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Art history & the brain

by Christie Davies

A review of* European Art: A Neuroarthistory *by John Onians. Yale University Press, 2016, pp. 378 , $75.00.

John Onians is one of Europe's most innovative and wide-ranging art historians. A classicist by training and an expert on the theory and practice of Renaissance architecture, he became the pioneer of the teaching of World Art in British universities.

In *European Art: A Neuroarthistory*, his latest, expertly illustrated work, Onians has applied his ideas about how the workings of the brain relate to artistic expression to the entire spectrum of European art—from the very earliest cave paintings to Malevitch and Le Corbusier. The religious art of medieval Europe, including Gothic architecture, the works of Italian Renaissance, and the achievements of Velázquez, Canaletto, and Constable are all analysed in detail; here, though, I will specifically consider three of his topics.

Onians book provides a taut definition of "neuroarthistory," and offers readers a sense of its growing legitimacy. Biological advances in the study of the physical structures of the brain, and particularly the possibility of using scanners to see which parts of that organ are involved when we undertake a particular activity, have transformed scientists' understanding of unconscious mental processes. Art historians can now discard the once influential occult murk of psychoanalysis and also cast out the misleading idea that the structure of language is the key to explaining art.

Before writing this book Onians had collaborated with neuroscientists on many projects, and he is able to cite with confidence studies of mice and men and London taxi drivers. The latter are obliged to acquire and retain detailed knowledge of the tangled streets of their large, complex city; the part of their brain involved in spatial memory increases in mass in consequence. The connections between the neurons involved in this task increase in complexity, and the pattern of the drivers' brains becomes quite different from that of those who haven't mastered this knowledge—an indication of the brain's adaptability and plasticity. Of course, these qualities are mirrored in the brains of artists. Brain scans reveal the difference in the way that artists' and non-artists' brains respond when they are asked to copy a face. In one demonstrative case, it was the

non-artist whose brain showed greater activity in the visual cortex; the artist called rather on other parts of his brain that had been built up by previous experience.

The Chauvet-Pont-d'Arc Cave in Ardèche, France

From this exposition of the "neuro" roots of his studies, Onians goes on to describe the ways by which the entire history of art has been marked by these habits of the brain. To begin at the beginning, the 30,000-year-old cave paintings and engravings in the Grotte de Chauvet in France are remarkable for their size and complexity and the artists' use of perspective and shading to achieve naturalism, far in advance of the merely schematic figures that characterise later cave art. This is exactly the opposite of what progress-hungry archaeologists had predicted. How did this come about? Onians has found the answer in the interaction of two key material forces, the biology of the brain and the geology of the valley of the river *Ardèche.* The limestone caves used by the artists were already shaped by water in curious ways, and this was emphasised by shadows and the stains of different shades of ochre. Bears had sharpened their claws in the caves, leaving scratch marks—patterns to inspire and materials to use. But most important was the nearby natural stone arch, *le Pont d'Arc,* the only easy way across the fast-flowing Ardèche, the route through which every spring and fall migrating herds and their predators were funnelled. This dense mass of animals repeatedly trekked past the human observers who lived nearby providing an intense and pleasurable visual experience for the painters, one unique to that locality. It enabled them closely to observe animals that had qualities which the artists lacked but admired—the bulk of the mammoth, bison and woolly rhinoceros, the strength of the bear, the stealth of the stalking lioness. It was an experience that fixed these images in their brains, as imprinted patterns that shaped their art. Onians places the cavemen's representations of animals alongside modern color photographs and next to similar drawings by Leonardo da Vinci, and shows that the cavemen may have had a better understanding of how to depict animals than did that universal genius. Repeated, intense visual experience has more effect on an artist than conscious thought because of the way it stimulates one's relevant neural networks.

Temples of Ancient Paestum in Greece

Moving forward in history, Onians shows that man-made environments can be as formative to artistic thinking as can nature. Rocky Ancient Greece was a land divided up and defended by stone walls. The city states of ancient Greece were always at war, wars driven by periodic over-population. The cities were defended by hoplites, infantry men clad in bronze armor and fighting in a strict closed formation, a phalanx—human walls made up of hard individuals fitting together tightly. This pattern dominated the imagination of the male Greeks, as Onians is able to illustrate from his extensive knowledge of Ancient Greek literature. In such a society the admirable man was the one who could be as a stone in a wall, and from this felt experience came the Greeks' realistic stone statues of male warriors, the soldier-like columns that stand in ranks to hold up the roofs of public buildings, and the characteristic Greek temples which are simple rectangles of columns. Greek art is a product of Greek militarism, as was the Greek practice of athletic contests that culminated in the Olympic Games. The games then, as today, were based on the arts of war as practiced in peace time. Like the dense flow of the seasonal migrating herds in prehistory, the games were an intense, repeated visual experience for their spectators and advanced the idealization of the naked male body such that sculptors strove to accurately recreate it in stone, right down to the smallest detail of its privy member.

In the nineteenth century the art critics John Ruskin and Hippolyte Adolphe Taine, whose works Onians has studied in detail, realized that landscape painters were often driven by the experience of deeply felt visual patterns early in life—by their personal history of intense looking. Remarkably, this theory allowed the critics to explain not only the painters' success but also many of their lacunae, the subjects that they were strangely unable to master. Taine claimed that painters from the featureless Low Countries or the deltas of major rivers were destined to be colorists, fascinated by the shifting light of the day or the season, like Monet. Cézanne, growing up in the vividly lit, mountainous south of France, was, by contrast, Taine argued, a master of line. The patterns were clearly there in their unconscious minds. Indeed, Monet said as much to Clémenceau

concerning his own art.

J. M. W. Turner, Keelmen Heaving in Coals by Moonlight, *1833*, *Oil on canvas*, *National Gallery of Art, Washington, D.C.*

Britain has always been a country of mist and fog, but only with J. M. W. Turner were these features given a special and central place in British painting. Turner was born in central London in 1775, an era during which houses were heated by cheap coal brought by sea from the easily accessible seams near Newcastle—a scene painted by Turner as *Keelmen Heaving in Coals by Moonlight* (1833). Geology is once again in command. The smoke from London's chimneys turned fog into smog, dark with particles of coal and tinted with hints of sulfur. The smog became the curse and fascination of Victorian London, a city nicknamed "The Smoke." Yet for Turner steam and smoke also signified the wealth and progress produced by the Industrial Revolution, and he took delight in creating *Rain, Steam and Speed, the Great Western Railway* (1844). When Monet, brought up in the misty estuary of the Seine, came to London, he was irresistibly drawn to the smoke-shrouded Thames where dirt shaped the light. Where there was muck, there was Monet. He declared that "without the fog, London wouldn't be a beautiful city. . . . It's the fog that gives it its magnificent breadth." He saw the absence of smoke in France as a mark of that country's industrial backwardness and military defeat. Back in France, he was later drawn to the smoke and steam from the ships of Le Havre and the trains of the Gare de St. Lazare, which embodied his hopes for the country.

Throughout the book Onians guides the reader with unfailing clarity through the intersections of art and science, of aesthetics and the social order, that make up the neuroarthistory of a continent. Few scholars other than John Onians would have had the deep insight, the broad erudition, and the necessary boldness of spirit to successfully complete such a task.

Christie Davies (1941–2017) was a professor at the University of Reading and the author of *Jokes and Targets* (Indiana University Press) and *The Strange Death of Moral Britain* (Transaction Publishers).