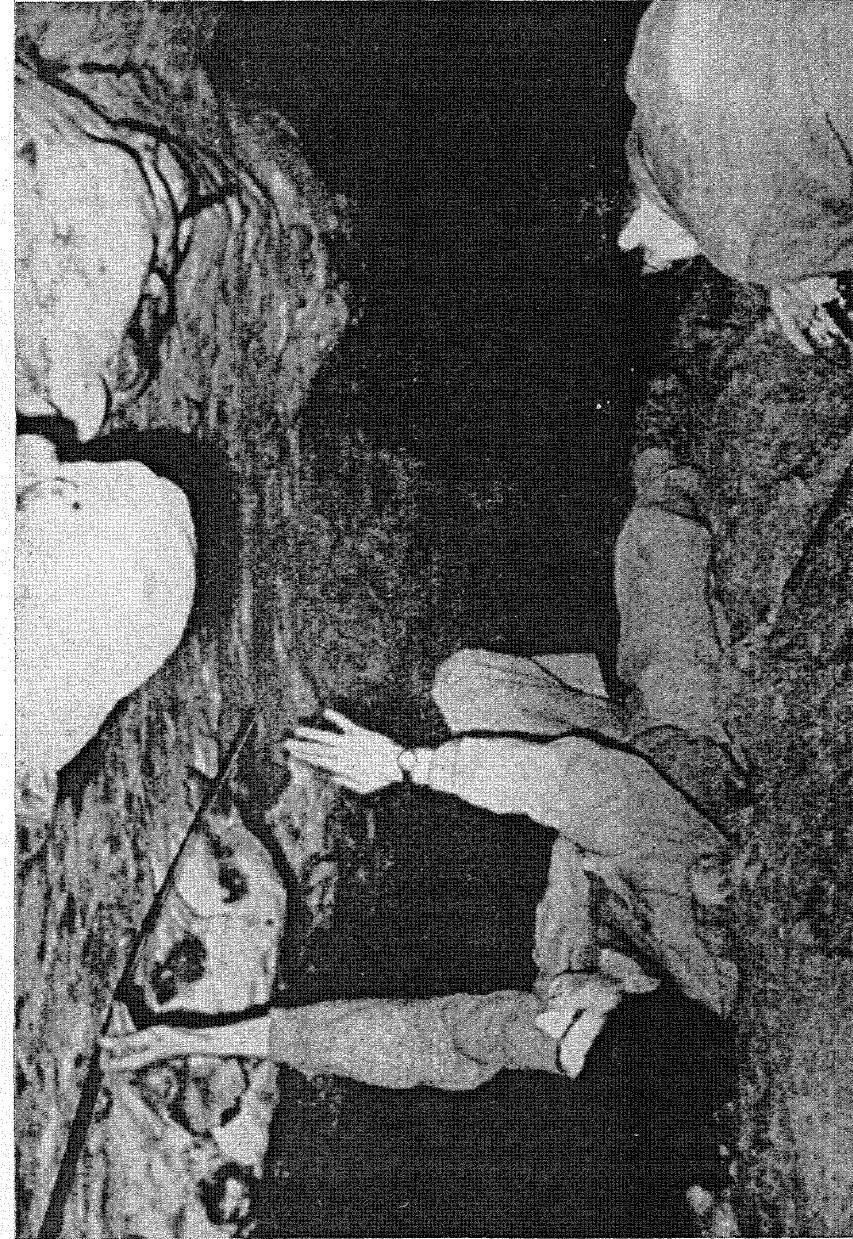
The most remarkable is the "Alphonse Dalbavie", so called after a nobleman who lived at Bordeaux about 1885, according to a notice finely carved with a knife over the black lines of the ibex. Since prehistoric art was unknown at that date, this superimposition of scribblings and other inscriptions would be another proof of the genuineness of the paintings, if any were needed. An intelligent and well-informed journalist in Bordeaux, Jean Guichard, was asked to search the electoral registers of 1876, 1877, 1881 or 1885 for any further details about Alphonse Dalbavie which would enable us to establish that he, Alphonse, was a real person, and also, indirectly, to prove the genuineness of the graceful ibex. For it is quite clear that the discoverers of Rouffignac must not only prove the indisputable authenticity of the animal paintings and engravings, and also prove it to a degree never before required for such a quantity of useful or useless evidence, but must also prove the authenticity of the thousands and thousands of scribblings and historical inscriptions that disfigure the works of art or occupy the bare walls. It is clear, too, that such a task is superhuman and would demand thousands and thousands of hours and many lifetimes. Is not this just why it is desired and falsely proposed by our detractors?

A few inscriptions

The Red Ceiling, in its admirable group of five engraved mammoths, carries the date 1781, repeated several times, on the leader of the upper rank, the inscription "Pagerie 1884" on the leader, facing right, of the lower rank, 1872 on his opposite number and 1841 and 1884 on the beast that follows him. On this basis, and

D

6. The Great Fosse. Professor Nougier is measuring drawings which are being photographed by M. Romain Robert



from now on, we shall pursue our inquiry, and we expect in a few years to give names and publish essential details. Who dared, in 1781, at the time of the alliance of Joseph II and Catherine II to divide the Ottoman Empire, go into the Rouffignac cave and inscribe this historic date? Or perhaps we can give more details: would it not be in February 1781, and should we not see in this fuliginous inscription a distant echo of the publication of the "Report to the King" (*Compte-rendu au Roi*) of his Minister, Necker? Another date, 1841, has already set us thinking. We know that in June 1841, a very favourable month for visiting any cave, especially Rouffignac, Ledru-Rollin was elected Deputy for Le Mans by 123 votes out of 127. What were the three abstainers doing? Did not one of them, or two, or all, come to Périgord to record this historic date with a candle-flame? If we could find these three names with details of their civil status, their route from Le Mans to the Dordogne, their bill at some hostelry in the Sarlandais, and trace their halt at a shoemaker's at Bugue and the substance of their confession at the presbytery of Plazac, we might be able to prove that the mammoth engraved on the Red Ceiling and marked 1841 is authentic. Q.E.D.! And since we have only 100 mammoths . . . (Our Duty at Rouffignac—I use the capital letter purposely—is to reply intelligently to every unintelligent objection). Quaternary art? Good God, no! This is the work of members of the Underground Movement during the war! And right along the first gallery on the right we have found inscriptions by these heroes. No, come, come, that won't wash! Find something else. Quaternary art? Heavens, no! These animal drawings were made with an acetylene blow-lamp! Well, we have found some blow-lamp drawings, and there was really no comparison with our mammoths and rhinos. These blow-lamp drawings are *unquaternary*: a hen and a duck. Beyond the deep galleries known as those of the Stream we have even found the bison we call Gérin. But we will speak of that choice specimen later. . . .

The "Dalbavie" Ibex again

We have already said the "Dalbavie" ibex is remarkable. For a long time yet he might provide material for caustic comment, and he is remarkable for that, too. He shines in the rôle of the "invisible ibex", inspired, no doubt, by H. G. Wells. Firmly set on the vertical wall, with his forefeet planted on a rock, he is astonishingly drawn in black manganese on a light-coloured rock background. He stands about five yards from the Stream Pothole, that underground chimney that communicates with the lower galleries. And

how many tens and hundreds of "explorations"—it seems that's the name—and expeditions have foundered in that pothole! There were forty-two expeditions between 1945 and 1949. What minute examinations, what scrupulous surveys must have been made in the course of these expeditions, since not one of them noticed the Dalbavie ibex, standing right opposite the chimney! That chimney was no doubt difficult to climb, but not difficult enough to compel the cave-explorers to go on all fours, with their eyes fixed on the clayey soil and their noses ploughing the mud. Not a man looked up. (Cave-explorers, those? Never!) And if by any chance one of them did at last raise his eyes and at last see the Dalbavie ibex, and if he did not recognise it as an ibex springing straight out of 20,000 years of prehistory, I will never believe that he was a Périgordian, not he! A real Périgordian imbibes Prehistory with his mother's milk.

Thanks to the noble Dalbavie, the little ibex of Rouffignac passes down to posterity and enters into immortality under his forgotten name. And thus he will outlive the distant descendants of his brothers. The flocks of other days grew scarce. Too much hunted on the plains, they fled to the hills. Man followed, and the flocks of ibex, less and less numerous, made for the mountain peaks. The race became divided; some climbed the Pyrenees, others the Alps. Gaston Phoebus, Count of Foix, counted herds of 500 head in the Pyrenees at the end of the 14th century. Later, there were only a few score, and even those became rare. But "Dalbavie" will live.

The Horse

The drawings of horses at Rouffignac afford excellent contributions to equine history. The horse has been called the noblest conquest of man, no doubt because it was the last. Resistance to slavery is a sign of nobility. It was only in the Bronze Age, during the second millenary before our era, that the horse was "conquered". At Rouffignac he was hunted. The kitchen refuse of our palaeolithic men is full of horses' bones, teeth and even complete jaws. Horse-meat butchers' shops existed long before the siege of Paris in 1870.

Painted horses adorn the "Great Ceiling" at Rouffignac in the company of mammoths, rhinoceroses and ibex. Most of them are on the smoothest sections of the vault, before the Stream chimney. There they can develop freely, and one of the finest is nearly 8 ft. long from tip of nose to tip of tail. Lying on a bank of clay scraped

up by the bears, we gazed at him for many minutes, and it is only in that position that you can really take him in. The horse looks towards the chimney; his head is heavy and rather short, with a straight frontal line. The back is slightly curved, the legs slim and short, the tail very bushy, even at the base. The painting is done in small, neat touches; one can only admire the elegant detail and general harmony of form. Not far off, another horse, rather smaller, has the same undeniable beauty.

The zoologist will study these horses, fitting them into place in the evolution of the Equides. The horses of Rouffignac are apparently related to a horse in process of extinction, called Prjewalski's horse and found on the barren plateaux of Jungaria, north-east of the Tien-Chan mountains.

The archaeologist will study their beauty of form. The horses of Rouffignac are among the finest drawings in all the body of quaternary art, and they remind us forcibly of Niaux, the most famous horse and bison cave. Graceful heads, quivering nostrils, still moist with mucus, delicate legs and stiff, flowing manes through which the cold wind of the Steppes seems still to blow—we have all these in the horses of Rouffignac, like a soft echo of the outside world that saw their creation; like a stirring of life.

And we remain amazed at the means used to create this admirable animal art. A smooth ceiling, no doubt, based on hard limestone, but what then? A brush made from a frayed piece of wood, wetted and chewed and spreading, with extraordinary skill, a stiff paste of manganese. Where did this usable manganese come from? What were its solvent and its vehicle?

Science intervenes

Future analyses will solve these problems. Twice already pious hands have scraped these 20,000-year-old lines to shorten them by a few millimetres, remove the surface film and obtain a few necessary milligrams of colouring matter. I used my penknife with an emotion and oppression I have rarely known. Suddenly all was silence. For the sake of science, indeed, a sacrilege was being committed. With all its progress, science must destroy in order to learn; can it achieve contentment only after sacrifice? The complete and aesthetic vision of the little horse was not enough. Yet the horse seems more beautiful to me now that I know he is drawn in manganese. What does the material matter, if I can feel that he is truly "palaeolithic"?

We had thought he was, ever since we discovered him on June

26. Abbé Breuil thought so, and so did Professor Graziosi. As I was to say a few days later, "Who would dare to scrape the divine lips of Mona Lisa to prove her genuine?" Who will dare to scrape the bisons of Niaux to establish their status and fix their order? Yet we scraped one leg of a Rouffignac horse. Since he did not belong to me, I asked M. Plassard's permission to take the sample. If you had said "No", M. Plassard, rest assured I should not have insisted. I had no desire to do so.

The only success of the enemies of Rouffignac was that they forced us to remove a few milligrams of black matter. Let us not regret our forbearance; to the end of time, no doubt, there will be visitors to the cave, and these visitors will ask: "Why the scraping? Why this gap?" And the guides who pass their formulae from century to century will answer: "A scraping was taken once to make a strict analysis." In two or three centuries, when new painted caves are found, must they all be scraped, down to the last millionth of a gram, to discover the exact age of Manganese 18 or Manganese 72, correct to the nearest second? Science will be satisfied, and artists will come only to admire surfaces scraped bare. "There was a mammoth here, and three rhinos over there. . . ."

But will humanity still exist two or three centuries from now? It has existed so long that it seems eternal, especially to Man himself. Let us not forget that the human species is also an animal species. And geological history, even in recent times, shows many examples of race suicide. The mammoths have vanished, *Rhinoceros tichorhinus* has vanished, and we know nothing of their fate. No doubt some great natural cataclysm speeded and closed their story. Some huge snowstorm; some hurricane blizzard. . . . We imagine these disasters. We also attribute some extinctions to man, and the bison was certainly his victim. One hundred thousand bison were slaughtered in December 1877 and January 1878. We sometimes think of "that sort of fatal law which strikes the representatives of a species when they have reached the peak of their power and development".

Does the peak of success announce the disappearance of a species? The Ancients seem to have foreseen some such doom when they murmured to one another, in the streets of Rome, "the Tarpeian Rock is near the Capitol".

It is true that the human race has one unique quality. It alone knows how to destroy itself—wholesale. It may cherish reasonable hopes of annihilation.

The Ceiling is too low

The great 8-ft. horse raises the problem of execution. How was the drawing done? The roof is very low at this point, only about 5 ft., and there is no room to stand back and see the whole of it without lying flat on one's back, or to photograph it properly without distorting it to some extent. Still greater difficulties must have faced the artist. In a prone position, his hand could not reach the ceiling. And when his hand was at work, his head must have been very close to the roof, reducing his field of view severely. Whatever you do here, you are either too near or too far off. But the quaternary artist solved the problem. Did he sketch the outline, laying out the plan of the animal on the ceiling, and then applying his coat of manganese minutely, stroke by stroke? This would seem to be the normal procedure for a "civilised" artist, but it is quite uncertain in the case of a "primitive". First of all, there is no trace of a rough sketch, no false line, no erasure or correction. Was the sketch perfect at the first attempt? Or was it drawn lightly in a different medium, which has faded away? One might imagine a charcoal sketch, afterwards "lined in" with manganese. But are we quite sure that the charcoal line would have disappeared in 15,000 or 20,000 years, according to Moissan's rules? Do we not have excellent prehistoric paintings and drawings, perfectly preserved, yet made in charcoal? One of the first materials in use, one of the most abundant and easiest to discover, was charcoal black. Here again many analyses should be made, not at Rouffignac now, where they have been made already or are in progress, but in all the other painted caves of the West. Here are a few interesting (and perhaps remunerative) openings for archaeological chemists. Must we conclude that the palaeolithic artist made no preliminary sketch but painted his colour directly on his ground? And that from the first stroke he carried in his head the exact and precise development of all the successive strokes which, in their sum, one beside the other, would finally give a true proportion to the whole? Such sureness of eye and touch are worthy of a Matisse!

A full view of the Subject

From the moment when he draws his first stroke, such is the executive method of the palaeolithic artist. His vision sometimes shines forth like a mental lamp when a natural detail suggests a theme, a detail, an animal. Here natural detail plays the part of the first stroke. On the left wall of the Breuil gallery, a "beak" or

rib of the wall separates two groups of mammoths, three moving to the left, two to the right. The leader of the left-hand file is the mammoth with the flint "kidney".

A flint "kidney", in its convex lower portion, represents the rounded back of a mammoth, the hollow formed by the curve of the skull and the start of the dorsal curve. Hence its use in the drawing.

In the right-hand mammoth of the two who are charging each other in the "Discovery" frieze, another rounded flint, projecting from the limestone wall, forms the creature's eye. Here again, the "kidney" is the basis of the drawing, and the natural detail is the starting-point of an aesthetic vision. There are many examples at Rouffignac alone. Sometimes a shell embedded in the limestone has caught the palaeolithic eye and formed the starting-point of an animal drawing. The most exciting example of this artistic conception is certainly the "Bison of the Cups" in the cave at Niaux.

The Bison of the Cups at Niaux

Innumerable little natural cups have been worn in the clay floor of this cave by the dripping of water from the roof. Each drop slowly digs its little hole, and the floor is covered with hundreds of them. The feet of modern visitors have obliterated many more, but some have been preserved along the walls and in the least accessible margins of the gallery, where a man would have to bend double or crawl.

The bison, engraved in fine lines on the clay, faces right; he is precise, clear and real. Detail photographs show the fineness and sureness of the smallest stroke, lightly but skilfully placed on the clay when it was soft. Precise detail goes hand in hand with a perfect vision of the whole and a general perfection of form and proportion. Unfortunately the engraving, being carved on a low, overhanging wall which is difficult to reach, does not leave enough space to take a perfect photograph of the whole picture, as in the case of the great horse at Rouffignac.

Three "natural" cups lie on the bison's body, where they are cleverly used for magic ends. These three cups are underlined by three arrows whose tips rest exactly on their edges, in the middle of the carcass: one arrow depicted in two lines and abutting on the central cup, and two arrows at the sides, each represented by three lines joining at the extreme edges of the outer cups. The exactness of the lines which join the cups is interesting. It shows that the cups were already fossilised when the drawing was made and the magic

rites were performed. If the clay had still been "live" and subject to the repeated and intermittent action of the water, the natural edges of the cups would have been enlarged and they would have cut off the sharp points of the three arrows.

The "live" cups corresponded with a damp period in the evolution of the cave. The bison was drawn later, and fuller knowledge of climatic conditions in the cave—which may have differed from conditions outside, for we are nearly a mile from the entrance—might bring forth evidence which would help us to fix the exact date of this Magdalenian drawing.

A simple method of creating this work would have been to engrave a bison on the clay and then pierce him with three ritual wounds. The real method was much more complicated: the three natural cups must have suggested the future wounds even before the bison was drawn, and the bison was engraved around these cups and in relation to them. The cups, forming inverted bas-reliefs, were no doubt particularly suggestive. If a rocky projection can suggest the hump of a bison, the belly of a reindeer or a mammoth's back, a hollow basin may also suggest an animal form and a small cup may mark a wound. The use of these natural cups as "ritual wounds" affords remarkable proof of quaternary creative intelligence, which was quick to grasp the suggestive value of the cups on the clay floor. Three of them were chosen and invested with the magic meaning of wounds, and the drawing of the bison was built up around these cups, neglecting others, which were left in their natural state. On one hind-leg and one fore-leg and above the animal's body, near the withers, are other natural cups which have been ignored. Careful examination of the bison's eye reveals another fact, even more full of meaning. The pupil, ringed by the oval outline of the eye, is "natural" and also formed by a small and regular cup, smaller than those which were used as wounds. This cup, then, is the real pivot of the work. The Niaux bison is based and composed on the pupil of his eye. The fact that there is not the smallest mistake in proportion, that the eye is in its proper place and the animal's limbs are equally well placed, shows that the artist had a clear vision beforehand of the bison he was to engrave. In the same way, some Japanese artists begin their drawing with a tiny point and proceed, step by step, to a vast design of impeccable proportions.

This bison engraved on the clay of Niaux is loaded with rich data on his origins: the suggestive value of the cups as hollows used to represent wounds, the exceptional value of one regular but deeply sunken cup suggesting the bison's eye, and especially the preliminary

composition of the subject, before its execution, in the mind of its creator, followed by its perfect and harmonious execution, starting with the eye.

The Ceiling is too high

A low vault makes painting or drawing difficult. A vault which is too high creates another problem, and it was solved here, though we do not quite know how. The end part of the Breuil gallery has on its roof two excellent mammoths, one following the other towards the exit. They are over 6 ft. and 9 ft. long respectively. But in this part of the gallery the roof is at least 9 ft. above the edges of the bears' sleeping-holes and 12 ft. above their centres. How could the artist make these drawings? His line is perhaps a little less firm than in the drawings on the walls. This is notably the case with the curves of the heads and bodies, which overlap, as they do with the mammoths on the side-walls of Combarelles. Is this because the lines were drawn with a long stick, held at arm's length? Such a theory has already been advanced to explain a number of roof-drawings on clay at Pech-Merle de Cabrerets, on a roof which is also rather hard to reach. Or must we suppose a scaffold was used? This also must be considered in the case of the paintings in the great hall at Lascaux, in the "rotunda" of the well.

The modern visitor does not always realise the technical difficulties that beset the marvellous feats of the quaternary artists. He is content to admire them as the guide tells him, following the lines. "Here is the tail, here the belly, here the legs. Look, *Mesdames et Messieurs*, at the poor little gutted one!" the guide at Combarelles tells you conscientiously. Poor, poor little bovid, to be emptied of his substance! Only too rarely, the visitor wonders. We should do the wondering for him and answer his questions when necessary. Everything, from the paint-brush to the colour, from the creative thought to the conditions of elaboration and creation, is often mysterious in prehistoric art.

What about light?

The most crying need in the depths of the palaeolithic painted caves is light—light more essential to painting and engraving than it is even to daily life. "Beside Rouffignac, with more than six miles of galleries," says Abbé Breuil in his report to the *Institut* in Paris, "what are the 1,500 yds. of Niaux or the 750 yds. of the Trois-Frères and the Tuc d'Audoubert?" And he continues: "Even more than these great recesses, Rouffignac required a reliable

source of light which could be quickly renewed." Inhabited caves sometimes yield actual lamps among the relics of their Magdalenian strata. They are either natural cups, made from flint "kidneys" for instance, or fragments or plates of limestone fashioned with a scooped-out bowl and a handle to hold them by. These Magdalenian lamps are the true ancestors of the so-called "Roman" lamp or *cael* of our grandparents. I still remember those lamps, filled with oil and with a little overhanging wick, which adorned a smoke-blackened chimney-piece in old Vivarais. The best had a long stem ending in a hook and could be fixed to a ledge of jutting stones or to a mantelshelf.

In the dark days of the German occupation I found the old *cael* and filled it with colza oil. It gave a poor little flame, very ill-adapted to illuminate a work of art.

Then, there were other devices, such as wooden torches, especially those made of resinous woods. Pine, no doubt, gives a bright light, but as it burns it pours out thick smoke. Very soon the air would become unfit to breathe, and it would be impossible to see. The filming of some parts of the cave, especially in the sequences showing the more distant parts of the Breuil gallery, needed an intense light which could be supplied only by magnesium flares. For some time their smoke floated at a good height, but gradually it filled the gallery, spreading in coils far beyond the points of combustion.

The next day, patches of smoke could still be discerned by a practised eye. Fuliginous flames would soon have darkened all the light. You need a good hour's walk to reach the tiny terminal rotunda that shelters the two last mammoths. Multiply this distance by two for the return journey, and a single trip with a pine torch would have darkened the cave for hours. . . .

Though a "sanctuary" is not inhabited permanently, it is certainly not used by a single occupant. Processions were formed, and there were regular underground pilgrimages to see the mammoth frieze on the "Great Ceiling" or the engraved mammoths of the "Great Fosse". And these journeyings needed light. Even for a Magdalenian, a bear-hole full of broken flints with sharp edges is not a nice place to tumble into.

Did not the great mammoth frieze require a great, fine light? Its monumental size suggests that it must have been thoroughly illuminated.

Juniper torches

Tests have suggested the use of juniper stems as torches. Owing

to the formation of the internal channels of the juniper stem, when the branch burns, the flame reaches innumerable little stores of resin, one by one, each in a separate cell. With each cell the flame receives fresh fuel, but so little at a time that combustion is complete and there is a total absence of sooty smoke. "The light produced in this way," reports Professor Malvesin Fabre, "is strong and brilliant, and there is nothing to dim it. . . . The only drawback is that the wood burns rather quickly and you must take care to feed the flame attentively. The artist using this source of light must have been accompanied by an assistant carrying a juniper torch, which was easy to light, and lighting a new torch as fast as an old one was consumed. Palaeolithic man could quickly produce fire in the cave by rubbing a piece of hard wood on dry moss or birch-bark. In the Limousin juniper branches are still lit under falling snow or heavy rain by setting fire to birch-bark as a primer."

The birch and the juniper flourish in hard climates. The little black, bitter berries of mountain junipers are often found at over 3,000 ft. altitude, and stunted junipers climb to nearly 6,000 ft.

Fragments of juniper-wood charcoal have been found in the cave at Aldène. "One of them was buried in stalagmite clay under the footprint of a cave hyena." Charcoal found at Lascaux also seems to have come from this resinous wood. In many parts of Rouffignac, with very different chronologies, extending from the palaeolithic to the present era, ash-strewn hearths are still to be found. Many of these hearths are and will remain undatable, but we may hope to find some with precise archaeological evidence. Identification of the wood essence, which is always possible, will enable us to determine which wood essences were most used in a given period. And the order of deposits and the list of essences may produce many suggestions when they are compared. A chronological scale may even emerge, for the era of the birch and that of the beech are definite time-factors in the succession of flora.

From one bone, the great Cuvier could reconstruct an extinct animal species. From one piece of charcoal, nowadays, we can reconstruct an entire vegetable growth.

So many hearths, so many hearths!

Our hunt for charcoal will be all the more exciting as there are hundreds of hearths at Rouffignac. You will find many at the entrance, in the first 100 yards of the galleries. You will find them in the eastern galleries, with black shards which may well be fragments of burial urns broken by visitors in the course of centuries.

Some galleries abound in heaps of grey soil which may be ashes of various origins. These must be analysed, too. There are hearths in the great landslide after passing the sea of mud, and here also are fragments of pottery. These are more recent, not more than 2,000 or 2,500 years old: 3,000 at the most.

“Pure” hearths are often found in the bears’ nests beyond. They can hardly be dated. Finally, there are hearths beyond the “Great Ceiling”, sometimes connected with the stone-fashioning workshops of which we shall speak later. What a lot of hearths! The first impression becomes a certainty. The World of Rouffignac—for it was a world in itself—was continually overrun, frequented and used but not exactly *lived in*. We explore miles below ground, we spend hours there on a given task, painting or drawing for a palaeolithic, chipping flints for a poor Celt, examining fissures to discover a lower gallery for a cave-explorer, discovering and authenticating paintings and drawings and decorated walls and ceilings for archaeologists, but we do not live there; no one has ever lived there. Better than Niaux, Trois-Frères or Cabrerets, Rouffignac shows by its very vastness that the palaeolithic sanctuary-cave was not inhabited. One does not live in a cathedral. One goes there to pray and to meditate.

THE MISSING ANIMALS

The Ark is incomplete

In spite of variations in style and differences of skill and touch, all the animal figures belong to the same palaeolithic period, suggesting a single School of Art. Paintings and engravings correspond closely both in their style and in their arrangement. In the Breuil gallery, on the right-hand wall, paintings and engravings alternate in a sublime order. The Paolo rhinoceros is of the same workmanship as the “baby” in the frieze, though one is engraved and the other painted.

Hence, the animals represented suggest the Noah’s Ark of the period—a period, of course, long before that of Noah himself. But this fauna is incomplete. The mammoth holds the place of honour, and the rhinoceros enjoys his due, which is an important share. Numbers are eloquent. The herds of horses and bison are meagre; so is the flock of ibex. But where are the rest?

Since even the exploration of the cave is not yet complete, it will be well to leave a door ajar on the future. Up to Thursday, 11 October, 1956, at 5 p.m., we could affirm that a certain species was not shown at Rouffignac, and specify which. Then, in a long annexe to the Breuil gallery, we found the species in question, represented by curiously coupled specimens. Was this not the first *tête-à-tête* in the world—Adam and Eve? Rouffignac has so many priorities, so many world *premières*, that it may well claim this one. We need not fear the envy of others; their cup overflowed long ago.

Perhaps, to conclude these reflections about Rouffignac, we shall one day make a list of its “records”, but let us not anticipate. We found two more examples of this same species on Saturday, 13 October—St. Edward’s day!—in the great red dome of the serpents and streamers, and we know very well that there are still a few more kilometres of galleries, though not many. That is a pity. Acknowledge that the thick sealing wall and the armour-plated door put up in July 1956 were very necessary! Can you imagine the wild “rush”, the treasure-hunt, as though in response to a radio

advertisement? What a crowd and what a hubbub, what incessant and perpetual filing through the galleries! Without the wall and the armoured door people would have crowded in, trampled one another under foot, killed and devoured one another, for ancestral instincts would certainly have reappeared. They are dominant in the human race, and they do not wane.

All the "prehistoric experts" in Périgord would have joined in the rush. If the cave had remained open, it would have been "their" cave, not "ours". And on the paintings, with the yellow clay, and on the engravings, with the points of knives, people would have inscribed their names indelibly, to assert their ownership and establish the priority of their discovery. Would they not, M. Dubois, or Brive, who gave your name to a rhinoceros?

Would they not, Merlaut, you who own a mammoth? Dalbavie, possessor of an ibex? Boutillier, you marked down another ibex for your own—not the same one, of course. Rouffignac was not spared. Without the wall and the armoured door, all the little cave-explorers would have rushed to mark, for the world of science, the genuine mammoth and the false rhinoceros, as though scientists needed the opinion of these striplings. Without the wall and the armoured door, we should have become rich in unsuspected fauna, for we should certainly have seen a great multiplying of "hens" and "ducks" drawn with the blow-lamp! And even pseudo-bisons, eh, M. Gérin?

Yes, but there were a wall and an armoured door, not merely a bar to prise out. If the rush had taken place, we should have had macaroni by Tom, streamers by Dick, serpents by Harry and scratches by Robinson. We should have had, we are sure, an absolutely and totally authentic Rouffignac. But we should no longer have—and of this we are sure, too—we should no longer have a Rouffignac still pure and wild, in spite of past outrages, the Rouffignac we mean to save. Even with the "interesting additions" of the 20th century, the fauna of Rouffignac is incomplete. We do not find the great primeval bull, or the stag, or the reindeer.

The primitive Ox

Originating somewhere in Asia—like many animal species, no doubt, including Man—the primeval bull lived alongside the bison. He was tall, with very long horns, slightly curved outwards, and he became more and more common towards the end of the early palaeolithic and the Magdalenian ages.

He rarely appears in prehistoric engravings or paintings, and this

omission is certainly not due to chance. We find him, however, at Pech-Merle de Cabrerets, in the "mammoths' chapel", where he freely mingles with them. We can admire several fine specimens in the black portraits of the Lascaux cave. The great and admirable black bull of Lascaux, facing left, is the striking image of a wild bull of Camargue, who might have escaped from the Baroncelli ranch. And he bears useful witness to the very probable relationship between these great primitive oxen (*Bos primigenius*) and the bulls of Andalusia or the Vaccares. Why was the great bull in such disfavour that he rarely appears in art? His wildness, which made him unfamiliar, and his fierce and bellicose habits, which made it difficult to hunt him, have been advanced as reasons. In the Cantabrian woodlands, a century ago, herds of wild bulls spent the summer in the mountains, above the 2,500-metre level. "They shun the villages and will attack passers-by without provocation," we are told.

The Stag

He also, though well represented at Lascaux, with his fretted antlers, is absent from Rouffignac. We refer, of course, to the present species, the archaic stag, or Irish Elk, being extremely rare. Of him, the only known specimen is his portrait at Cabrerets, with enormous antlers, longer than the animal's body and spanning over 12 ft. The *Megaceros* stag of Cabrerets is traced by a finger on the clay, and he belongs to an early phase of the art represented in this cave. In the centre of a large panel, 3 yds. long and 1½ yds. wide, barred by many vertical "macaronis" traced with the fingers, the great stag stands out clearly. He measures 1 m. 20 cm. (nearly 4 ft.) from muzzle to rump and is overshadowed by his antlers, which are 4 ft. 7 in. long. "The maximum width of the horn branches is 60 cm. (24 in.), and the antler resembles a huge hand, formed by a pointed thumb and a forefinger and ring finger rather longer than the middle finger."

The panel of the Cabrerets *Megaceros* recalls many panels at Rouffignac by the frequent superimposition of an animal on vertical "macaronis" which form a systematic groundwork for the drawing. This is the case, also, with the mammoths of the "Discovery". Here, the mammoth was drawn after the macaronis. Elsewhere, the mammoth may have come first. Other sections show a sort of alternation between drawings and "macaronic", or striped, panels, as for instance in the inner part of the Breuil gallery and on the left-hand wall. The animal figures, generally those of

mammoths, play the part of ornamental metopes, and the vertical macaronis form the "triglyphs", or more exactly the "polyglyphs".

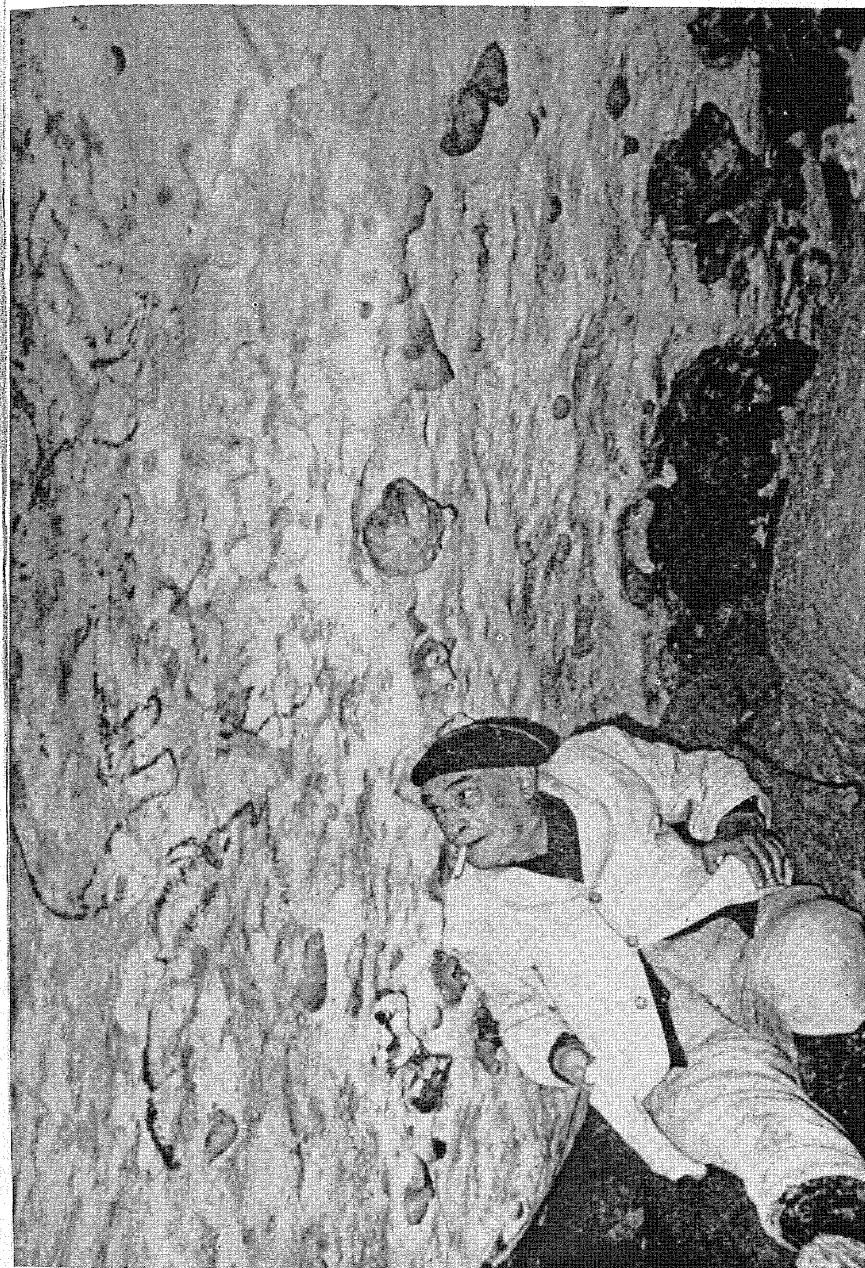
These various superimpositions and alternations are phenomena which enable us to attribute a similar chronological value to these finger-tracings. They are more or less contemporary with the drawings; only a few minutes separate them, or at most a few hours or years, but they are and must remain inseparably associated in the same artistic phase.

What of the Reindeer?

He is absent from Rouffignac. The reindeer is missing from the artistic representations of this period, though it has been called the "Reindeer Age" because he was then the universal animal, as universal as the bison, and was daily hunted as game and regarded as decorative everywhere, with his anxious air and spreading antlers. In any case the reindeer cannot have been missing from the fauna of the great days of Rouffignac. And the archaeological excavations of the coming season will certainly yield reindeer bones, either in the deposits at the entrance to the cave, or (perhaps) in certain secondary deposits in the cave itself.

Let us say, however, that these deposits will very likely have no *direct* connexion with the paintings and engravings. The decorators and squatters in the cave were no doubt not the same men, but we shall be in the same era and in the same climatic surroundings, with the same fauna, chiefly of the cold-resisting types. With the mammoth and *Rhinoceros tichorhinus*, the reindeer haunted the valleys of Manaurie.

As Abbé Breuil most excellently notes, these crushing presences—the mammoth and the rhinoceros—and these surprising absences—primeval bulls, stags, reindeer—"would be inexplicable facts if we wished to see in the animal paintings of Rouffignac an exclusive record of surrounding fauna". The Rouffignac galleries are not a natural history museum, and the pictures are not lined up on the walls to take the places of stuffed animals. Even specimens of food are not an exact record of fauna in an archaeological layer. Without mentioning bones which may be lost, like those which may have been carried off by cave hyenas, the bony scraps from meals give us an idea of the "menu", of the culinary tastes of palaeolithic man, not of the entire animal world around him. Care and attentive examination must always be the rule. And it is interesting to note, as Leroi-Gourhan did when he studied the



7. The Abbé Henri Breuil under the Great Ceiling



8. Under the Great Ceiling: the Abbé Breuil with Louis-René Nougier and Romain Robert

9. The Great Mammoth Frieze. Left to right: Professor Nougier, Romain Robert and Professor Graziosi



fauna of Arcy-sur-Cure, that "the more fragile parts of the skeletons of game hunted by man have high survival value and are the most likely to come down to us. Fragments of bone stripped by man of their meat and their fat have a considerably better chance, both because they are less attractive to animals and because an important part of their acid-forming constituents (which are most destructive) has been removed".

In any detailed analysis of a palaeolithic dustbin the part played by man, by his likes and dislikes in the matter of food, remains essential. Prehistoric archaeology is always a science of man and of his thoughts and actions, even in its most advanced and technical branches.

Art Gallery or Temple?

If the Rouffignac cave is not a museum, is it an art gallery? Not at all. No doubt, the dados are sometimes deliberately ornamented with friezes, and the artistic aim is undeniable. But sometimes, indeed often—we are thinking of the "Great Ceiling"—the animals are placed in an order which, for once, is not art. They are mixed pell-mell, as when a rhinoceros floats in the air above two mammoths. Sometimes they are superimposed, and the question arises whether such-and-such a line is part of a horse or the horn of an ibex. Or is it a mammoth's tusk? We agree, finally, that it represents the trunk of a second mammoth which escaped us at the first examination.

After several hours of this exciting and undeniably original puzzle, how can we be surprised to find, in an interview with *Europe No. 1*, a glib mention of "mammoth's horns". Many apologies, dear readers. Over the "great fosse" the graven mammoths are set in artistic groups, but the ceiling is barely three feet high, 4 ft. 6 in. at the most, and to admire it you must crawl on a bank of clay that slopes steeply towards the fosse.

The Louvre, the Prado and the *Offices* are more convenient. We must therefore attribute a religious meaning to the galleries. They are ambulatories leading to underground crypts, to the altar-panels dedicated to the mammoth or the rhinoceros for some magic intercession. And the good people of the 17th and 18th centuries were much less mistaken than the little cave-explorers of today when they spoke of the "altars" in the Cro du Cluzeau or the Miremont cave, where they discovered "vestiges and paintings of all kinds of beasts".

“The Sacred Way”

That is why the Stream gallery, dear to the little cave-explorers, has changed its name and is now called “The Sacred Way”. Delphi spreads its ruins at the feet of the glorious and splendid Phaedriades, and the pilgrim on its Sacred Way walks between the treasures of Sicyone, Gnidus, Siphnos or Athens. Each city offers its *ex-voto*, its tribute to the gods. And the modern pilgrim to palaeolithic Rouffignac must wend his way along a sacred path, leaving the red-ceilinged Hall of Mammoths on his right, the gallery of the two fighting mammoths on his left, then again, on his right, the Breuil gallery—and his will be a true religious journey among animal offerings, in a shadow steeped in ancient mysticism.

The pilgrim to Delphi at last reached the Temple, at the spring among the limestone rocks, from which the subterranean vapours that would illuminate the Pythian oracle were exhaled, as when she confronted Xerxes to pronounce the doom of Greece! The palaeolithic pilgrim to Rouffignac came to the “Great Ceiling”, to the vault loaded with animal creations and realistic images, painted at his behest in order that he might follow the chase and bring down his prey with a surer hand. The sorcerer demanded payment for his services, a joint of bison or a haunch of ibex. He also could pursue the living image, but no doubt he found it safer to insist on the offering. And below the great ceiling, among the limestone rocks, gaped the underground crevasse leading to the spring. Celtic springs before the springs of Rome, neolithic springs more ancient still, all water that emerges from the depths has been the object of human attention, of an interested veneration amounting to a cult. The mysterious stream at Rouffignac lies at its earliest beginnings. Most of the animal paintings are along the Sacred Way, which leads to the Stream.

Just as Delphi sprang from a cleft in the rock, so Rouffignac may have originated from an underground tunnel, coiled in the darkness of the earth, that earth that gave life to game, mammoths and bison, that earth still hard, but which men already saw, perhaps, as Mother Earth.

This underworld played its part in exploiting the fears of quaternary man. To deploy his rites, to strike and stir credulous imaginations, the sorcerer needed mystery and darkness at noon. What a terrible setting lay in the tunnel and the Great Fosse! Let us dwell for a moment on the scene.

Introduction to the Mammoth

Imagine the slow procession in the great gallery. An underground walk of one kilometre takes half an hour, but it is possible to multiply the “cave atmosphere”, and the palaeolithic procession may wander through the galleries for hours before reaching the great fosse. Since the right-hand galleries often end in a rotunda, it is easy to lead the flock to one of these, to turn about at the *cul-de-sac*, to return to the Sacred Way and to continue the round in the next gallery. A clever man can wander in Rouffignac for half a day without passing the same place twice. A march by torchlight for primitive beings allows of all kinds of effects. The tribesmen feel their way along walls which also serve as guides, and it is often from the borders of the galleries that the tunnels leading to the lower levels spring, and that the steepest clay slopes and the most spectacular bear-slides are to be seen. It is on the borders that walking is most difficult, and the borders are followed, in pitch darkness or half-shadow. Add to this clever lighting at the most difficult points, the lights of torches shining into yawning gulfs, and your future initiates, full of humility and trembling with fear, follow one another almost bereft of the power of thought.

During the mass visits of last summer, our journalists knew these feelings. And when they sank into the sticky mud, when they lost their shoes and walked on in their socked or stockinged feet, or sometimes crawled on all fours like flies caught in jam, when they clung to the right-hand wall, thickly plastered with miry clay, we used to give them much-needed advice: “Keep to the right! keep to the right! There’s an abyss on the left!” And mercifully we would direct the beam of our torch along the tunnel, revealing steep slopes leading to unplumbed depths, a little after the sea of mud but still before the great shaft.

The human reactions were always the same. You would see heads bowed for a furtive glance along the slope, and quickly bodies were pressed against the right-hand wall, and the procession slowed down.

We can imagine how a torch lit by an accomplice at the bottom of the lower tunnel would have increased the impression of depth and terror. You must go in single file when you reach the Great Ceiling. All the properties of a ritual march are present. There comes a time when it is easier to crawl. A horse cut in the clay, perhaps for visitors of the 17th or 18th century, provides an outrageous landmark. Now three-quarters of this calvary are passed.

Brows run with sweat and sterns are smeared yellow. Like his modern descendants, palaeolithic man had his "stations" at which he watched the performance of certain rites, heard incantations and spent a little time in meditation before pressing on. Today only the privileged—the representative of the French Press Agency, for instance—reach the Great Fosse at the farthest depth, like a great hunter of palaeolithic mammoths, a hunter who needed sorcery to support his exploits.

The tribe arrived at last, exhausted, at the edge of the chasm. (We refer to the ancient hunters, of course, but our journalists were just as tired; some thanked us for having fixed an early hour for their visit. At the painful hour of difficult digestion in Périgord, they would never have got farther than the Red Ceiling, and that would have been a pity.)

Now, since we have your permission to enter the land of dreams, imagine the sorcerer drawing mammoths on the rock, compelling the favoured ones to crawl under old mammoths already drawn, while some hoarse, guttural song rises from the depths of the abyss, punctuated by hand-claps that resound and re-echo under the vaults, dying away in black infinity. Then, in the light of the flickering juniper torches, roofs that seemed bare are peopled with mammoth herds. . . .

How slow will be the pilgrims' return, exhausted as they are by songs and visions of the chase and bent more than ever by fatigue after their ordeal! The young men came in by day: they will emerge late at night, and the continued darkness in the open air, the confines of the cave still forcing them to bend their backs under thickets, this last impression will not be the weakest or least durable. Every time we spent many hours at work in Rouffignac, every time we came out after dark, we felt the same influence: the cavern seemed to go on for ever; heavy with clay behind us, it stretched, still crushing, before us, in spite of its immaterial form, which now prolonged it to the stars. Rouffignac is truly a timeless world. Under the porch of the cave, a ray of moonlight sometimes shone between the chestnut trees, over Fleurac. And directly opposite the cave, the great red globe of Mars drew near the earth. By a daunting coincidence, Rouffignac the Prehistoric entered the present under the auspices of the God of War!

An underground sanctuary, like its fellows, Niaux or the Trois Frères, Combarelles or the Tuc d'Audoubert, Rouffignac seemed nearer and more comprehensible simply because it was still more exceptional.

The Victims of Ostracism

One hundred mammoths and no reindeer! A definite contradiction calling for an explanation that no other cave requires. If the reindeer never appears on the walls and ceilings of Rouffignac it is because he was deliberately shunned. And naturally, another ostracism, even more striking, comes to mind: the absence or rarity of the human form in quaternary art. Alongside hundreds or thousands of animal paintings or drawings there are only a few human figures.

This disparity in subjects treated, the frequency of animals and the rarity of human beings, is accompanied by a disparity in artistic treatment. While the depiction of animals achieves perfection of form, harmony of composition and richness of detail, human representation is usually caricature. The drawing is a grotesque, never a portrait. The animal is really drawn and made lifelike, and his expression is proper and personal to him.

This contradiction can only have a psychological and sociological explanation. The palaeolithic artist was quite capable of depicting his own species and conveying its qualities and its many shades of expression. He could feel the mobility of human expression, and even with his rudimentary equipment he could have produced lifelike portraits and fixed on the rock all the sentient mobility which is never seen but once.

Think of that last bison in the rotunda at Niaux, the one facing right, who gives you, from whatever position you may see him, a gentle, human look, recalling that of Mona Lisa. Think of that finely engraved bison in the Trois Frères cave, also gazing kindly at you, for, strange to say, the bisons of the quaternary artists have the eyes of men. This Trois Frères bison reminds me (I say it with all respect) of the noble face of our Pyrenean master, Count Henri Bégouën, leader of the three discoverers of the cave. But am I not inverting the problem when I claim to see a resemblance between the doyen of French Prehistory and a bison in his cave? It would be more logical to suppose that the Count, by some mysterious mimetism, began to imitate his bison. Let us hope the millenary influence of this impregnation will remain confined to the Pyrenees. But have we not declared that Rouffignac is a Pyrenean cave in Périgord? We shall anxiously examine any uncomfortable tooth or spot on the nose which might be the first sign of an evolution towards the mammoth state. Well, the palaeolithic artist-sorcerer could have drawn men, but he did not do so because he

was not allowed to. It was forbidden by his social environment, just as the religion of Mahomet forbids representation of any living thing and condemns itself to the art of interlacings and "macaronis", historically known as "arabesques".

Palaeolithic religion or belief—the former term smacks too much of a "system"—some organisation, anyhow, may have forbidden only the representation of the human form. The day-to-day animal world implied not only permission, but an obligation to depict the animal, since painting an animal subject meant creating meat. Social laws did not allow the image of man. Was man still, or already, too near the gods to be portrayed?

And if by any chance one did not strictly obey the rules, one only half disobeyed them. One stopped at the half-way house of caricature and the grotesque.

The Anthropomorphs

The sorcerer, as an intermediary between Gods and Men, profited by this compromise. And many disguised figures are nothing but religious caricatures. They are masks, concealing a bison-priest under the horns of a bison. Dressed up in a bison skin, the hunter can approach the herd. Disguised in the same skin, the sorcerer can find new power.

Masks, caricatures, grotesques, sorcerers, distorted faces, all these man-made drawings are parts of this system, sometimes singly, sometimes all together, at the same time. "Explanatory pluralism" has never been more necessary.

On Oct. 11 and 13, 1956, we found four anthropomorphs at Rouffignac, two of them face to face in the deep extension of the Breuil gallery of isolated figures and in the great red dome of the white streamers. All four obeyed the rules of the species, that is, of the anthropomorphic series, that is—no rule at all. They were true "grotesques", with big noses and big mouths, like Perrault's deceased grandmother. The finest, on the left, drawn with a finger on the clay of the ceiling in the far Breuil gallery, is enormous: a real Carnival head. It is more than 30 in. high from the crown to the neck. The upper lip is well drawn, and it has a certain humanity. The opposite portrait, even more of a caricature, is rather smaller. Is it a woman? Adam and Eve? But long before the birth of Adam in the Garden of Genesis!

The anthropomorph on the red ceiling of the streamers has a blunt chin, a receding forehead, a jutting nose and a lively eye. From the point of the chin to the top of the head he measures 45 cm.

(nearly 18 in.). A companion on another part of the roof, near-by is more mysterious. Drawn also with a finger, the head is excellent: forehead, nose, mouth, chin—then, going downwards, everything melts away in a shapeless mass. One of us tried to pick out the beginning of a leg and a pretty breast!

These primitive drawings hardly suggest a Titian, yet they show human characteristics and a secret note which is at least perceptible. The echo that comes back to you is not your voice, that has died away, but you can still hear something. These caricatures are not the man and woman of 15,000 years ago, but they are their shadows. They are not the man and woman; they are the presence of the man and woman, standing where you stand now, standing on tiptoe to trace a reflection of the faces on the clay overhead.

Why is the Reindeer missing from Rouffignac?

One of the chief reasons for quaternary animal art was a deliberate effort to create game by drawing, painting or engraving. And the addition of arrows, on the bisons for instance, made the rite more efficacious. Yet at Rouffignac, palaeolithic man neither created nor hunted the reindeer. Why this attitude to one of the most essential game animals of the age? Why this ostracism, this *taboo*?

Among the key elements of quaternary totemism—for we must consider this explanation—was this respect for the totem animal, which may be neither killed nor eaten. That animal was the subject of a total dietary ban, or at least a partial one, for one must live, and man has always found some judicious compromise with Heaven. Among some American Indians, the bison might have survived if this rule had been obeyed. They got round the ban by taking for their totem only a white-haired bison, or one that bore an arrow between its horns. Any animal that failed to satisfy these rare and very difficult conditions was outside the taboo, to the greater profit of the bison hunters. The totem animal was specially privileged among the tribes. It was regarded as an ancestor, and there were strong family ties between all the sons of the common patriarch. And this ancestor worship was marked by his portraits, his pictures and the disguises which used his skin as their peculiar features.

Socially, the consequences are important. Totem links are strong, stronger than our family ties, and they are usually transmitted through the female line. "The result is a serious taboo by virtue of which members of the same totem clan may not intermarry

and must abstain, as a rule, from sexual relations between men and women belonging to the same clan."

Fear of incest leads naturally to marriage outside the clan, that is, to exogamy.

These fundamental totem rules applied to many clans which may have existed at Rouffignac. There is good reason to believe that there was a Mammoth clan, and that the sorcerers of this clan painted and drew the mammoths of Rouffignac. Is not this essentially the Mammoth's Cave, and were these people not the Mammoth's Clan? Or is this theory too simple, and was not the palaeolithic soul much more complicated? Are the mammoths pictures of reality or pictures for worship? Did they *eat* mammoth at Rouffignac? Or was the mammoth, as he should have been, the subject of a protective taboo?

With less reason one could imagine a clan devoted to the horse or the ibex, a clan who performed their worship at the far end of the Great Ceiling, a bison clan. But bison pierced by arrows are just game, no more, no less. A rhinoceros clan would be more doubtful, the creature is frightening, and to claim descent from him . . . Yet his family life was really touching!

Would such a diversity of clans fit into the real unity of the cave? There is always the mysterious absence of the reindeer.

Is not this absence the key to the most valid hypothesis? The tribe does not hunt its totem ancestor. It does not eat it. But there may be other taboos. It may be forbidden to touch the totem, to look at it—to draw it! The Moslem is forbidden to draw Life itself. . .

Thus the totem of Rouffignac may well be the reindeer, just because the reindeer is not found there. In that case, a new light is thrown on many facts.

All the Rouffignac bestiary is connected with "memory-pictures" or "reality-pictures". The walls are covered with acts of creation and illustrated *menus*. Only the great totem of the tribe, the reindeer, is absent, because he falls under the strictest taboo of all.

He is never represented because the tribe refuses to depict its progenitor. As a taboo, he cannot be eaten, except at ritual banquets in which the whole tribe takes part. Fortunately the animal is still so abundant and so varied that the tribe can easily subsist. The reindeer never appears, but he is always present in the minds of the tribe, as a skin or an ornament made from his horns, at a communal sacrifice.

Rouffignac, then, reveals the sublimation of quaternary totem-worship, a spiritual totemism so pure that any image is forbidden. Is not this "iconoclastic" feeling, applied only to the mother-species among hunters who lived more or less on the repeated portrayal of their daily prey, the germ of the idea of God? Of a single and creative God? Of our modern God already?