

ARCHAEOLOGY

Paintings From the Past

Stone Age art developed from a tangle of lines to the masterful reproductions of animals and scenes that may be seen on the walls of caves and cliffs today.

By ELIZABETH MIREL

► IN THE BEGINNING, art was scribble.

Tangles of lines on the walls of Stone Age caves, no more intelligible than the splotches and squiggles of modern abstract art, are the oldest graphic evidence of man's artistic impulses.

With his fingers or with simple tools, man scratched a jumble of lines into cave walls. "Macaroni," as the ancient doodles are called, was the start from which later, more realistic, Stone Age art developed. Man organized the tangle and learned to draw forms.

Now, some 30,000 years later, modern man is discovering some of the scribbles and many of the colored shapes drawn by his ancestors. The ancient art is a crude chronicle of life at the time the last great glacier spread across Europe.

During the Ice Age, man was surrounded by mighty wild beasts—mammoths, rhinoceroses, bison, wild horses and reindeer. They gave him his food and his clothing; often, in exchange, they took his life.

Animals dominated the imagination of Stone Age hunters. Through his daily struggle with the beasts man learned their ways. The knowledge may have inspired him to reproduce the animals in drawings.

Magic Was Artists' Aim

Ancient artists, it is believed, did not engrave or paint likenesses of the animals on cave walls out of pure artistic impulse.

There was magic in their intention.

A certain amount of animal stock was needed for survival. The Ice Age hunter, as hunters throughout the world have done, turned to magic to insure his food supply.

Magic meant drawing. For Ice Age man believed that to confine an animal within the limits of a painting was to have power over it on the hunting grounds. He drew reindeer so they would be fertile and multiply. He drew bison with arrows in their sides to help the hunt. He drew horses to control the galloping herds.

The artist-magicians never expected their works to be seen and admired by their

tribesmen—certainly they never dreamed of the thousands of tourists the 20th century would bring—for they toiled in dark, inaccessible reaches of the caves. There, in sacred chambers, they performed the rituals essential for the survival of the tribe.

Thousands of years after the time of the early artists, in the late 19th century, modern man stumbled upon the ancient cave art. The magnificent paintings shook the world, since it was believed that art and "civilization" had started in Mesopotamia and Egypt. But finally the reputation of cave art was established.

The most splendid of the ancient picture galleries to be seen today are Altamira in northern Spain and Lascaux in south central France.

Ancient Art Seen Today

At Altamira the technique of painting in color is the most highly developed of all the European cave art stations. It was here, in 1869, that cave art first came to light.

The walls and ceiling show animals, mostly bison in this cave, outlined in black. Their bodies are shaded with colors ranging from yellow through red to brown. Contours of the bodies are accentuated with engravings. The natural bulges and uneven patches of the cave walls and roof, incorporated in the designs, give the paintings a feeling of motion and of vitality.

The colors, made mainly from ochre, manganese ore and charcoal, were applied in the form of paste with fingers, feathers or brushes. Sometimes the pigments were applied dry. Then they were shaped into crayon-like forms, or pulverized and blown into place. The moisture of the cave walls held the color like glue, making a natural fresco.

The famous Lascaux cave boasts the most masterful paintings of Ice Age European art. Aurochs, extinct wild oxen, up to 18 feet long have been painted with black colors and flowing lines. Reindeer, oxen, a group of small galloping horses, a mighty stag and a mythical "unicorn" are among the most noteworthy of the paintings.

Young boys looking for their stray dog stumbled into the ancient past of Lascaux one September day in 1940. Because the discovery is so recent, the paintings are well preserved, the colors unbelievably brilliant.

Green Peril Threatens Lascaux

But now a mysterious "green peril" threatens the famous caves. Microscopic armies of algae, first noticed about a year ago, have been marching across the paintings. Alarmed, the French authorities closed the caves to tourists this April and undertook investigations.

The mystery of the green peril has not yet been solved. Experts have suggested that the culprit may be the 120,000 annual visitors to the caves who bring in outside bac-



French Government

STONE AGE ART GALLERY—The walls of the famous Lascaux cave in France display paintings of some of the animals that lived 30,000 years ago. Artists painted the wild ox (left), the horse (top), the bull (right) and the small stags (bottom), using a variety of colors and techniques. Note the twisted perspective of the animals' antlers, characteristic of this time and art style.

teria, breathe on the paintings and stir up dust. Artificial lighting and prolonged exposure to the modern French climate are also suspect.

Since the green peril continues to spread, the French Government has closed the caves for an indefinite period of time.

New paintings on rock slabs or in caves are being discovered all the time. Large caves in France and Spain, and smaller caves or rock shelters in Italy and Sicily, shelter well-preserved specimens of Ice Age art.

Styles in Rock Paintings

Rock paintings in styles quite different from the "Franco-Cantabrian" style of Lascaux and Altamira art are scattered on ledges and niches along the western coast of Spain and through North Africa.

Dancing women and a party of honey gatherers are among the exhibits in these "open air" Spanish galleries.

Animals are the main subject of the cave paintings, while many of the cliff or ledge drawings are scenic compositions. They seem to be telling stories of mythical incidents.

Thousands of desert paintings and engravings have come to the scholars' attention, mainly since the end of World War II.

It is harder to date these drawings, however, since not as many clues have been

preserved outdoors as in the caves. From artists' tools or other objects found in the debris near the cave paintings, archaeologists can tell the age of the paintings. Without these artifacts, they rely on the paintings themselves.

If an extinct species is represented, then it is assumed that the paintings were done at the time the animal lived. Paintings layered one over another give clues to age, as do the coatings over the paintings left by natural chemical processes.

Often, more recent paintings are side by side with older ones.

Rock art, although concentrated in Europe and Africa, was produced by hunters living in Paleolithic cultures all around the world. Australian aborigines, in modern times, still paint their mythical figures on special stones.

America, settled by migrations across Asia and down through Alaska in comparatively modern times, has rock paintings along the West Coast. The animal figures, mythological creatures and geometric designs are only a few thousand years old.

Modern man can only guess the meanings of the Stone Age paintings. It is like trying to reconstruct Christian doctrine by studying medieval art—although much can be told of the life, the men, and the religion, the real spirit is lost in time.

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Books of the Week

Listing is for readers' information, not advertising. For convenient purchase of any book listed or any U.S. book in print, remit retail price (we pay postage) plus 25¢ handling charge if price is less than \$2 to Book Department, Science Service, 1719 N St., N.W., Washington, D. C. 20036.

ADVANCES IN CANCER RESEARCH, Vol. 7—Alexander Haddow and Sidney Weinhouse, Eds.—Academic Press, 599 p., illus., \$18. Contributions deal with avian virus growths, resistance to anticancer agents, cytogenetic studies in chronic myeloid leukemia, and ethionine carcinogenesis.

ADVENTURES WITH INSECTS—Richard Headstrom—Lippincott, 220 p., illus. by author, \$4.25. Observations and discoveries for the young would-be entomologist, with detailed description of 40 simple experiments.

CB RADIO CONSTRUCTION PROJECTS—Len Buckwalter—Sams, 111 p., illus., paper, \$2.50. Projects included in this book comprise a series of accessories, operating aids, and test instruments that may be assembled by an operator with no prior knowledge of electronics.

COMPARATIVE ENDOCRINOLOGY, Vol. 1, Glandular Hormones—U. S. von Euler and H. Heller, Eds.—Academic Press, 543 p., illus., \$20. Aims to present an up-to-date picture of the subject, to the medical scientist, zoologist and research worker.

COORDINATION OF FEDERAL OCEANOGRAPHY—Robert Walden Coggeshall—School of Govt. and Public Admin., Am. Univ., 86 p., spiral-bound, paper, \$2.50. Documents the current history of the search for appropriate and effective means to coordinate Federal oceanography.

CYTODIFFERENTIATION AND MACROMOLECULAR SYNTHESIS—Michael Locke, Ed.—Academic Press, 274 p., \$10. Presents the approaches of geneticists, biochemists, cytologists and molecular biologists to problems involving the synthesis of macromolecules and differentiation within cells.

DYNAMITE UNDER THE ALPS: The Challenge of the Mont Blanc Tunnel—Arthur R. Pastore—Coward-McCann, 97 p., illus., \$2.95. Gives an account of the struggle and experiences during the tunneling of "la Montagne Maudite," the mountain accursed, Europe's highest peak.

EKG AND BEHAVIOR—Gilbert H. Glaser, Ed.—Basic Bks., 406 p., illus., \$12.50. This work represents an interdisciplinary endeavor involving neurologists, psychiatrists, psychologists, physiologists, and pharmacologists who have been using EKG as an indicator of brain function and reactivity.

ELEMENTARY MICROBIOLOGY—Orville Wyss, O. B. Williams and Earl W. Gardner, Jr.—Wiley, 318 p., illus., \$5.95. Presented as a text for an elementary course to be used in conjunction with the traditional lecture, laboratory and library reading.

EVOLUTION—Jay M. Savage—Holt, 126 p., illus., paper, \$1.75. Deals with what is known about

the process of evolution and surveys several of the theories proposed to explain the process.

ESSENTIALS OF VECTOR AND PHASE ANALYSIS—Alan Andrews—Sams, 128 p., diagrams, paper, \$2.95. A basic textbook on the principles necessary for a thorough knowledge of AC circuit operation.

INVARIANT IMBEDDING AND RADIATIVE TRANSFER IN SLABS OF FINITE THICKNESS—Richard E. Bellman, Robert E. Kalaba, and Marcia C. Prestrud—Am. Elsevier Pub. Co., 346 p., \$6.50. Of interest to research workers in the areas of pure and applied mathematics, physics, astrophysics and engineering, presupposing a standard course in intermediate calculus together with elementary physics.

LABORATORY MANUAL FOR ELEMENTARY MICROBIOLOGY—Orville Wyss and Curtis Eklund—Wiley, 101 p., \$2.95. Demonstrates the use of basic laboratory tools, includes classic experiments in this science and offers the possibility for research experience.

THE LIVING PLANT—Peter Martin Ray—Univ. of Mich. Press, 127 p., illus., paper, \$1.75. Introduces reader to plants as organisms, with emphasis on biological activities important to plants, such as photosynthesis, water transport, and light response; mineral nutrition, and regulation of growth.

REPORT ON THE NATIONAL DEFENSE EDUCATION ACT, Fiscal Years 1961 and 1962—Francis Keppel—HEW (GPO), 126 p., illus., paper, \$1. Summarizes and evaluates operations under the National Defense Education Act of 1958 during its third and fourth years.

THE STRUCTURE OF CHIN SOCIETY: A Tribal People of Burma Adapted to a Non-Western Civilization—F. K. Lehman—Univ. of Ill. Press, 244 p., illus., maps, paper, \$3. A monograph based upon field research carried out in the Chin hills.

TV TROUBLESHOOTER'S REFERENCE HANDBOOK—Stuart Hoberman—Sams, 128 p., illus., paper, \$2.95. Prepared as an aid to the television technician in analyzing and repairing television troubles. Deals not only with the common, but some of the unusual troubles involved.

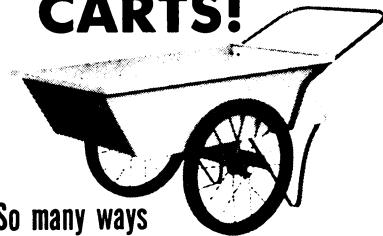
YOUTH: CHANGE AND CHALLENGE—Erik H. Erikson, Ed.—Basic Bks., 284 p., \$6.50. Focusing on the social awareness and individual needs of youth today: the historical forces behind their discontents; the problems of work and career in an automated age, and motivations of those who joined the Peace Corps.

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