ART, CREATIVITY AND BRAIN DAMAGE IN ARTISTS

Review of *Neuropsychology of Art: Neurological, Cognitive and Evolutionary Perspectives* by Dahlia W. Zaidel. ISBN 1841693634, Hove, UK: Psychology Press, 2005, 261 pages. Price: US $ 87.50, UK £ 49.95 (Hardback).

What is art? Today's art-world holds that virtually anything can be art. Critics, writing in the *New York Times,* have stated that "If an artist says it's art, it's art." Furthermore, something is a work of art if it is "intended as art, presented as such and… judged to be art by those qualified in such matters." (Torres and Kamhi, 2000). The idea that practically anything can be considered as art encompasses not only traditional and abstract paintings, drawings, sculptures, music, but also extends to postmodernist inventions such as films, installation, performance 'art', theatre, dance and literature. Having despaired of identifying an essential attribute by which art might be defined, contemporary aestheticians have embraced undiscriminating, open-ended definitions regarding its nature. But what is art? Given the overwhelming trend away from analytical debate, Dahlia W. Zaidel, in *Neuropsychology of Art,* deserves credit from the outset, for adopting an essentialist approach to the investigation: art as the representation and transmission of thought. How we represent the world, and the ways in which these internal representations breakdown in the context of brain pathology, are issues which have preoccupied neuropsychological research for many years. In *Neuropsychology of Art,* Zaidel explores how works of art by artists with brain damage can contribute to our understanding of these internal representations, and by implication, on the wider debate of what is art.

The issue of art and brain holds fascination to scientists and laypersons alike. This interest is attributable to a number of different factors: firstly, precious few individuals in our specialized society are capable of producing art and for this reason they are greatly admired, discussed, and celebrated (note the recent musical celebrations honouring Mozart's 250th birthday, and of Beethoven's a few years earlier, or the Nobel Prize awards for Literature). Similarly, the renowned anthropologist Ellen Dissanayake (1988) has commented on the remarkable artistic talent in native peoples in non-Western societies throughout the world. Secondly, we are attracted to its aesthetics and pleasure. Finally, it appears to be a uniquely human endeavour, ubiquitous in human societies, remarkably varied, and not directly having a utilitarian purpose. Prehistoric art, for example, is often considered invaluable for insight into the cognitive and cultural status of the artist and its conspecifics (Mithen, 1996), and, for the first time in a neuroscientific treatment of art and brain, this issue is incorporated into discussions in *Neuropsychology of Art.* While we know quite a bit about the neuronal underpinning of language, memory, and many other categories of cognition, we know little about the neural substrate underlying art expression and creativity, since not much has been empirically investigated (let alone determined) in this relatively unexplored arena. From neurological and neuropsychological perspectives, the time-honoured strategy of understanding the human mind is to analyse behavioural consequences of brain damage. Understandably, the questions addressed in this book concern what happens to established artists with selective or progressive brain damage, the ways in which neuropsychological deficits following neuropathology manifest in the output of artists, and the inferences that can be made about the nature of normal artistic and language expression from neuropsychological observations. All of this is staged against a broad interdisciplinary background that includes definitions of art from fields such as anthropology, animal biology, evolution, and evidence from archaeology.

The brain-art relationship was first described in a major section of a 1974 book by Howard Gardner (1974). Established artists with brain damage, visual and musical, were described and discussed in detail. The book stimulated intellectual interest in brain-art interaction but, while contributing a great deal to the meagre knowledge about this relationship, only a few artists were included and generalizations regarding functional localization of art activity in the brain could not be easily deduced. Since then, additional case studies of artists have been reported in the neurological journal literature. In this newly published book we get for the first time assemblage of many neurological cases of visual and musical artists (some unearthed from long-forgotten published manuscripts) and insightful observations, suggestions, and conclusions, together with plenty of interdisciplinary discussion.

For a long time there has been a question in neuropsychology on the role of hemispheric specialization in art cognition. The old theory (never really generated from empirical evidence), that the right cerebral hemisphere specializes in artistic and creative thinking, is debunked in Dahlia

Zaidel's book on the basis of evidence from those established visual artists who suffered left or right hemisphere damage. She proposes that since the damage in either side did not abolish the artistic skills, talent, or creativity, art production cannot be viewed as a "one hemisphere specialization." Similarly, in the musical arts, she concludes, in agreement with others, that music's multiple facets are processed by different circuits spread between the hemispheres. In attempting to move closer to explaining the brain's role in visual art productions, the book separates eye disease from brain control, by analyzing works of well-known artists such as Monet, Van Gogh, Cassatt, or Degas who suffered from eye conditions, not brain damage. She proposes that what visual artists produce can be greatly influenced by alterations in the health status of the eyes, but, ultimately, it is the brain in artists with visual or auditory sensory deficits that controls the final product.

Unlike Semir Zeki's (1999) well-known book on brain and art, with its emphasis on vision, colour, and the visual cortex, and very little by way of brain damage in artists, Zaidel has compiled a sizeable and impressive series of rare cases of established and lesser-known visual and musical artists with focal and diffuse brain damage together with those suffering with autism. She makes use of Oliver Sacks' (1995) insights about absence of creativity in the presence of artistic skill in autistic savants to distinguish between skill and creativity. By bringing together this disparate literature into a single source, she examines the effects of perceptual and conceptual deficits on artistic representation and expression. Neurological evidence from these cases is critical, because, ultimately, the brain pathology breaks behaviour into units that help shed light on the artist's brain and cognition.

There are a number of limitations to this research which must be highlighted however. Neuropsychological and neurological reports of visual and musical artists with brain damage are rare, the original case reports are by and large observational rather than empirically-driven, and presented in the scientific literature by academics or clinicians rather than artists. Innate talent, creativity, technique, and productivity across the different reported cases is impossible to quantify, which raises the question of whether general principles can be extracted from something which is, at this point of scientific understanding, so indefinable and variable between individuals.

Despite these limitations, and the inherently tentative nature of the conclusions that can be drawn from the study of art-brain relationship, the author provides a number of important insights. Firstly, from the compilation of single cases of visual artists in chapter 2, autistic savants with special artistic skills in chapter 4, composers in chapter 5 and trained musicians in chapter 6, a distinct recurrent type of artistic composition post-damage has not emerged, either across or within different brain pathologies. This absence suggests preservation of artistic capabilities despite onslaught of neuronal damage (following stroke, or dementia, or with autism). Secondly, artists are also as susceptible to visuo-spatial deficits as are other individuals, but because of their preserved artistic skill, their work can appear visually eloquent in incorporating deficits like neglect into their visual art. This is illustrated in this book in two post-stroke drawings by Otto Dix (1891-1969) who suffered a unilateral right hemisphere stroke aged 75 years. Initially, Dix was paralyzed in the left hand and suffered hemi-neglect of the contralateral visual field. Both paralysis and neglect resolved over time. The reproduced sketches show a centering of his image in the right half of the page, and greater concentration of detail in the right half of the image. Similar observations had been made by Jung (1974) of the painter Anton von Raderscheidt, whose stages of left hemi-neglect recovery were incorporated into his self portraits, the images can be viewed here http://www.raederscheidt.com/english/default.htm (click on 'auto portrait of the late work'). Also, the highly-regarded film director, Frederico Fellini continued to create cartoons despite having left hemi-neglect (Cantagallo and Della Sala, 1998). Thirdly, regardless of laterality or lesion location, artists with acquired brain damage showed an adherence to their premorbid artistic style, although a more variable effect was noted for technique. An example described in the book is a newly implemented post-stroke technique of Bulgarian artist Z. B. where images were organized on the canvass with a striking left-right symmetry. The pre-stroke style of depicting realistic figures remained unchanged. Another example described by the author is the work of the famous abstract expressionist painter, de Kooning, who adhered to his abstract art style despite progressive Alzheimer's Disease symptoms but now implemented a technique of painting long, rounded sinuous brush strokes. Fourthly, preservation of artistic skill which include creativity and aesthetic preference remain relatively intact, modified, enhanced, or even generated in individuals who, premorbidly, had not displayed any artistic tendencies. She has identified a number of studies which have reported the initiation of visual artistic abilities in the context of progressive frontal brain pathology. She cites published work by Miller et al. (1996) describing neurological patients who developed artistic skills in the course of fronto-temporal dementia. The patients' productions as a group varied widely (paintings, photographs, and sculptures), and on the whole, their works were realistic productions with little abstraction. Miller et al. (1996) suggested that disconnection of frontal from temporal areas led to enhanced interest in the

visual world and desire to reproduce this in a tangible form. Finally, Zaidel's neuropsychological evidence suggests that whilst both artistic and language expression represent diverse communication forms with potentially infinite combinations, the two forms are not necessarily related. Artists with brain damage can display severe aphasias whilst art expression is only minimally affected. This dissociation in turn raises the possibility that during evolution of the human brain, art and language expression were not closely related. These issues are raised briefly in chapter 1 but are explored in depth in chapter 10.

Illustrations in the printed book are in grey scale but a web site by the publisher provides colour figures, some overlap with what is in the book and some are new, http://www.psypress.co.uk/zaidel. In addition, the book's chapter subheadings can be viewed here http://dahliaz.bol.ucla.edu/newbook.html It should also be mentioned that there is a detailed Subject Index with artists' names as well as a useful Glossary.

The diverse material covered, together with the clarity of the writing, makes *Neuropsychology of Art* of interest to all scientists, scholars, students, and those working with the brain-damaged. Those in the rehabilitation field and researchers in psychology or the neurosciences will find this book on art and the brain a useful and fascinating source of information on important current developments in neuropsychology in general and the neuropsychology of art in particular.

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