



SCULPTURE & TOUCH



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Essays by Francesca Bacci & Peter Dent



Sculpture and Touch?

This exhibition revolves around the crucial but deceptively simple question of whether a sculpture is an object designed to be touched. The fact that it belongs to the realm of three-dimensions implies the physical possibility of touch. But many works, especially contemporary, are designed precisely to exclude touch, as we shall see below. Bearing this issue in mind, we decided to produce an exhibition that would explore this issue through the lens of cognitive neuroscience, motivated not by the pretence to provide an exhaustive answer, but rather by the possibility to add one further criterion as a novel contribution to this critical debate, while at the same time exposing the often unacknowledged complexity of touch and its interconnectedness with the other senses. We hope, through this show, to raise the awareness that the answer to this question has repercussions on such diverse fields as, among others, museum policies and cultural heritage preservation, interpretation and critical analysis of artworks, didactic and cognitive approaches to sculpture and, ultimately, on our cultural identity.

Touch and Science

What is commonly referred to as “touch” is a complex combination of the information coming from different receptors, including pressure on the skin and proprioception (which is the feeling of where our muscles and



joints are in space). Touch is a sensorimotor activity, since it involves an interaction between toucher and touched that goes beyond the physical aspect of nerve endings transmitting a signal to our brain. 'Tactile objects are experienced as being on the body, whereas visual objects are experienced as being located at a distance. (...) Normal subjects orient attention away from the body during visual exploration and towards the body during tactile exploration. Therefore, touch may be linked more closely to personal space and vision may be linked more closely to peripersonal space. Integrating tactile and visual sensations may then help bind personal and peripersonal space.'¹

It is interesting to note that touch influences the way that the human brain constructs representations of space. In fact, there are multiple representations, which include 'personal, peripersonal, and extrapersonal space. Personal space refers to the space occupied by the body. Peripersonal space refers to space surrounding our body within the reach of our limbs. Extrapersonal space refers to space beyond the reach of our limbs.'² As aptly observed by cognitive neuroscientist Charles Spence, 'objects within peripersonal space can be grasped and manipulated; objects located beyond this space (in what is often termed 'extrapersonal space') cannot normally be reached without moving toward them, or else their movement toward us. It makes sense, then, that the brain should represent objects situated in peripersonal space differently from those in extrapersonal space.'³ Thus, it is fair to say that tactile apprehension of an object adds an episte-

mological dimension that informs and to some extent modifies the visually-acquired percept. However, the role of touch has often been subjugated to that of sight, based at least in part on scientific theory. The question of whether it is touch to educate sight or vice-versa has been long discussed in the scientific field. Synthesising the history of the scientific exploration of this issue, one could say that: 'According to the traditional view, touch was thought to educate vision. However, early empirical research came to exactly the opposite conclusion concerning the interaction between vision and touch. Perhaps the earliest data to be reported on this question was highlighted by Sir David Brewster in his book 'Natural Magic' (1832). There, Brewster describes how optically left-right reversing an indented object (an engraved watch seal) results in the concavities of the seal appearing visually as protuberances instead. According to Brewster, the seal will actually feel as if it is elevated as well when explored haptically, thus showing the dominance of vision over the conflicting tactile/haptic sensations. When, more than a century later, scientists started to collect more rigorous experimental data concerning the influence of one sense on another (using variations of the conflict situation, in which discrepant information is presented to each sense, and psychologists examine how people resolve this sensory conflict perceptually), they also observed what appeared to be a complete dominance of vision over touch as well (e.g. Gibson, 1933; Hay, Pick & Ikeda, 1965; Rock & Harris, 1967; Rock & Victor, 1964).'³

However, there have been two important changes in scientific theory which have led to a re-evaluation of the question of touch and vision. First, scientists have explored the idea that the sense of sight may learn to identify objects upon matching their visual features to sensory information from the other senses, in particular from touch experience. In 1866 the German scientist Hermann von Helmholtz had already described visual perceptions as unconscious inferences from sensory data and knowledge derived from the past.⁴ More recently, following this line of enquiry, neuroscientist Richard Gregory proposed that 'is necessary for vision because retinal images are inherently ambiguous (for example for size, shape and distance of objects), and because many properties that are vital for behaviour cannot be signalled by the eyes, such as hardness and weight, hot or cold, edible or poisonous.' Moreover, 'perceptions are hypotheses, predicting unsensed characteristics of objects, and predicting in time, to compensate neural signalling delay.'⁵ Perception, especially vision, is not a passive window on the world, but requires intelligent problem-solving based on knowledge. Instructive in this regard is the experience of Gregory with a patient, Mr. Bradford, who acquired sight via corneal grafts after a lifetime of blindness. To his surprise, the man was immediately able to read the time on a wall-clock, despite having never seen one before – but having touched the clock's hands for a lifetime. Technically, the patient showed "cross-modal transfer" from touch to vision, so he was able to solve the problem of the meaning of what he was seeing. 'Vision was generally thought to be separate from the other senses" wrote Gregory, "and is still mainly studied in isolation; yet Bradford showed that exploratory touch — as well no doubt as taste, sound and other sensory experiences — gives richness and meaning to retinal images. For optical images are but ghosts, materialized into objects by perceptual experience of the non-visual properties of things.'⁶ These modern observations seem to partially confirm a very old hypothesis, dating from the thirteenth century. What Aristotle had called *sensus communis* was the part of the psyche responsible for binding the inputs of the individual sense organs into a coherent and intelligible representation. According to the philosopher and theologian Thomas Aquinas, the fundamental basis for the *sensus communis* is to be found in the sense of touch, as he wrote in his commentary to Aristotle's *De anima* (3. lect. 3. 602): '[Touch] is the first and in a way the root and foundation of all senses. ...This power is attributed to the sense of touch not as a proper sense, but because it is the foundation of all senses and the closest to the fontal root of all senses, which is common sense.'⁷

A second major change in the scientific view of touch has come from new models of how the senses inter-

act. The idea of one sense dominating over the others has been superseded in favour of the more accurate view that our perceptual system combines the information coming from different sensory modalities in one unified percept. In everyday life, in fact, we receive correlated information from different senses about the same object. 'An extensive body of empirical research now demonstrates that visual, auditory and olfactory cues can all influence people's tactile perception of the substance properties (such as texture) of haptically explored objects and surfaces.'⁸ One popular theory, which aims to predict how touch and vision combine in determining perception, comes from Ernst and Banks:⁹ 'According to the maximum-likelihood estimation account of sensory dominance (...) the human brain weights the most accurate sensory modality (i.e. the modality in which people's estimates of a particular sensory attribute shows the least variance) more heavily than inputs from those modality estimates having more variance.'¹⁰ Given that our knowledge of the world is formed through the integration of signals coming from our different senses, it appears undeniable that the lack of tactile access to sculpture determines an impoverishment of our percept, and thus of our aesthetic experience of the artwork.

Touch and Art...and Science Again

As we have seen above, haptic information constitutes effectively a layer of meaning that should be considered as indispensable to the sculpture's expressivity as colours to a painting. Unless otherwise indicated by the artist or the placement and context for which the artwork has been conceived, it could be reasonably assumed that a sculpture's texture and surface treatment, but also temperature, hardness and weight – all of which to be ascertained haptically — are rich sources of sensory stimuli and are vehicles for information that is important for its aesthetic apperception. There are indeed concerns regarding the physical preservation of unique works of art from the past that determine the current restrictive museum policies, but the issue of tactile access to artworks is complicated by social and political factors as well, as Fiona Candlin, among others, has theorised in several papers.¹¹

The time has come to seriously consider whether to privilege the physical integrity of artworks to the cost of their expressive power, or whether to find ways to guarantee the fullness of the experience of the aesthetic encounter with the art. There are increasing numbers of institutions, such as the Victoria and Albert's Museum in London, which strive to allow the public to touch selected exhibits in order to gain a haptic experience capable of enriching the understanding of the collection.¹² It is time to ask ourselves whether what we are preserving is our cultural identity, embodied by the object's integrity, or its monetary value. While sculptures have historically always been fondled and thus created in materials, such as bronze and marble, that could withstand this physical approach, the modern use of alternative, often ephemeral, media raises many questions regarding the willingness of the sculpture to meet our hands. Many contemporary works entrust their survival to their prescribed lack of haptic contact, a virginity that takes on an anthropological connotation, and speaks volumes about the fragility, fear, mistrust and isolation that characterises our touch-deprived society. It is meaningful that numerous artists are presenting works that are designed to incorporate their physical disintegration, as a metaphor for death (such as Gonzales-Torres' *Portrait of Ross in L.A.*, made of candies, that the public is invited to eat, weighing as much as the artist's dead partner) or of the inevitable passage of time (Andy Goldsworthy's installations made of ice, wood or leaves, left to be consumed by the natural elements). The survival of these sculptural installations is guaranteed in the form of video and photographic recordings, both printed and stored in digital format.

Even those sculptures built to endure the test of time, however, come to our attention primarily through the eyes, most often in the form of photographs. One can then consider photography of sculpture as one of the

many possible ways to tell the story of the tactile relationship between sculpture and its perceiver. Since its beginnings, photography has portrayed sculptures as a favourite subject. Louis Daguerre's *The artist's atelier* (1837) and Hippolite Bayard's *Plaster casts* (ca.1839) are probably the best known examples of this early production. This choice of subject was not only motivated by the obvious reason that sculptures did not move (a necessity determined by the long exposure times) but also by the fact that the different textures combined with the whiteness of the marble played masterfully with the light, providing an astonishingly realistic representation. It is precisely this faithful rendering of tactile values that conferred a life-like quality to the image, differentiating it from its painted alternatives. In the last two centuries sculpture has been depicted through the camera according to numerous and different stylistic approaches, each indicative of a specific critical, social and cultural attitude – photographs are, after all, 'woven in to the fabric of their own time.'³ These images eloquently expose the different ways in which these artefacts have been perused.



One interesting fact is that, in photography, the image meaningfully registers the distance between the photographer's eye (hence his/her body) and the object. This provides the opportunity of reading photography of sculpture according to the distance between perceiver and perceived. This distance, far from being an accidental factor, largely determines our physical, hence intellectual, engagement with the artwork. There are photographers, such as David Finn for example, who have rejected the decorum of the arm's length view, pursuing inquisitive close-ups that are almost pornographic for their exaggerated anatomical exactitude. His shots of Renaissance masterworks offer an intimate vision of the sculptures photographed, one that presupposes emotion, possession and sexual intimacy with the object, rather than historical perspective and documentation. At this distance all of the background disappears, and with it the context, thus the sculpture loses its temporal and material dimension, almost becoming living flesh palpitating in an eternal present, readily available for the observer's consumption.¹⁴ Moreover, as detailed above, even the cognitive relationship between perceiver and sculpture

is quite different according to the space occupied by the latter in the spatial map of the former (whether the sculpture is in a person's peripersonal space or beyond it). In other words, objects that are located at a distance shorter or equivalent to arm's reach offer the characteristic of being potentially touchable, and this alone makes them different to perceive than other objects.

One extremely popular photographic device that evoked the presence of an object in peri-personal space is the stereoscope. Invented by Wheatstone in the 1830s, this device managed to create a dramatically three-dimensional effect by reproducing the effect of binocular vision. This was obtained by simultaneously viewing two photographs of the same subject taken from slightly differing angles, thus imitating the information given by the differences in the views of the two eyes. The invention worked to effectively trick our visual system because binocular disparity is one of the most important cues for discerning depth, especially in seeing near depth—while it is of little or no use in providing information about the three-dimensionality of distant buildings or mountains. Thus, stereo-photographers endeavoured to introduce foreground elements, where the effects of depth were more pronounced. The stereoscope, which was commonly used for didactic purposes and often pictured sculptures or academic nudes, testifies to the struggle towards obtaining an image that would feel real to all the senses by conveying a tactile sense of depth through the channel of sight. In the case of artworks, this tool enriched the experience of seeing the concavities and convexities of the sculpted shape, but it also created a potential conflict—like the close-up photograph—of visually tantalising the sense of touch by portraying depth in one's peri-personal space that, frustratingly, could not be actually felt.

In light of these observations, we could re-phrase our curatorial question (whether a sculpture is an object for touching or not) by asking whether sculpture provides the affordance of “touchability”, in other words whether the possibility of being touched is implicit in its sculpture-ness. The idea of “affordance” was pioneered by J.J. Gibson in his 1977 article,¹⁵ when he discussed the presence of “action possibilities” latent in the environment, directly dependent on the capabilities of the individual. For example, a hammer offers the affordance of beating a nail on the head (but not if the individual is an infant). In Gibson's view perception and action are closely linked: ‘When in use, a tool is a sort of extension of the hand, almost an attachment to it or a part of the user's own body, and thus is no longer a part of the environment of the user. [...] This capacity to attach something to the body suggests that the boundary between the animal and the environment is not fixed at the surface of the skin but can shift. More generally it suggests that the absolute duality of “objective” and “subjective” is false. When we consider the affordances of things, we escape this philosophical dichotomy.’¹⁶

It is here worth briefly mentioning that, similarly to Gibson's theory of affordances, in 1927 Martin Heidegger had talked of “readiness-to-hand” (Zuhandenheit) and had discussed transcending the subject-object split (humans as “Being-in-the-world”). If one is to admit that a sculpture placed at arm's reach offers the affordance of “touchability”, then it logically follows that the embodied knowledge that one can acquire through touch, which as we have seen is primarily a sensory-motor and proprioceptive activity, constitutes a qualitatively new experience compared to looking from a distance – one in which the dichotomy subjective-objective loses its meaning in favour of a new way of being-with-the-sculpture.

Creative and Exploratory Touch

In addition to the role of touch in the perception and appreciation of sculpture, the act of creating sculpture is, itself, deeply connected with touch. Sculptures, in fact, are most often the product of an act of touch



directed by the *Kunstwollen* through the complex process of creation. In the act of sculpting, the gesture that imposes the shaping will to the unformed matter is both performing an action and receiving bodily feedback through the sense of touch. In the reaction of the matter to the strength of the gesture there is a great amount of information. As Aristotle had already noticed in the 4th century BC, ‘...touch reaches in man the maximum of discriminative accuracy. While in respect of all the other senses we fall below many species of animals, in respect of touch we far excel all other species in exactness of discrimination. That is why man is the most intelligent of all animals.’ (De Anima. Book II, chapter 9). If this tactile and sensory-motor information is received by an experienced sculptor (that is by an individual with an extensive knowledge of past interaction with clay, plaster or stone), then it will sensibly modify and regulate every further action that the artist will undertake upon the medium. It is this accumulation of hand experiences with the material that, ultimately, influences greatly the artist’s style.

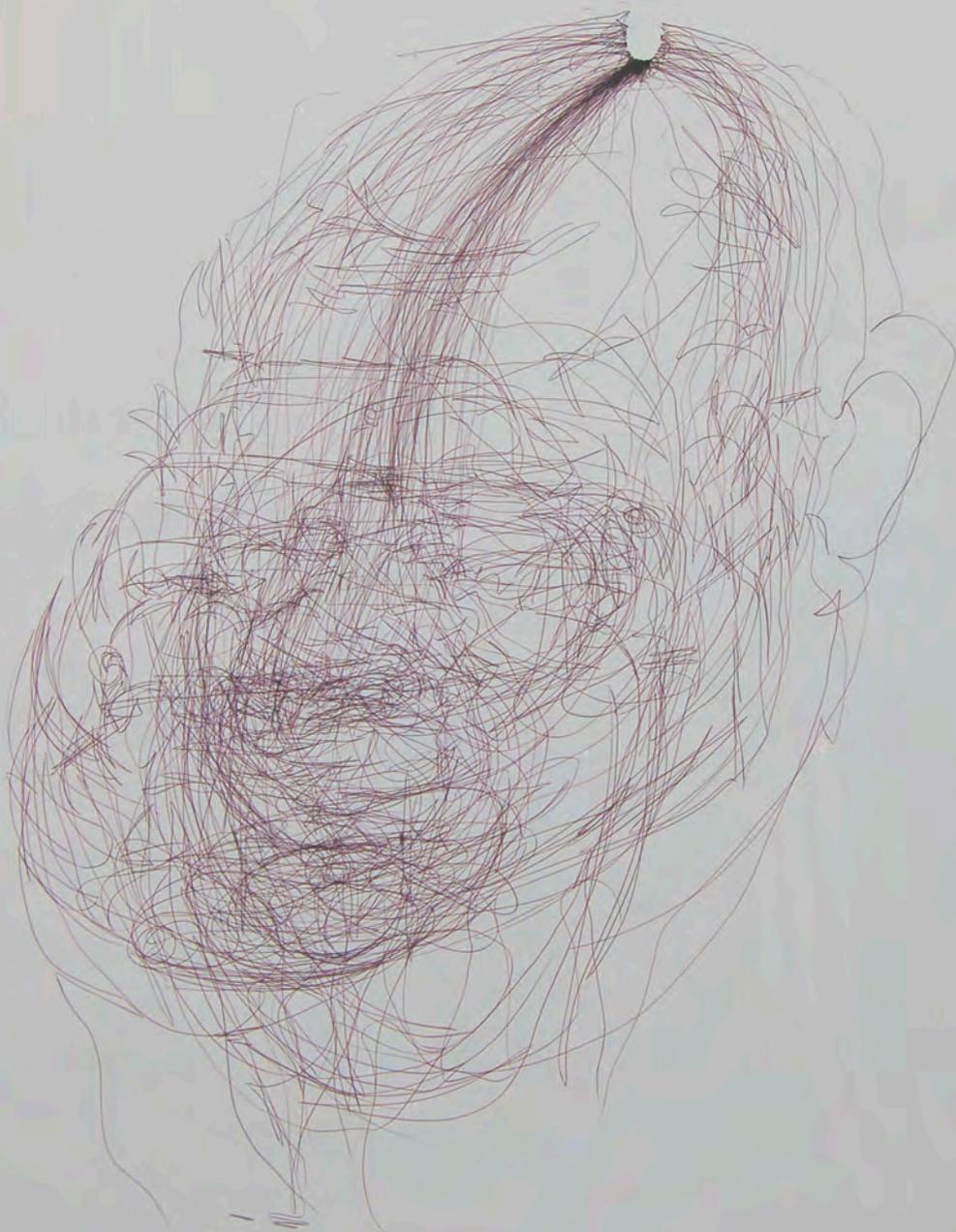
This seldom considered phenomenon appears evident to practicing sculptors who work in traditional media such as wood, clay or marble, as American sculptor Malvina Hoffman (1887 – 1966) exemplarily reported.¹⁷ One of the tenets of her teaching method was the insistence with the students on extensive hours of practice as necessary to achieve mastery over the medium, to ‘train their hands to obey their minds.’¹⁸ This was encouraged not so that the students would become able to subjugate the matter at their own will, but in order to allow the expression of one’s own style to flow freely, unobstructed by the incompetence of the hands. However such style – and here comes the most surprising point – is largely determined by the medium of sculpture itself. She wrote: ‘It would be well for students to understand why they should carve directly in stone while they are studying the first principles of sculpture. (...) The resistance of the stone controls their minds; the appearance of forms as they emerge in the stone gives the carver a new demonstration of why the stone demands a solid form. Details and personal attributes are automatically subordinated to the basic needs of the material. Training that is limited to modelling in clay, for casting into bronze, is liable to lead the student into dangerous channels. He will probably become intrigued in the details of drapery, expression of



the face, gestures of action, etc. The plastic consistency of clay is a temptation to model unessentials. (...) The discipline which stone and marble impose upon the artist, however, is unquestionably the best teacher that a student could have. Stone is a taskmaster that is unprejudiced, that presents the same obstacles to every student, old or young, archaic or modern, that commands undivided attention and tenacity of purpose, strong steady hands, and infinite patience.¹⁹

In other words, Hoffman reported the phenomenon of tactile acquisition of information during the carving of stone as responsible for the artist's stylistic choices. What expert hands have learnt to discern is 'the needs of the material' and 'the resistance of stone', it is this tactile learning that shapes the formal thinking of the sculptor. According to Hoffman, style would develop as a consequence of tactile interaction with the raw matter, and not, as more commonly held, as a visually-guided choice. Sight would eventually learn what is the final appearance of the shapes obtained by satisfying the conditions posed by the sense of touch.

In the context outlined above, the work of Rosalyn Driscoll ties into the history of sculpture while, at the same time, posing entirely new questions. Conceived specifically for tactile apprehension, these works recreate the original haptic, and somewhat intimate, relationship between perceiver and sculpture. Pushing Hoffman's thoughts to extreme consequences, the final visual appearance of Driscoll's sculptures is determined by the tactile sensation that the artist intends to communicate, and it is a direct consequence of the work's specific haptic requirements. In so doing, these sculptures question the modern limits posed to our hands by our cultural institutions for preservation purposes. They also open up the rare possibility of expanding the discerning abilities of the sense of touch through the awareness of one's haptic exploration, either informed or uninformed by the sense of sight. Some of Driscoll's sculptures are so big to require continual bodily adjustments in order to be investigated, adding an intimate dimension of proprioceptive self-perception occurring simultaneously with the stroking of the hands. The idea of training the sense of touch through practicing running one's hand on an artistic-didactic object dates back at least to Marinetti's



Manifesto of Tactilism (1921). The founder of Futurism sought to enhance the sensitivity of the skin, thought as 'still a mediocre conductor of thought',²⁰ through the haptic experience of purposefully constructed tactile boards, called 'hand-journeys.'²¹ Twelve years earlier, the influential Italian pedagogue Maria Montessori had theorised her educational method which prescribed intensive sensory training in order to facilitate a faster mastery of reading, writing and arithmetic.²² To this purpose, she often blindfolded the children performing her tactile exercises, in order to increase the perceptiveness of their sense of touch. Likewise, Rosalyn Driscoll regularly suggests that the public use a blindfold to first encounter her sculptures haptically before doing so through sight. This simple strategy highlights the gap between our impression of an unseen object gathered through touch and the form that then appears under our eyes.

Claude Heath's blindfold drawing series, two of which are present in this exhibition, work precisely on exploring this gap. Made while blindfolded, the artist had one hand engaged in touching a cast of a human head, and the other simultaneously busy tracing this touch-journey on paper. The artist could not look at the sculpture nor at the paper while working, using exclusively his sense of touch, proprioception and "body-centered" maps to draw. The resulting work is the graphic translation of an exploratory haptic strategy that is not concerned with the final aesthetic result, but rather with the development of the mental representation of the head as formed through the tactily-acquired information. To chart these stages in time, in some of the drawing from this series (not on show), Heath changed the colour of the pen that he was using in order to be able to understand, having regained his sight and viewing his work for the first time, which part of the picture he made first. This methodology of work betrays the artist's scientific intention. He empirically recorded his perceptions in order to better understand and become increasingly more sensitive to the acquisition of knowledge via haptic exploration. In this sense, these drawings are to be considered test results, maps charting the three-dimensional movements of the hand on the flat surface of the sheet. 'An object seen always has a profile, a visible edge, the line of its shape as it stands out silhouetted against the world behind it. An object felt has any number of contours running over its surface, but none of them has the special status of this profile.(...) Drawing by eye always deals with these restricted visibilities. But drawing from touch has no such limits. It has no prejudice in favour of near side over far side, or in front of over behind. It deals indiscriminately with the whole tangible surface. On paper, all contours superimpose in confusion.'²³

The observer's difficulties in deciphering throughout the unfolding of this journey, which presents some areas of opacity, are similar to those experienced by the scientist, when trying to understand how the different spatial maps interact in the human brain in order to give a unitary percept.

Not all of Michael Petry's sculptures exhibited here are meant to be handled, yet through this diversity they address several aspects of touching. The works from the *Tie a not in it* series, featuring three tightly hand-knotted balls and a length of rope to be knotted or otherwise shaped by the public, relate to Heath's drawings. They are also, in a way, a map of specific hand movements in a precise chronological sequence. When we see a knot, we are generally aware of the sequence of movements necessary to produce it. The knotted blue rope piece emerging from the wall provides the affordance of performing the operation of tying – it is a new quality that the artist imparted onto the matter, staging the process as the protagonist of the work. Its visual appearance is the signifier of this diachronic experience of touch. At the same time, even if we just imagine tying a knot in the rope while looking at it or observing someone else performing this operation, this activity alone is already liable to activate sensory-motor neuron signals in our brains via our fondling eyes.²⁴

Stoppage: Prince Albert is a new wooden sculpture from Petry's *Stoppage* series, made for the exhibition, and it represents an elegant commentary on the perceptual limits of the unimodal use of our senses. By

sight alone, we may not be able to discriminate the subtle textural change in the wood grain, as this task is best performed via tactile apprehension. It also may remind scientists of a famous experiment by Gibson, who in 1933 demonstrated one instance of sensory dominance of sight over touch. He showed that when one runs the fingers up and down a straight meter stick while simultaneously looking through lenses that make the stick appear curved, the resulting perception is of touching an actually curved stick. When closing the eyes, however, or turning one's gaze away, the edge of the rod feels straight again. Finally, the sexual connotations of Petry's work, in which the knot is symbolic of orgasm and the handling of the rope and stroking of the wooden rod suggest sensual manipulation of a lover's body, is a reminder of the importance of touch as a primary physical and psychological site of non-verbal communication – an area of investigation so rich that it was impossible to address in the limited scope of this exhibition.

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- ¹ Vaishnavi S., Calhoun J., Chatterjee A., Binding personal and peripersonal space: evidence from tactile extinction, in "Journal of Cognitive Neuroscience". 2001 Feb 15;13(2), pp.181-9.
- ² Holmes N.P. & Spence C., *The body schema and the multisensory representation(s) of peripersonal space*, in "Cognitive Processing". 2004 Jun;5(2), pp. 94-105.
- ³ Charles Spence, *The multisensory perception of touch*, to appear in press in "Art and the Senses", F. Bacci and D. Melcher, (eds.). Oxford University Press
- ⁴ Hermann von Helmholtz, *Concerning the perceptions in general*. In "Treatise on physiological optics", vol. III, 3rd edn., 1866 (translated by J. P. C. Southall 1925 Opt. Soc. Am. Section 26, reprinted New York: Dover, 1962)
- ⁶ Richard L. Gregory, *Knowledge in perception and illusion*, in "Philosophical Transactions: Biological Sciences", Vol. 352, No. 1358, "Knowledge-based Vision in Man and Machine", (29 August 1997), pp. 1121-1127
- ⁶ Richard L. Gregory, *The blind leading the sighted. An eye-opening experience of the wonders of perception*, in "Nature", 430, 836 (19 August 2004)
- ⁷ Thomas Aquinas, *In Aristotelis Librum de anima commentarium*, ed. by A. M. Pirotta. Turin: 1959, 3. lect. 3. 602
- ⁸ Charles Spence, *The multisensory perception of touch*.
- ⁹ Ernst, M. O., & Banks, M. S. Humans integrate visual and haptic information in a statistically optimal fashion, in "Nature", 415 (2002), pp. 429 - 433
- ¹⁰ Charles Spence, *The multisensory perception of touch*.
- ¹¹ On this topic see Fiona Candlin's *Touch and the Limits of the Rational Museum*, in "Senses and Society" vol. 3 (3), 2008; *Museums, modernity and the class politics of touching objects*, in Helen Chatterjee (ed.) "Touch in Museums. Policy and Practice in Object Handling". London: Berg, 2008; *The Dubious Inheritance of Touch: Art History and Museum Access* in "Journal of Visual Culture", 5 (2), 2006, pp.137-154.
- ¹² An issue that is worth briefly mentioning is that of the possibility of producing copies of original artworks for tactile apprehension. Would it feel the same as the original, to our hands, to touch a carefully crafted copy? Could we acquire a haptic knowledge that would enrich our visual experience of the original sculpture?
- ¹³ Mary Bergstein, *Lonely Aphrodites: On the Documentary Photography of Sculpture*, in "The Art Bulletin", Vol. 74, No. 3 (Sep. 1992), pp. 475-498. On photography of sculpture, see also the excellent book by Geraldine Johnson, *Sculpture and Photography: Envisioning the Third Dimension*. Cambridge University Press, 1999.
- ¹⁴ The use of zoom lenses can simulate a non-existent physical closeness between photographer and object, but the observer of the photograph will still perceive this physical closeness as if it was undoubtedly real.
- ¹⁵ J.J. Gibson, *The theory of affordances*, in "Perceiving, Acting, and Knowing", Eds. Robert Shaw and John Bransford. Hillsdale, NJ: Lawrence Erlbaum, 1977.
- ¹⁶ J.J. Gibson, *The Ecological Approach to Visual Perception*. Boston: Houghton Mifflin, 1979, p. 41.
- ¹⁷ She was a generous sculpture teacher, pupil of Rodin, and author of a useful and detailed instruction manuals for young artists, titled "Sculpture inside and out" (New York, 1939).
- ¹⁸ Malvina Hoffman, *Sculpture Inside and Out*. New York, 1939, p. 82.
- ¹⁹ Id., p. 157-158.
- ²⁰ F.T. Marinetti, *Il Tattilismo*. Milano, 1921. Translated in English in Lisa Panzera and Cinzia Blum (eds.), *La Futurista: Benedetta Cappa Marinetti*. Philadelphia: Goldie Paley Gallery - Moore College of Art and Design, 1998, pp. 54-56.
- ²¹ *Ibid.*
- ²² Maria Montessori, *Il Metodo della Pedagogia Scientifica applicato all'educazione infantile nelle Case dei Bambini*. Città di Castello, 1909 (first published in English as The Montessori Method, 1912).
- ²³ Tom Lubbock, *Don't look now*, in "The Independent" national newspaper, 8 October 2002
- ²⁴ The activation of one's sensory-motor neurons upon observing someone else perform an action is attributed to the "mirror neuron system", discovered in 1996 in Parma by Rizzolatti, Gallese, Fadiga and Fogassi. This discovery has caused a certain excitement in the context of neuroscience, as it may open new insights into the understanding of some mechanisms of empathy and social interaction.



Sculpture and Touch from Pygmalion to the Present

'He often felt the statue with his hands, to see if it was flesh, or ivory still, and then no longer admitted it was ivory.'¹ So the Latin poet Ovid describes the sculptor Pygmalion's growing infatuation with his own creation, a beautiful woman carved from snow white ivory. Pygmalion's agalmatophilia ("love for statues") is one of the richest and most well known cases in which the sense of touch plays a significant role in the appreciation of sculpture, although the motives behind Pygmalion's attentions are rather more than aesthetic. The sculptor's rising passion leads him to fantasize that the statue actually lives, that it reciprocates his advances: 'He kissed his statue and was sure it kissed him back; he spoke to it and held it in his arms. When he touched its limbs, he really believed his fingers sank into them and worried lest he bruise them.'² In the end, the sculptor's overpowering desire miraculously bears fruit: 'Pygmalion took the statue of his girl and lay down on his bed with it and began to kiss it. She seemed to grow warm: he kissed her some more and felt her breasts with his hands. As he touched them, the ivory softened; its hardness no longer resisted but yielded to his fingers the way beeswax from Hymettus turns soft in the sun and is worked by the hand and formed into many shapes, made usable from use itself.'³

Pygmalion Re-imagined

This extraordinary myth has been retold and re-imagined many times in both literature and visual art, the physical interaction represented as coy, sexual, aggressive, even violent, according the standards and interests of the times. In the decorous marble group illustrated here by the sculptor Falconet (1716-1791) tactile interaction plays no role.⁴ Pygmalion kneels in wide-eyed adoration at Galatea's feet, his hands clasped firmly together. But the myth has also proved fertile soil for other interpretations, not least by philosophers, who have found it a provocation to both epistemology and aesthetics. In 1754, the French philosopher, Condillac (Etienne Bonnot) published a *Treatise on Sensations*, in which he explored the nature of perception and cognition by refocusing the story on Galatea.⁵ He imagined the statue being brought to life, its senses being activated one by one, beginning with the sense of smell. According to Condillac, each sense offers the new being a different set of relations to the world, but it is only with the sense of touch that it becomes fully aware of its own existence. As one of Condillac's contemporaries, Johann Gottfried Herder, put it 'I feel; I am.'⁶

Indeed, just over twenty years after the *Treatise on Sensations*, Herder responded with a work of his own, *Sculpture* (1778), in which Ovid's poem and Condillac's ideas loom large.⁷ The text is subtitled 'Some Observations on Shape and Form from Pygmalion's Creative Dream.' It is among the most evocative accounts of the relationship between sculpture and touch, and one of the earliest sustained attempts to capture the distinctive qualities of sculpture as an art form. Herder sets up a series of oppositions between painting and sculpture that are grounded in their appeal to different sense modalities, arguing that touch not sight must be the primary sense for sculptural work: 'The living embodied truth of the three-dimensional space of angles, of form and volume, is not something that we can learn through *sight*... Sight destroys beautiful sculpture rather than creating it; it transforms it into planes and surfaces...It is impossible, then, that sight can be the *mother of this art*.'⁸ Out of these ideas he develops a poetic vision of the sculptural beholder: 'Consider the lover of art sunk deep in contemplation who circles restlessly around a sculpture. What would he not do to transform his sight into touch, to make his *seeing* into a form of *touching* that feels in the dark?...For this reason, he shifts from place to place, his eye becomes his hand and the ray of light his finger....'⁹



Herder's writing is wonderfully suggestive, but there is a danger of reading his text too literally: there is more at stake for its author than art criticism. At a deeper level, Herder's sculptural viewer, like Condillac's living statue, is a vehicle for exploring different ways of knowing the world, a response to a philosophical tradition in which the sense of sight had been figured as the paradigm for all knowledge. Nevertheless, the metaphor would have little purchase for the reader if it failed to speak to sensations embedded in actual experience.

Wax, ivory, flesh and bone

Although later versions and commentaries often overlook the fact that Pygmalion's sculptural medium is ivory, frequently describing or representing Galatea as a marble sculpture, Ovid's choice of material was hardly accidental. The association of ivory with flesh is ancient. In the Song of Solomon (7.4), the suitor declares to his beloved that 'thy neck is as a tower of ivory' and it is ivory that is chosen as a suitable prosthetic substitute for Pelops' lost shoulder, eaten unwittingly by Demeter at Tantalus' banquet.¹⁰ The material itself offers considerable sensory pleasures to the touch, anticipated, for one writer, in 'the feel of our own teeth to the tip of the tongue.'¹¹ But in Ovid's hands the organic origins of ivory are also brought into play, metaphorically supporting the transformation of lifeless matter into living body, as though bone really puts on flesh once more.¹²

The shift to a second material, beeswax from Hymettus, is also significant. Wax offers a set of different tactile seductions to those found in ivory. When warmed in the hand it becomes malleable. Unlike ivory, it can be shaped directly in the palm without the mediation of tools. But it too has a metaphorical purchase that the poet exploits to the full. In *On the Soul*, Aristotle employed the metaphor of wax and seal in examining the nature of sensation and, more significantly, the relationship between matter and form, and between body and soul.¹³ Ovid himself places a variation on this idea in Pythagoras's mouth in the final book of *Metamorphoses*, when he describes the wandering spirit passing from body to body as 'soft wax..molded into different figures.'¹⁴ In this context, the choice of wax signals the completion of the statue's transformation into a living being, a union of body and soul.

Indeed, although this miraculous transformation through which the ivory statue becomes flesh and blood is an act of divine intervention, a gift from Venus, there is a sense in the poem that the goddess actually works her spell through the Pygmalion's hands, that his caresses animate the cold ivory, infusing it with warmth.¹⁵ This is implied by Ovid when he speaks of wax being heated by human touch, being 'made useable by use itself.'

Pygmalion the Devotee

For all its wealth of interest, there is an important aspect of the role of touch in the myth of Pygmalion that is obscured in Ovid's work. In *Metamorphoses*, the sculptor is motivated by love, or rather desire, but in other sources for the myth, the statue that Pygmalion falls for is not his own creation, but an ivory cult image of Venus, transforming his physical attraction into a devotional act.¹⁶ It is perhaps no surprise that Ovid refashioned his material in this direction. His other works include *The Art of Love (Ars Amatoria)* and the stages of Pygmalion's rising passion roughly correspond to the traditional steps of courtship and lovemaking.¹⁷ However, once the devotional context for Pygmalion's actions is admitted, the texture of the myth changes considerably. Physical interaction with cult statues was probably widespread in antiquity. Cicero, for example, records the case of 'a brazen image of Hercules...so greatly venerated...that his mouth and his chin are a little worn away, because men in addressing their prayers and congratulations to him, are accustomed not only to worship the statue, but even to kiss it.'¹⁸ But it would be wrong to draw a clear line between the devotional and sexual touch, particularly where Venus is involved. In a text in Greek attributed to the ancient rhetorician Lucian, the author, accompanied by two friends of different sexual orientations, relates how he visited the cult statue of Aphrodite, the Greek goddess of love, in its temple at Cnidos.¹⁹ On seeing the image from the front, the heterosexual friend threw himself towards the sculpture in order to lavish it with kisses. In contrast, the author's homosexual companion was driven into rhapsodies by the sight of Aphrodite's buttocks from the rear. The episode concludes with a temple priestess explaining to the visitors that a stain that they have noticed on the marble was left by a young man who, having fallen in love with the image, contrived to spend the night with it in the sanctuary. There is clearly a heady and deliberately provocative mix of the devotional and sexual in this text, and the parallels with Pygmalion are strong enough to suggest that certain elements of the stories had a common source.

This devotional context for Pygmalion's actions serves as a useful reminder to the modern reader that physical interaction with sculpture, and indeed images of all types, is a staple of devotional activity in many, if not all, religions. It certainly did not disappear in the western tradition with the arrival of Christianity, although ideas about both the sense of touch and of interaction with statues shifted significantly. Christianity introduced its own potent stories of physical contact with the sacred, for example, in the episodes in John, chapter 20, when doubting Thomas is encouraged to touch Christ's resurrected body, but Mary Magdalene is for-

bidden from doing the same. Christianity was also deeply ambivalent towards the medium of sculpture, for the most part because of its association with paganism.²⁰ Following the trauma of iconoclasm, the Eastern Church largely rejected fully sculptural objects as vehicles for devotion. One test proposed for deciding the acceptability of a religious icon directly involved the sense of touch: if the nose of a figure could be grasped between finger and thumb it was too three-dimensional.²¹ This taboo surrounding sculptural representations inevitably encouraged less appreciative types of physical interaction. Statues were increasingly subjected to violent touching, acts of exorcism that ranged from crosses scratched on their foreheads to complete destruction.

For all this ambivalence, the tradition of living statues that touch and are touched by the beholder was deeply embedded in medieval culture. Miracle tales in the Latin West, usually relating to cult statues of Christ or the Virgin, testify to the persistence of such beliefs. One category involves images of the crucified Christ leaning forward from the cross to embrace the devotee, but a number related to the Virgin sound like Christianised versions of the myth of Pygmalion. These involve young men betrothing themselves to cult statues of the Virgin by placing a ring on her finger.²² When the youths then break their oaths and wed 'real' women, a vision of the sculpture arrives to interrupt the activities of the marriage bed. In fact, the range of activities that involved some level of handling of sculpture was extremely broad. Statues were ritually dressed, carried in procession, and kissed on the foot. In the later medieval period, wooden sculpture began to play an important role in religious drama and specially created 'action figures', often with jointed arms, shared the 'stage' with real actors.²³

One of the most poignant examples of late-medieval devotional handling appears in a fourteenth-century manuscript of the *Life of Blessed Hedwig*, a Silesian noblewoman who was canonised in 1267.²⁴ In the frontispiece, Hedwig is shown clutching a small ivory statue of the Virgin and Child to her chest. The text of the *Life* tells how she kept this piece of sculpture constantly by her side, using it to bless the sick, miraculously curing them in the process. On her death in 1243 it was buried with her in her tomb. A copy of an approximately contemporary ivory statuette of the Virgin and Child has been included in the exhibition.²⁵ This example shows little sign of the wear and tear that might result from regular touching, but the doll-like scale of such an object would make it a snug fit in the hand.

None of this medieval interaction with sculpture suggests that the need to touch was driven by aesthetic considerations. It is only really with the Renaissance that such attitudes explicitly begin to emerge once more in written sources. Perhaps the earliest example comes from the Florentine sculptor Ghiberti: 'I have also seen, in a diffused light, very perfect sculptures of wonderful craftsmanship. One such...was a statue of a hermaphrodite as big as a thirteen-year-old girl, which was a work of marvellous skill...the figure lay on the cloth in such a way that both the male and female characteristics were shown; the arms rested on the earth and the hands were crossed one over the other. One leg was stretched out and the big toe had caught the cloth, the folds of which were rendered with admirable skill. It lacked a head but nothing else was missing. *There were many subtleties in it, imperceptible to the eye alone and revealed only to the touch.* (my emphasis).'²⁶

Touching 'Art'

Ghiberti's experience moves us closer to modern ideas of art and aesthetics, but what if anything does the myth of Pygmalion have to do with the work of the three contemporary artists represented in the exhibition? On the surface, they may appear quite unrelated. Pygmalion's agalmatophilia, the devotional touching of

cult images, and Ghiberti's reaction to the ancient marble all depend to some extent on the elision of the boundary between representation and reality. Even before Venus's intervention, Pygmalion's image is so lifelike that he feels compelled to treat it as a living being. The power – and danger – of much religious statuary was directly related to its potential to act as a substitute for the holy figure depicted. Ghiberti's tactile response to the classical hermaphrodite comes after an extended description of its perfection, in which praise is directed explicitly towards its realism. These attitudes assume types of physical interaction with the sculpted image that approximate or mirror those of real life: from kisses and caresses on the one hand, to beatings on the other.

In contrast, none of the contemporary works on show appear to depend on this strategy. Even Claude Heath's drawings taken from the tactile exploration of a familiar face push this experience in a systematic fashion and thereby make it strange. But there are deeper points of contact with the myth in the work of all three artists. Michael Petry's installations, for example, seem to subvert the Pygmalion fantasy. Although they often relate to body parts or fluids, or include a strong sexual content, they fascinate and disturb the handler because of a deliberate disjunction between the materials used and the object represented. The actual experience of the first conflicts with the remembered experience of the second. There is no desire to simulate flesh in ivory or wax.²⁷

In different and intriguing ways, the pieces by both Claude Heath and Rosalyn Driscoll intersect with some of the philosophical ideas arising from Pygmalion's myth, ideas running through the work of Condillac and Herder. Heath's experience of drawing while blindfolded bears directly on the relationship between the sense modalities. While in residence at the Henry Moore Institute in Leeds, for example, he deliberately avoided any visual knowledge of the objects he was offered to draw. Nevertheless, while browsing the gallery shop, he recognised – by sight – the image of one object reproduced in a guide having previously only ever experienced it through the sense of touch.²⁸ This brought his work on that particular piece to an end, but it nicely illustrates the constant feedback and interaction between the two senses. It is worth observing in this connection that recent debate about the relationship between sight and touch with sculpture and painting has been stimulated by experimental evidence from relief drawings done by the congenitally blind.²⁹ Some of these drawings show rudimentary perspective, often regarded as a feature of visual rather than tactile experience.

Of the three artists, Rosalyn Driscoll engages with the sense of touch in the most programmatic fashion. In her own words, she makes 'sculptures that people can touch, or that evoke the sense of touch. Aesthetic touch generates different connections, awareness and insights than looking.'³⁰ This, of course, is precisely the sculptural experience that Herder set forth in his treatise on sculpture. But whereas the German philosopher extends this towards touch as a paradigm of knowing to be set against vision, Rosalyn's pieces seek to confront the beholder with this embodied experience as a reality, not a philosophical abstraction. To explore the world through touch is not simply to experience it through another sense, but to bring a different world into being. As one of the speakers argued at the symposium on Sculpture and Touch held at the Courtauld earlier this year, the significance of the myth of Pygmalion and Galatea can only be appreciated when set against the counter-myth of Narcissus and Echo.³¹ Physically rejected by Narcissus, Echo fades away until only her voice is left. Narcissus's fate, in turn, is no less tragic. He falls in love with his own reflection in a limpid pool. He kisses and grasps the image in vain, and as the realisation dawns that he can never possess himself, he cries out 'Oh! If only I could leave my body!' This wish comes true as he slowly wastes away: 'Collapsed on the grass in the shade, he gazed at the false image, never got his fill of gazing, and perished through his own eyes.'

How different from Pygmalion! Echo and Narcissus are doomed because they are unable or unwilling to consummate their desire with physical interaction. Pygmalion, in contrast, is irrepressibly tactile. He seeks to caress life into lifeless ivory with his very hands and, far from ending in tragic failure, Venus hears his prayer and he succeeds.

Peter Dent

¹M. Simpson ed., trans, *The Metamorphosis of Ovid*, (Amherst, 2001), p. 170. For a recent study of the myth and its afterlife see V. Stoichita, *The Pygmalion Effect: From Ovid to Hitchcock*, trans A. Anderson, (Chicago and London, 2008).

²Simpson, *Metamorphosis*, p. 70.

³Simpson, *Metamorphosis*, p. 71.

⁴ Etienne Maurice Falconet, *Pygmalion and Galatee*, 1763, marble, Hermitage Museum, St. Petersburg

⁵ E. Bonnot, *Traité des sensations a Madame le Comtesse de Vassé*, (London, 1754).

⁶ 'ich fühle mich! Ich bin!', from *Zum Sinn des Gefühls*, quoted by J. Gaiger in the introduction to J. G. Herder, *Sculpture: Some Observations on Shape and Form from Pygmalion's Creative Dream*, J. Gaiger ed., and trans, (Chicago and London, 2002), p. 9.

⁷ See Gaiger's introduction to Herder, *Sculpture*, pp. 13-15 for the relationship between the two works.

⁸ Herder, *Sculpture*, pp. 40-41.

⁹ Herder, *Sculpture*, p. 41.

¹⁰ Stoichita, *Pygmalion*, 18.

¹¹ N. Penny, *The Materials of Sculpture*, (New Haven and London, 1993), p. 154.

¹² Stoichita, *Pygmalion*, p. 10.

¹³ Aristotle, *On the Soul*, II.i and II.xii.

¹⁴ Simpson, *Metamorphosis*, p. 256.

¹⁵ Stoichita, *Pygmalion*, p. 18.

¹⁶ Stoichita, *Pygmalion*, pp. 7-8.

¹⁷ A. R. Sharrock, 'Womanufacture,' *The Journal of Roman Studies*, 80, (1991), pp. 36-49 and Stoichita, *Pygmalion*, pp. 14-15.

¹⁸ Peter Stewart, *Statues in Roman Society: Representation and Response*, (Oxford, 2003), p. 264. Cicero, *In Verrem*, 2.4.94. Translation from C. D. Yonge, *The Orations of Marcus Tullius Cicero*, (London, 1903), vol. 1.

¹⁹ Pseudo-Lucian, *Erotes*, 13-17. For a summary of the story and the temple setting of the lost statue, see N. Spivey, *Understanding Greek Sculpture: Ancient Meanings, Modern Readings*, (London, 1997), pp. 178-83.

²⁰ For attitudes towards sculpture under Christianity see C. Mango, 'Antique Statuary and the Byzantine Beholder,' *Dumbarton Oaks Papers*, 17, 1963, pp. 53-76 and M. Camille, *The Gothic Idol: Ideology and Image-Making in Medieval Art*, (Cambridge, 1989).

²¹ E. Bevan, *Holy Images: An Inquiry into Idolatry and Image Worship in Ancient Paganism and in Christianity*, (London, 1940), p. 148.

²² D. Freedberg, *The Power of Images: Studies in the History and Theory of Response*, (Chicago, 1989), pp. 333-34.

²³ J. Tripps, *Das handelnde Bildwerk in der Gotik: Forschungen zu den Bedeutungsschichten und der Funktion des Kirchengebäudes und seiner Ausstattung in der Hoch- und Spätgotik*, 2nd rev. ed., (Berlin, 2000).

²⁴ For this image see *Masterpieces of the J. Paul Getty Museum: Illuminated Manuscripts*, (L.A., 1997), pp. 58-59, cat. no. 23, and P. Barnett ed., *Images in Ivory: Precious Objects of the Gothic Age*, exh. cat., (Detroit, 1997), p. 13.

²⁵ For the original, see D. Gaborit-Chopin, *Musée du Louvre, Département des Objets d'art, catalogue: ivoires médiévaux Ve-XVe siècle*, (Paris, 2003), pp. 309-10, cat. no. 105.

²⁶ Ghiberti, *The Commentaries of Lorenzo Ghiberti (translated by members of the staff of the Courtauld Institute of Art)*, (London, 1950), 3.3 (p. 30).

²⁷ M. Petry, 'U TOUCH ME: The Body Transposed', *Sculpture and Touch Symposium*, Courtauld Institute of Art, May 16/17th, 2008.

²⁸ C. Heath, 'Islands of Clarity: Drawing Sculpture with a Blindfold', *Sculpture and Touch Symposium*, Courtauld Institute of Art, May 16/17th, 2008.

²⁹ J. M. Kennedy, *Drawing and the Blind: Pictures to Touch*, (New Haven and London, 1993). This work sparked a debate that can be followed in these articles: D. Lopes, 'Art Media and the Sense Modalities: Tactile Pictures,' *The Philosophical Quarterly*, vol. 47, no. 189, 1997, pp. 425-40; R. Hopkins, 'Touching Pictures,' *British Journal of Aesthetics*, 40, 2000, 149-67; D. Lopes, 'Vision, Touch, and the Value of Pictures,' *British Journal of Aesthetics*, 42, 2002, pp. 191-201; R. Hopkins, 'Painting, Sculpture, Sight, and Touch,' *British Journal of Aesthetics*, 44, 2004, pp. 149-66; and F. Zika, 'Tactile Relief: Reconsidering the Medium and Modality Specificity,' *British Journal of Aesthetics*, 45, 2005, pp. 426-37.

³⁰ See her statement at <http://www.rosalyndriscoll.com/>. She explored these aspects of her work in the *Sculpture and Touch symposium* ('Crossing Boundaries of Self, Time and Space').

³¹ M. Paraskos, 'Bringing into Being: Vivifying Sculpture Through Touch', *Sculpture and Touch Symposium*, Courtauld Institute of Art, May 16/17th, 2008.







Rosalyn Driscoll has worked as a visual artist for 30 years, as a painter, photographer, papermaker and sculptor, having begun life as a student of art history. For the last 15 years, her work has primarily focused on touch as an alternative site of aesthetic knowledge to vision. As part of her research, she produces sculptures that may be handled, gathers beholders' responses (especially those of people with visual impairments), curates exhibitions, conducts workshops for educators, and collaborates with researchers from different fields, such as curators, educators, and scientists.

She has also written a book, *Whole Body Seeing: Touch in the Visual Arts*.

Her sculpture has been exhibited in the US, Japan and Europe (Germany, United Kingdom and France), and she has received awards and fellowships from the New England Foundation for the Arts, Massachusetts Cultural Council, and the Helene Wurlitzer Foundation of New Mexico.

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Claude Heath lives and works in London. He studied philosophy at King's College London and has rapidly gained recognition for his paintings, drawings and wall-drawings through group exhibitions at The Saatchi Gallery, London (1996), Whitechapel Art Gallery, London (1996, 1997, 1998), De Appel Foundation, Amsterdam (1997), The British Museum (2001), Essor gallery (2002), London and the Kunsthalle Baden-Baden (2004).

Heath was a prizewinner in the 1997 John Moores Exhibition, was the first artist-in-residence at the prestigious Henry Moore Institute, Leeds, and in 2002-03 was named Artist Fellow at Kettle's Yard and Christ's College, Cambridge. He is widely represented in many British public collections, and has exhibited in Europe, with recent solo shows at Fruehsorge Contemporary Drawings (Berlin, Germany), Aller Art Bludenz (Bludenz, Austria) and Stichting Lokaal 01 (Breda, Netherlands).

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Michael Petry was born in El Paso, Texas (1960) and has lived in London since 1981. He studied at Rice University, Houston (BA), London Guildhall University (MA), and is finishing his PhD at Middlesex University. He is an internationally exhibited multi-media artist, and co-founder of the Museum of Installation. He lectures part time at the Royal Academy Schools and the Royal College of Art and was Guest Curator at the KunstAkademi, Oslo, and Research Fellow at the University of Wolverhampton.

Petry co-authored *Installation Art* (1994), and *Installation in the New Millennium* (2003), and authored *Abstract Eroticism* (1996) and *A Thing of Beauty is...*(1997). A monograph of his artistic practice - *The Trouble with Michael* - was published by Art Media Press (2001). Petry's book *Hidden Histories: 20th century male same sex lovers in the visual arts* (2004) is the first comprehensive survey of its kind, and accompanied the exhibition *Hidden Histories* he curated for The New Art Gallery Walsall. Petry is the Director of the Museum of Contemporary Art (MOCA) London, and the Curator of the Royal Academy Schools Gallery. His current two-volume book *Golden Rain* (2008) accompanied his installation for the *On the Edge* exhibition for Stavanger 2008, European Capital of Culture.

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Sculpture & Touch



The Courtauld Institute of Art, London
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Images:

Cover : Michael Petry, *Tie a Knot in it: The Petit Mort III*, 2006, 100m of knotted leather, detail.

Inside front cover: Rosalyn Driscoll, *Lota*, 2008, Copper, rawhide, silver.

Inside back cover: Michael Petry, *Tie a Knot in it: Post Coital Blues I*, 2008, knotted blue nylon rope.

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Page 3 Rosalyn Driscoll, *Limen*.

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Page 15 Etienne Maurice Falconet, *Pygmalion and Galatee*, 1763, marble, Hermitage Museum, St.Petersburg.

Page 20 Michael Petry, *Tie a Knot in it: The Golden Age*, 2006, knotted 22k gold wire, *Tie a Knot in it: The Emperor's New Clothes*, 2008 knotted purple Italian thread.

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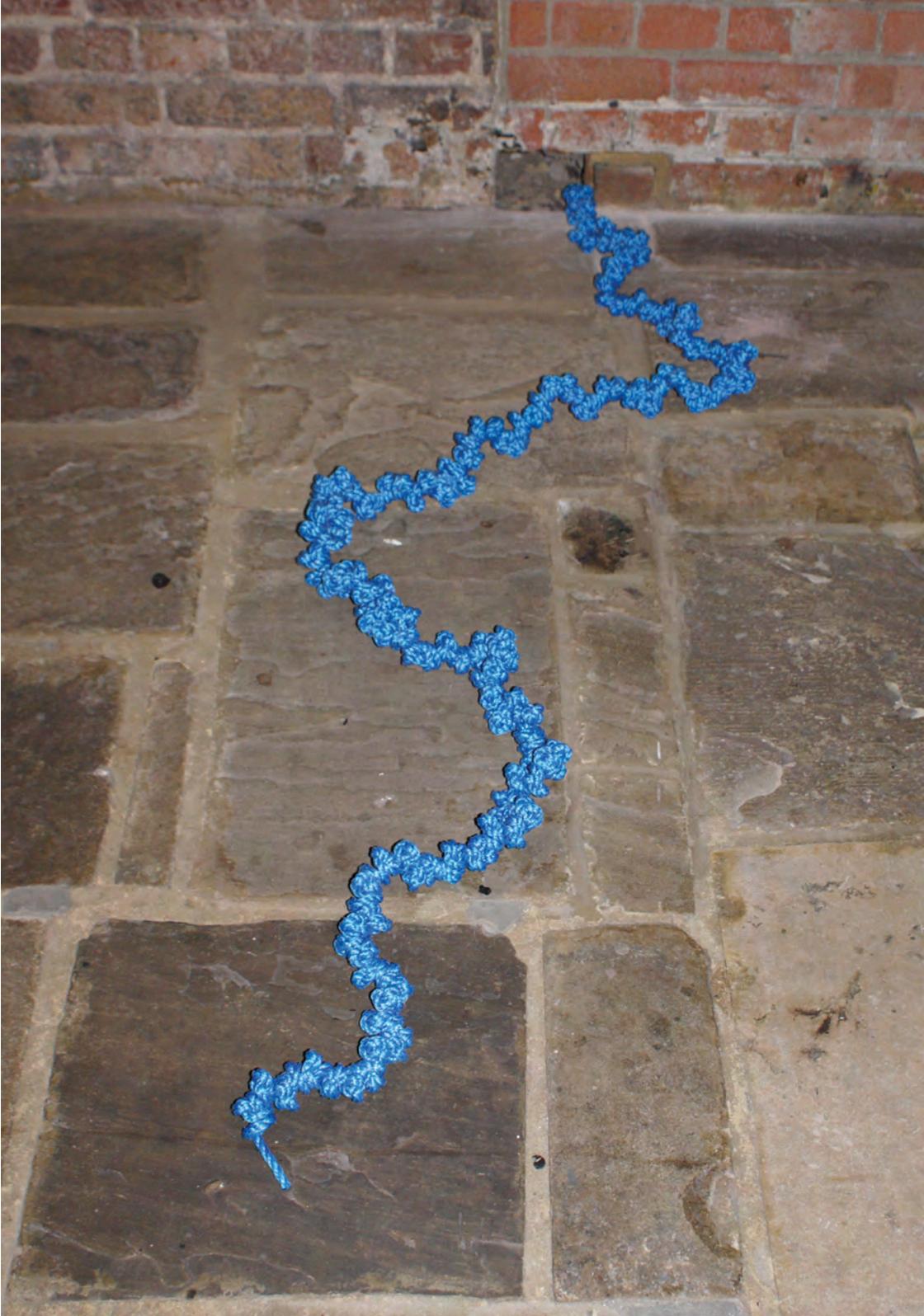
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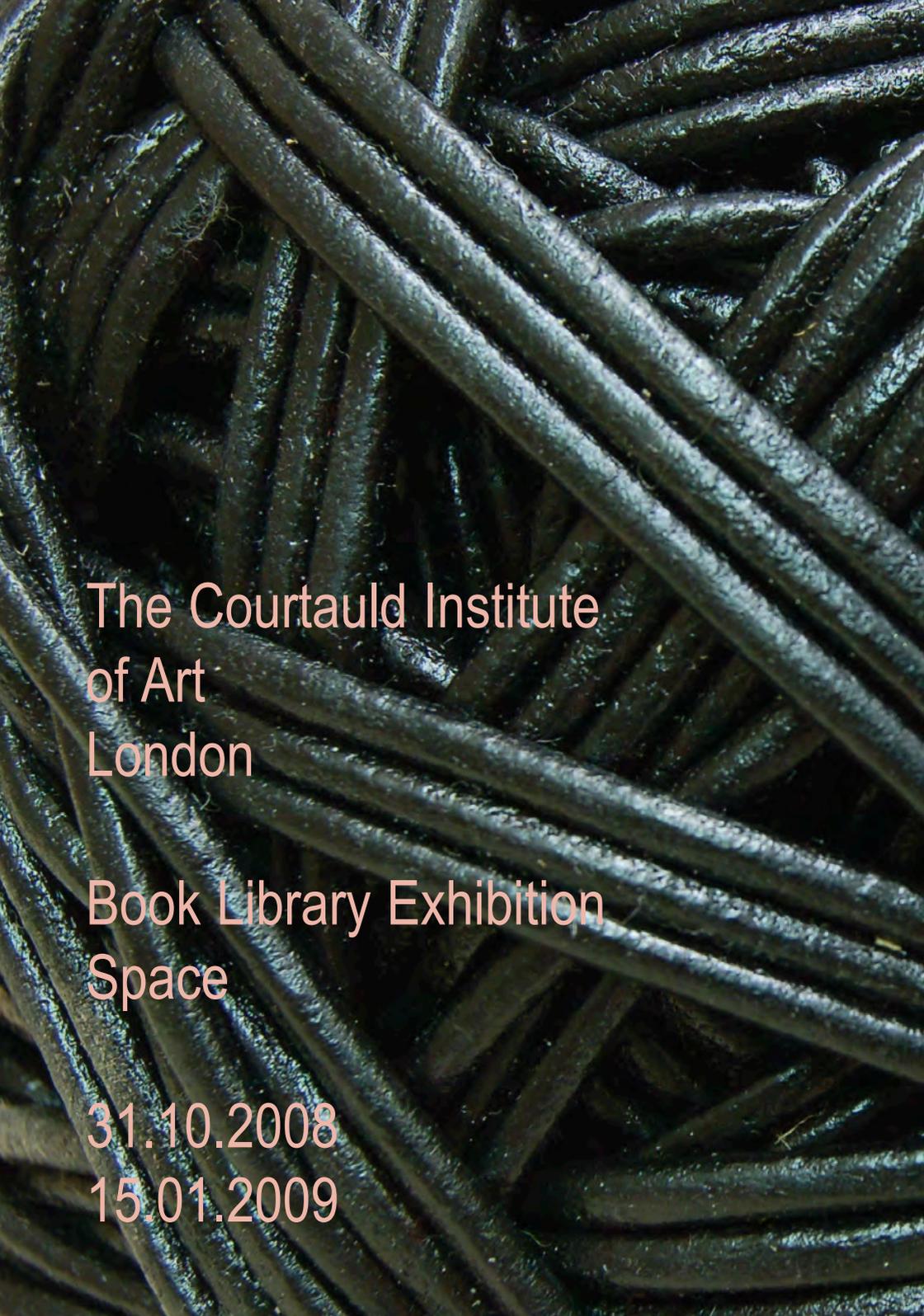
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